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Psychomotor Development of Preschool Children By Means of Musical Improvisation

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Abstract

This article is a fragment of a research project devoted to the study of the impact of the systematical musical influence on the integrated mental development of children. In this paper, we present an unique approach to the use of a criteria-oriented system for assessing the levels of psychomotor development of preschool children. Three estimated levels (from high to low) of child's psychomotor development have been singled out. The range of characteristics of each level reflects the varying formation degree of the main indicators of the child's psychomotor development and allows to establish both actual features of this development and to predict potential opportunities. The analysis of the results of the ascertaining experiment revealed some motor failures in a significant number of children aged 6-7 years. The failures manifested themselves in: difficulties of performing movements in accordance with instructions; violation of motor coordination, motor memory, inability to perform movements in accordance with spatial, temporal and dynamic characteristics, in the distortion of tempo, rhythm and amplitude of movements (32.15%). The development program "Music of My Body" presented in the article is aimed at overcoming the psychomotor underdevelopment of children and bringing them to the level of optimally realized age opportunities by means of musical improvisation plastics. As a result of the program, the following tasks are solved: developing a sense of rhythm and motor skills, the formation of correct posture and expressiveness of the movements, and facial expressions of children. The results of the program revealed positive changes in the psychomotor development of children. As a result of the program, the number of preschool children who demonstrated the first level in the development of motor skills almost doubled (from 13.82% to 38.09% at the control stage). The number of children with a low level of psychomotor development decreased (from 32.15% to 13.09% at the control stage). The dynamics of development based on the results of the control phase was statistically significant at a high level of reliability ($p < 0.001$).

Keywords: psychomotor development, emotional and physical comprehension of music, "sounding gestures", improvisation, mimic intonation of music.

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1. Introduction

Preschool age is a period of intense mental and physical development of the child, as well as a sensitive period of psychomotor development. It is in the pre-school childhood that the child's motor qualities, skills, abilities develop, and later serve as a basis for normal physical and mental development.

One of the most effective means of general and psychomotor development of children is music [1].

Studies show positive effects of music, musical influence and musical education on the cognitive [2], [3], [4], [5]; language [6]; social [7], [8]; emotional [9], [10], as well as the motor development of children [9].

The mechanisms of the interrelation between music and motion were described by I.M. Sechenov, who first deduced that all the stimuli are of a mixed nature: a stimulus adequate for the eyes, ear, skin, etc., is necessarily mixed with a muscular feeling [11]. The information aspect of music is read by the dynamic state of the body - co-intoning, pantomime. That is why movement should be a part of musical education [12].

In our study, we also rely on the provisions of the Russian psychological school on the mechanisms of the formation of higher mental functions, where any of them initially develops in external detailed activities on the connection between motor and sensory functions [14], [15], [16].

We believe that emotional and bodily sensations in the perception of music (motor-auditory, tactile, muscular) contribute to the child's active emotional responsiveness to music in the process of musical improvisation, and thus contribute to the psychomotor development of preschool children.

2. Methodology

The purpose of this research was to study the possibilities of psychomotor development of preschool children aged 6-7 in the context of the implementation of the author's program of musical improvisation "Music of My Body" on the basis of [17], [18].

To assess the psychomotor development of a preschooler in an ascertaining experiment, we used an authoritative criteria-oriented diagnostic complex based on game psychomotor probes [17], [18].

The diagnostic complex includes three estimated levels, from high to low, of the psychomotor development of children. The levels of psychomotor development that we have identified include both the rate of development and possible deviations from it. The range of levels allows us to determine the actual features of this development, as well as to predict the potential of the child's psychomotor development.

Here are the descriptions of the most characteristic levels of psychomotor development of children in our study - high and low.

A high level of psychomotor development is determined when, in the course of practical psychomotor tests, the child fulfills the proposed task in full; the execution methods correspond to the instructions; the quality of the performed actions is high. It can be observed in the nature of the child's movements - actions that are distinct, precise, proportionate, well-coordinated. The child has a certain formula of movements. Throughout the whole activity the child acts at a good pace, rhythmically. The transition from one motor mode to another is optimal. Positive emotional attitude to the activity is maintained throughout the whole class. In the course of the activity the child acts independently.

Low level characterizes the child's lag in all indicators of psychomotor development: in the course of practical actions the child does not perform the task in full, violates the methods of implementation. The quality of the actions performed is low: movements are disproportionate, clumsy, angular, uncoordinated, there are many auxiliary, trial movements. In the course of the assignment, the child lacks rhythm, which also lowers the quality and productivity of his performance. The formula of movements in the course of activity is absent. The child demonstrates an inability to quickly transition from one motor mode to another, which indicates motor awkwardness. The child demonstrates an interest in the task mainly at the beginning, facing difficulties, loses interest in it. The emotional background of the attitude to activity on his part is neutral. In the course of the activity the child depends on the help of an adult at all its stages.

The medium level of psychomotor development of the senior preschooler is intermediate between high and low, and reflects the age norm of the psychomotor development of children.

The study involved 315 senior preschoolers aged 6 to 7 years attending state preschool organizations, of which: 168 children were in the experimental group (EG), 80 of them boys and 88 girls; 147 children were in the control group (CG), of which 69 boys and 78 girls.

3. Results

The ascertaining experiment has shown that some backlog in psychomotor development is observed of the vast majority of senior preschool children. The most pronounced average level of development was found in 54.16% of children and low - in 32.15%. A high level of psychomotor development was detected only in 13.82% (Table 1).

It can be stated that a significant number of children in the development of motor skills and abilities are in the average and low levels of development, which indicates the insufficient effectiveness of traditional methods of psychomotor development of children.

The maximum achievements (in terms of the level and nature of the formation) in children were noted in terms of the development of facial skills. In our opinion, it reflects, on the one hand, the increasing mimic coordination coming with age, and on the other hand, a systematic development of facial expressions in speech development classes. The obtained data testify to the presence of certain shortcomings in the pantomime development of preschool children, which were largely due to impaired posture (lordosis, kyphosis, scoliosis), leading to specific gait, gestures, facial expressions of children.

The analysis of the obtained data allowed to reveal a certain motor failure in a significant number of children of the senior preschool age, which manifested itself: in difficulties in performing the suggested movements according the instructions; in violation of motor coordination and motor memory; inability to perform movements in accordance with spatial, temporal and dynamic characteristics; in the distortion of tempo, rhythm and amplitude of movements; in difficulty of remembering the sequence of movements.

In the process of implementing the author's program "Music of my body" the following tasks of psychomotor development were set: development of children's rhythm feeling: rhythm metric pulsation, perception of metric pattern, coordination of movements with tempo and rhythm of music; development of motor skills of children: static and dynamic coordination, motor memory, speed and accuracy of reactions to sound signals, simultaneity of movements; the formation of correct posture: the normalization of muscle tone, the training of individual muscle groups to strengthen them, the development of a sense of balance, the development of accuracy, smoothness of switching movements, overcoming motor automatism; the development of movement expressiveness and facial expressions: the formation of the ability to convey the nature

of music through non-verbal means (facial expressions, plastics), the formation of the ability to create an expressive image, the formation of the children's need for motor self-expression.

Child's personality development was also set as a goal of the program: to help children enter the world of music, to find their own forms of communication with it, to feel and experience the music in a bodily and emotional way, to form qualities that promote self-affirmation of their personality: independence and freedom of choice, individuality of perception and self-esteem in connection with their own successes.

The musical basis of the program: music of different styles and eras (mostly miniatures), ethnic music, "new age" music. the classes were held during a year once a week.

The experimental program of psychomotor development included three main stages, each of which had its own goals.

The main goal of the first stage was the development of a sense of rhythm in children.

The means of effective rhythmic learning is the use of the body as a timbre-rhythmic ensemble. Rhythmic play on the surface of one's body, called the ensemble of "sounding gestures" (the term was first introduced by G. Ketman) is effective means of quickly assimilating various rhythmic patterns. Sounding gestures - this rhythmic game with the sounds of your body, playing on its surface: clapping, slapping on the hips, stamping feet, clicking with your fingers, etc. There are variations for each of the sounding gestures.

The basis of improvisation in the sounding gestures is an free, spontaneous motility of the body. With its simplicity, it gives the child an amazing emotional-motor discharge, relieves stress and gives joy and pleasure to the child.

At the first stages we suggested that the children copy the actions of the teacher, simultaneously. They were rapidly progressing in the acquisition and expansion of the rhythmic and motor range. Gradually, the children took the role of the presenter, invented and introduced various rhythmic and motional ideas, aspired to emotional-motor self-expression.

The main goal of the II stage of the program was the development of the corporal plastic of children: an improvised training system is central to the psychomotor development of children. Spontaneous plastic improvisation awakens motor imagination of children, develops their ability to feel and find independently the connection between sound, gesture and movement, express their individual attitude to sounding music.

At the heart of improvisational creativity, according to modern studies [19], [20], is the ability to manipulate specific plastic patterns. From them, unique chains of improvised variants are created. In order to successfully carry out this activity, the child needs to master a relatively small number of plastic template elements, and to use them freely. In this case, the combination of patterns occurs spontaneously, unconsciously, based on auditory representations, musical and motor memory. As templates, popular dance techniques can be used: "wave by brush" ("floating fish"), "wave by hand" ("floating wings"), "wave by the body" ("singing string"), "wave by foot" ("tail of the dragon" ").

Thus, the training of improvisation as a guided pedagogical process proceeds in two directions: the preliminary teaching of the elements of motor expressiveness and their subsequent use in creative activities.

During the experiment, music was not previously presented to the participants, it was not analyzed with the help of words - the movements became a living perception of music. At first, children grasped the simplest characteristics of music (rhythm, tempo, general character of the movement, etc.), later their movements were refined, the perception of music was deepened, since the emotional imagination was more actively connected to it. Then the children began to express their individual feeling of musical phrases and emotions in a special gesture pattern, in pantomime movements.

Awakening the motor imaginations of children, we developed their ability to feel and find an independent connection between sound, gesture and movement. This allowed to put more complex pedagogical tasks later: the explore children's space and time and their interaction, the development of coordination and orientation in space.

Stage III of our program was aimed at expanding the mimetic repertoire of children through "mimic intonation of music".

Between the expression of the face and the mental state there are reciprocal relationships. Spontaneously occurring and artificially reproduced mimic expression affects the mood of a person. Children often find it difficult to recognize the feelings of others, their own mimic repertoire is limited.

In our studies, the development of mimetic expression of children was inextricably linked with the development of their body plastics. So isolating individual autonomous exercises for facial expression was difficult, but they were included in the program so that the child could discover a huge variety of potential influences that their face possesses. These exercises, which are based on the "mimic intonation" of music, were included in the final part of our classes, which was relaxing at the same time. At the initial stage of mastering these exercises, the teacher, in accordance with the nature

of the sounding music, used a variety of verbal sketches, helping the child to mimic the emotions awoken by music.

Gradually, the children mastered the repertoire of mimicking basic emotions (interest, joy, surprise, sadness, etc.) and learned emotional mimic improvisation to music.

In the course of the control experiment, the following results of the program "Music of My Body" were obtained and the subjects were placed according to levels of psychomotor development.

Table 1: Distribution of subjects according to levels of psychomotor development in ascertaining and control experiments.

groups	Levels of Psychomotor development	high		medium		low	
	type of the experiment	people	%	people	%	people	%
(EG)	ascertaining experiment	23	13.82	91	54.16	54	32.15
	control experiment	64	38.09	82	48.80	22	13.09
(CG)	ascertaining experiment	22	14.96	82	55.78	43	29.26
	control experiment	26	17.68	81	55.10	40	27.22

From Table 1 it follows that there is a positive, statistically significant dynamics of levels of psychomotor development in preschool children of the experimental group. The average level of development of movements is somewhat reduced (from 54.16% to 48.80%), but at the same time, the percentage of children with a low level of psychomotor development is significantly reduced (from 32.15% to 13.09%) and the number with a high the level of psychomotor development (from 13.82% to 38.09%). The level of reliability of the positive shift $p < 0.001$ ($\chi^2 = 64.78$).

It is important to note the qualitative changes in psychomotorics that were observed after the implementation of the development program. The following characteristics were improved: the indicators of static and dynamic coordination, speed, clarity, and smoothness of movements, especially of small hand motility; perception and memorization of motor patterns; mimic and pantomimic expressiveness; efficiency and synchronism of movements, motor self-control and motor self-regulation in general.

It is important that in classes with children we usually managed to create an atmosphere of joyful communication, elevated mood and harmonious self-awareness of all the participants. Children were active and liberated, their actions lacked fear and uncertainty. Free and organized movement to music became their favorite activity.

4. Conclusions

Thus, the presented program of musical improvisation plastics "Music of my body" solves a complex of tasks on the psychomotor development of children. It is an effective tool for the psychomotor development of preschool children. The effectiveness of the program was confirmed by the results of the final evaluation.

The findings indicate positive changes in the development of motor skills, facial expressions and pantomimics of children. The dynamics of development according to the results of the control phase is significant and statistically significant at the level of reliability $p < 0.001$ (by χ^2 criteria).

As a result of the implementation of the correction-development program, the data of the control tests revealed positive changes in the psychomotor development of children in the experimental group. As a result of the program, the number of preschool children demonstrating a high level in the development of motor skills almost tripled, (from 13.82% to 38.09% during the control phase). The number of children with a low level of psychomotor development decreased (from 32.15% to 13.09% at the control stage). The dynamics of development according to the results of the control phase was statistically significant at a high level of reliability ($p < 0.001$). Some of the children did not rise from a low to a higher level, although they had some progress in development. As proved by medical documentation, all these children have physical development deficiencies: excess body weight, flat feet, and posture disorders.

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