Abstract

Throughout many centuries, the musical structure has had numerous modifications. We can observe the constant use of digits for convenience of notation of the music sounds, for example: digital organ bass, lute tabulatures, guitar jazz ciphers. Nowadays the digital system of teaching is absent in educational programs and is not applied in practice because of teacher's insufficient professional knowledge in the sphere of the child's physiology.

The following scientific article "Digital Music Grammar" raises the question of the necessity of application of the digital technologies in the system of music education. The findings of our scientific investigations have permited us to understand the most delicate mechanisms of child's mental activity and to detect new creative abilities. Our goals: Directed application of the information technologies will help schoolmasters to improve the quality, speed and efficiency on music teaching of the children. The solution of these questions depends on welfare of society and desire of every man to contribute towards the future of children.

The sci.methods "Digital Music Grammar" and "Algorithm of Microcycles" are dedicated to children for development their intellectual and creative abilities.

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DIGITAL MUSIC GRAMMAR

In pedagogical practice at the first period of musical teaching the natural abilities of children were always taken into consideration, it is the main principle on which the pedagogical process is based. The child's psychoemotional status and neurophysiologic peculiarities of mechanisms of brain's activity; perception of the information from sheet; analysis of the information and realization of the neuromotor function of hands on the keyboard of an instrument are not taken into consideration in due measure. It is known that the process of teaching to play a musical instrument includes the following stages of psychic activity: the reading of the melody from sheet, analysis and synthesis of received information, its correlation with the keyboard, fingering, with movement of fingers and sounding of an instrument. In this regard, the great total load appears in the child's psychic sphere. With the purpose of transforming the music structure into clearer and easier information to be perceived by the child, new methods of musical teaching have been elaborated. It is the digital grammar based on the mode of perception of music sounds by means of digits. The digital method of teaching enables the child to be actively involved into the process of learning to play an instrument, to achieve self-realization with fewer negative emotions, and it means excluding of undesirable mental, emotional strain and, as a result of it, reducing of the possibility of appearance of negative attitude to the educational process.

Physiological Basis

The physiological substantiation of the digital system application for coding and decoding of a melody is the following : children begin their contact with digits already in preschool age, when they are taught to count and this system is learned by children quite firmly, since it is often used in their daily life. But the generally accepted music grammar is new for them and, naturally, requires some additional period of time to be acquired by children. It is for that reason that in the initial period of musical teaching, children inevitably spend a lot of time and

efforts to read a melody written down in music signs. Naturally, it slows down rate of training, causes psycho-emotional discomfort, lowers the child's interest to music. Therefore, in the initial period of teaching, besides work with the generally accepted music grammar, it will be useful to substitute it with the use of a digital system for some time. It does not mean that we want to do without standard music grammar but at the initial stages of musical education, the system of digital coding and decoding of music sounds is undoubtedly useful, as it speeds up teaching of children.

Practical Basis

With the purpose of studying the physiological influence of the digital methods upon the psycho-emotional status of the child, practical experiments have constantly been carried out. The first group of children was taught with the help of the standard music system, the second group of children was taught using the digital system. The obtained results of teaching on different methods were carefully analyzed and studied. The important practical moment has been noted : the first group of children spent a lot of time to study the necessary material and to master practical skills of playing the music instrument. Their working capacity is characterized by instability of attention, low activity of analytical thinking and fast mental fatigue. Another practical moment has been noted: the second group of children has shown high stable result as compared to the first group. Experimental research has revealed a certain dependence, in particular: children taught with the help of the digital methods easily adopted the material and the process of learning passed twice as quickly on positive psychoemotional basis with desire to master the practical skills of playing on an instrument. The experts on pedagogy and medicine have objectively arrived to the common conclusion: the fast and easy reading of the melody written down in figures allows the child to dynamically realize the potential musical opportunities and has a great practical importance in the development of intellectual and creative abilities. The quality, speed and efficiency in mastering practical skills depend on music abilities of an individual, psychoemotional status and method of teaching of a subject taking into account the neurophysiologic peculiarities of mechanisms of brain's activity.

Parallel Description

In practical work, applying the generally accepted music grammar, the child connects the definition of the melody notes to the pitch i.e., to the system of dimension, which is written down in the form of an expanded construction, both on x – horizontal and on y – vertical. In reading the music information from sheet, the direction of eyeballs' movements is spasmodic – it has a multi – stage combination both on y – vertical, from the G-key up to the F-key, and on x- horizontal often with return of eyesight to the initial point i.e., to the key point "g" or to the mainstay point "c", which the child knows very well. For integration, synthesis and the modification of complex pattern of the received information the structures of the central nervous system require an additional period of time. It is a neurophysiologic process proceeding in an interval of time between the moment of perception of the music information from sheet and the moment of the hands' response on the keyboard of an instrument. A great number of irregular nervous impulses is transferred to the central nervous system per unit of time and, as the consequence of this, fatigue of hand muscles is considerably increased(Berosov, Korovkin1990). An amplitude of muscle tension is directly dependent on the stimulation frequency, when each subsequent nervous impulse coincides with the phase of increased excitability of a muscle (Green, Stout, Taylor 1990). On the level of synaptic terminal we can see untimely synthesis of neurotransmitter, deep and stable depolarization of

postsynaptic membrane and, as a result, the convulsive reflexes are thus formed. An important neurophysiologic moment has been noted : during a short time interval the contracture, i.e., constantly high muscular tension is formed, that in turn, is harmfully reflected on the contents and character of a melody.

In practical work, applying the method of the digital key, the child connects the definition of a melody to the system of dimension, which is written down in the form of an integrated construction both on x – horizontal and on y – vertical. Reading the digital information from sheet the trajectory of eyeballs' movements on y–vertical is projected to the exact determinant (digit ,sign, symbol), the trajectory of eyeballs' movements on x – horizontal is projected in one direction, forwards. In the given system of dimension the integration of the digital information proceeds instantly, its realization on an instrument proceeds in reflexive time-ratio. The paradoxical phenomenon is revealed : the interval of time, between the moment of perception of the digital information from sheet and the moment of the hands' response on the keyboard of an instrument, is contracted to a minimum. We achieve a reduction of load on hand muscles at the expense of decreasing of an amplitude between muscle tension and the resulting movement and, as a consequence of this, the time intervals between effort and accuracy of pressing of a key are considerably shortened .On the level of synaptic terminal we can see intensity of neurotransmitter allocation directly proportionally to the frequency of generated impulses by neurons, in result of it, the coordinated reflexes are thus formed. An important neurophysiological moment has been noted: reciprocal muscular innervation is formed, i. e. the rational distribution of the manual technique on the keyboard of an instrument, that in turn, is considerably reflected on the contents and character of the melody. The principal thought is in the fact that at the expense of melody perception by means of digits its realization becomes faster and easier, that in turn, is positively reflected on the psychoemotional status of the child and enables him to dynamically realize the potential music abilities in psychosomatic action as a result (Rumiantseva, Loseva, Bunina 1986). Physiologically correctly and rationally performed actions contribute to the solid technical progress of the majority of beginners, develop their mental capacity to perceive the music sounds analytically and will speed up process of learning and mastering professional skills.

Neurophysiological Aspect

It is well – known that the difficulties in perception of any information, including musical one, cause strain of the main functional systems in the child's organism. The developed digital technology of musical training is perspective, has practical result, but it requires physiologic and psychology researches devoted to study of influence of a recommended method to psycho-emotional status and to a condition of the main functional systems of the child's organism: the central nervous system, the muscular system and others. With this purpose the experimental researches are to be performed, namely: ENG, EMG, EEG – tests on study of a degree of mental load that the child has received in perception of the information written down in the melody notes in comparison with the load that a child has received in perception of the music information written down in number signs.

The test of electronystagmography allows us to investigate eyeshot, positional nystagmus and also to determine quantity of fluctuations of eyeballs during perception of the melody written in the music marks and digital symbols. The test of electromyography allows us to investigate a threshold of muscular irritability (min – max) and an amplitude of muscle tension depending on effort and accuracy of pressing of a key on the keyboard of the instrument. The method of ENG and EMG joins the visual analyzer with neuromotor function of the hands and explains, from the scientific point of view, the ratio between the load on

muscles of eyes and muscles of hands, and also it proves the possibility of development of muscular fatigue in hands depending on quantity of eyeballs' fluctuations. The test of electroencephalogram allows us to make up the comparative diagrams of dynamics of the proceeding neurophysiologic processes, and also it offers an opportunity to investigate functional activity of neurons during synthesis both of music and digital patterns.

The realization of the described scientific researches in this direction will allow us to approach closer to understanding of more subtle mechanisms of the child's mental activity and to detect the physiological factors in promotion to the enhancement of the speediness, quality and efficiency of musical education.

Mathematical Aspect

The main positive feature of the digital grammar is that it does not deny the generally accepted music grammar, and is as an additional material in the initial period of the child's contact with music. The developed new technology includes the integration of entire music structure by means of digits, fraction : the information in numerator – right hand, information in denominator – left hand. For example the melody of the Russian popular song has the following digital expression :

Fig.1

In differential system of digital notation of music information it is necessary to mark out repetitions in a melody and integrity of these segments through variable mathematical values or symbols (x, y, z), such methods of cording simplifies the information pattern for visual perception and it allows the child faster to make analyses and synthesis of a melody as a whole, and then to decode precisely this information without special efforts with growing skill of performing mastery:

Fig.2

For natural time organization of sounding melody it is necessary to change only the tempo of the play but the code of the melody should be performed with the help of digits and relative quantity of zeroes for definition of a longitude of sounds.

The digital marking of a chord with the help of a matrix and expression through the determinant allows to create a visual – motor stereotype of perception of a chord as a composed element of music structure.

Fig.3

The matrix mode considerably simplifies the work with accompaniment, frees the child of great volume of difficult and tiresome work(Chervatiuk 1990). The clear and simple interpretation of the music information through an integral key enables the child to make up a correct mental notion about the contents and character of the music play.

Summary

Throughout many centuries the musical structure had numerous modifications. We can observe constant use of digits for convenience of notation of the music sounds, for example : digital organ bass, lute tabulatures, guitar jazz ciphers (Bril 1985). Nowadays the digital system of teaching is absent in the educational program and is not applied in practice because of teacher's insufficient professional knowledge in the sphere of the child's physiology.

The scientific work entitled " Reflection " is closely connected with related sciences ; physiology , neurophysiology , psychology , pedagogy , it requires support and realization of

the neurophysiologic researches in accordance with the elaborated Project.

On the basis of pedagogical experience we have came to the following conclusion : digital grammar has great practical consideration, is based on physiological point of view and can be applied in the music teaching with aid of computer and MIDI – technology. The developed number technology is simple and accessible in teaching children both of preschool age (5 -7 years old) and children of early school age (7 – 9 years old).

The authors' main task is to describe the peculiarities of digital technology, to reflect the neurophysiologic aspect of scientific investigations, to raise a question on the necessity of application of the digital system in stage-by-stage practice of musical education.

The scientific article " Digital Music Grammar " is intended to help teachers, students, psychologists to become acquainted with system of intensive musical teaching on the methods of number key. We shall be grateful to all readers for their valuable recommendations, reviews and offers which will be taken into consideration and applied in scientific investigations in this direction with benefit for children.

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Authors' Resume

The scientific article " Digital Music Grammar " raises the topic questions on necessity of application of the digital technologies in the system of music education .

Realization of the sci. investigations permits us to understand the most delicate mechanisms of child's mental activity and to detect new creative abilities.

Directed application of the information technologies will help for schoolmasters to improve the quality , speed and efficiency on musical teaching of the children . The solution of these questions depends on welfare of society and desire of every man to contribute towards the future of children .

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ALGORITHM OF MICROCYCLES

In pedagogical practice at the second period of music education the considerable majority of pupils inevitably spend a lot of time and efforts to master by professional skills of playing music instrument and to perfect different methods of practical activity with music information. In the process of integrating the adopted music information from sheet a pupil is confronted with great difficulties in perception of study material, its synthesis and realization on an instrument. A heavy study load is the cause of emerging negative emotions, lowers child's interest to the music subject, and as a result of that, the quality of knowledge worsens, the speed and efficiency of music teaching are restricted. It is necessary to find more effective ways and methods on teaching of children, to pay special attention not only to a certain kind of activity, but also to the nature of formation of each skill separately.

The pedagogic task at given period of teaching consists in that to give the intensive development to the natural gift of a child, rationally to realize his potential music possibilities in special psychosomatic action as a result. Speaking about the main task in this direction it is necessary to emphasize application of sequential alteration of kind of mental activity of pupils. In this connection, and with the aim to distribute the appearing sum study load in child's mental sphere on separate its components in according to their dynamic and kinetic characteristic features, the new technology of music teaching " Algorithm of Microcycles " has been developed. The way of perception of music information through the brief episodic cycles is put in the base of this technology. Given methods allows a child to enter into practical lesson actively, to limit fatigue in time, to master professional skills dynamically and, as a result, to eliminate the negative attitude to study process.

Physiological Basis

The insistent necessity of alteration of pupil's attention is dictated by peculiarities of physiology of the higher nervous activity, namely that, if with appearing of more-less long-term existing in the central nervous system of the nidus of stagnant excitation (on extra monotonous mental activity),naturally, sings of fatigue of the nerve cells-neurons are increased in the range of this nidus and work capacity of these neurons is decreased in the view of lengthening period of remembering and reproducing of any information. If at the first symptoms of fatigue and reducing of the pupils' attention, sequentially to alter their attention to other kind of work, the stagnant excitation gradually subsides, as other nervous centre of brain is excited already.

The methods "Algorithm of Microcycles" consists of five short episodic elements. The kind of activity in each algorithm is solitary and distinctive from the next one in its nature of activity, thus applying step (cyclic) alteration of pupil's attention, the capability of the nervous centers to improve their physiological lability is increased and, as a result, motion of the following excitable reactions is alleviated. The main source of enhancement of pupils' work capacity is sequential transfer of attention, the rational distribution of the sum study load on its separate components, the relaxation of the brain's strained nervous centers. Concluding from the above – said standpoint of physiology, the methods of algorithm is undoubtedly useful, it is positively reflected in psycho-emotional status and the teaching of children is accelerated.

Practical Basis

In order to study physiological influence of methods " Algorithm of Microcycles " to the pupil's psycho-emotional status the practical researches have been conducted. The obtained results have shown a high level of knowledge in the experimental group compared with control group. The performance capability of the control group of children taught on system adopted music grammar is characterized by low activity of analytical thinking, quick mental fatigue, instability of attention. The experimental group of children taught on digital system "Algorithm of Microcycles " has firmly mastered the practical skills of play an instrument, and the study process passed on the positive psycho-emotional base. Comparative data of these researches confirm practical value and effectiveness of study technology.

The recommended technology of music teaching is directed on the balanced and rational distribution of the sum study load to psycho-emotional sphere of a child, proposes the physiologic mechanism of alteration of the kind of activity in order to eliminate fatigue of the brain's nervous centers, to increase performance capability, to active the mental work. Integration of music information through the methods of algorithm foresees the program organization of educational process, permits systemic to manage by sum study effect. Applying of recommended technology in system of music education allows quickly and firmly to master by practical skills, dynamically to develop the child's natural music potentiality.

Discription in Details

A. Pupil is confronted with the task : to learn a melody by heart. This kind of activity can be realized by means of analysis method i.e. to describe mentally the melody and its fragments in his notion. In this kind of activity allow the pupil actively to enter into the process of analysis of the music structure, to pay attention to durations of sounds. Using the mode of perception of the music information mentally, the pupil acquires skill of analytical perception of music sounds, develops ability to form inner – hearing notion about content and construction of the melody as a whole. Relaxation – 5 seconds.

B. Pupil is confronted with the task : to reproduce learned melody with help of an instrument. This kind of activity can be realized by means of analogy method i.e. to compare the learned melody with its demanded sounding on an instrument

(Karpenko L.A.1990). In this kind of activity allow the pupil to pay attention to expressive performance of melody and its dynamics of sounding. Using the mode of realization of music information, pupil acquires skill of expression of a sound on an instrument, develops the ability to identify the sound. Relaxation – 10 seconds.

C. Pupil is confronted with the task: to pick up an accompaniment to learned melody. This kind of activity can be realized by means of matrix method i.e. to integrate chords through mathematical symbols. In this kind of activity allow the pupil to pay attention to the determinant of matrix, to model meter-rhythmic pattern of ready-made chords of accompaniment. Using the mode of selection of chords to a melody, the pupil acquires skill to accompany to the melody, develops ability to identify the harmony of assonances. Relaxation -15 seconds.

D. Pupil is confronted with the task: to consolidate learned material, to introduce additional technical corrections. This kind of activity can be realized by means of method of differential proof i.e. artificially to divide the complex text up to small fragments, which are perfected separately and then are integrated into a single whole. In this kind of activity allow the pupil

to pay attention to technical details of base material. Using the mode of differential proof of structural fragments, the pupil acquires technical skill of coordinated action, develops ability to feel the smallest intervals of time leading to the exact reaction and lability of thinking. Relaxation – 20 seconds.

E. Pupil is confronted with the task: to review mentally all texture of A,B,C,D, – elements. This kind of activity can be realized by means of method of ideomotor analysis i.e. sequentially to transfer attention to integrated elements of base material(KarpenkoL.A. 1990). In this kind of activity allow the pupil to pay attention to the derived fragments of base material. Using the mode of ideomotor integration of base material, the pupil creates the standard in his notion, forms the program orientation to successful performance of a motif , a melody, a composition in general.

Neurophysiological Aspect

The developed technology of intensive music teaching on methods of ”Algorithm of Microcycles “ is valuable for studying of influence of recommended technology to the child’s psycho – emotional status, and further, is a scientific base for studying of psychosomatic functions i.e. the functional interrelations between visual and acoustic analyzers, between acoustic, visual analyzers and neuro-motor function of the right hand, between visual, acoustic analyzers and neuro-motor function of both hands. In this connection the experimental scientific researches are to be performed , namely : EMG,EEG-tests, for studying of distribution of appearing functional load on the child’s psychic sphere in process of practical study on two different methods.

Dynamics of movements and actions is characterized by time, high-speed, spatially-time, power and other parameters. Given parameters reflect the complex neurophysiologic processes passing in leading functional systems of the child’s organism (central nervous system, muscular system, and others) also explain, from a scientific point of view, the interrelations of neuromuscular coordination in their kinetic and dynamic data, the appearing threshold potential of synapse fatigue, interrelations between the frequency and intensity of nervous impulses (Berezov T.T.,Korovkin B.F.1990).

Fatigue of synapse is explained by extra continuous excitation in result of which a considerable quantity of neurotransmitter is allocated, naturally, this leads to untimely synthesis and, as a result of this reaction, the progressive increasing amplitude of postsynaptic potential of action is formed .Partial delay of synaptic transmission violates the functional activity between muscle tension and the resulting action of manual techniques, therefore the child’s acoustic analyzers perceive consecutive or separated codes of deformed music information in time, rhythm and sound expression, of course, this violates the coordination of music-acoustic interrelations, leads to the defect of metro-rhythmic functions, keeps up the development of child’s natural music potentiality (Green N.P.O., Stout G.W., Taylor D.J.1990). Applying the technology of A,B,C,D,E – algorithm, the child rationally distributes the total study load on leading functional systems his organism, creates highly – accurate coordination without inclusion in practical activity of unnecessary muscle groups, unnecessary movements, excessive effort by pressing a key, and it means, he excludes possibility of appearing of false acoustic and muscular sensations, and as a result of it, instantly creates a firm neuron linkage which in our life we call as a skill of coordinated action. Realization of the described scientific investigations in this direction will allow us to approach closer to understanding of more subtle mechanisms of child’s mental activity and to detect physiological factors that promote to improvement of quality, speed and efficiency of music education.

Methods Recommendations

Distinctive feature of developed technology consists of a process of integration of music information through the brief, episodic microcycles. The methods of algorithm has great practical value and efficiency at the second period of music education, namely, in the period when digital or initial music grammar is being studied by children well and worked in practice. The main positive moment of given technology is that it can be applied both in an adopted music and in digital formats of teaching. The elaborated study module consists of five structural elements:

A – study of a melody by heart;

B – reflection on an instrument;

C – selection of accompaniment;

D – consolidation of base material;

E – ideomotor analysis (Milich B.E.1977).

The order and sequence of cycles can both be applied by a teacher separately, into practical lessons, when he is interested in the perfection of special skills of the pupil, and in their logarithmic sequence, when a common stereotype is formed.

Fig.4

The structure of A,B,C,D, E – algorithm is learned by pupil gradually, it provides an opportunity firmly to master skills of playing a music instrument and freely to use them in practice. At the following steps of music teaching the cycles of the methods are realized in the time interval striving to a minimum. Stage-by-stage music education promotes to the stabile growth of pupil's manual techniques, development of analytical thinking, forms inner-hear perception of music information.

At the given stage of music teaching a child stabilizes the metro-rhythmic functions comparing sounds of short and long durations. Therefore it is logical to exclude difficult durations as the sixteenth and the eighth. Accepting the quarter note as the basic unit of measure, it is easy to explain half and whole durations using a way of addition. Such stability of durations in simple form of division is easily perceived by children and promotes to preserving of an even rhythm. For the natural time organization of metro-rhythm and expressive sounding of a melody it is required to change only tempo of the play, but the recording of tune is to be executed by means of relative durations(Sposobin I.V.1958). While become acquainted with the difficult durations, as and when pupil's manual techniques allow him to use them, the melody written in quarters and halves should be performed in fast tempo – Allegro, Presto (! = 180-208) naturally, we obtain the complicated type of durations. The bill, as a means of organization of metro-rhythmic functions, it is necessary to use in its active form : " don –don ", " tick – tick ","tuk – tuk ", and so on. Such way allows the child to graduate precisely a longitude of one vowel sound in relation to one share of the beat.

Selection of an accompaniment to a base melody is a very difficult and complex process. At the given stage of teaching we can see immature neuro-motor functions of the left hand, the poor development of music – acoustic interrelations. Methods and ways of selection of the accompaniment are applied by the teacher according to his personal experience, and also with the account of the physiological data of pupil (music-acoustic features, his neuromotor

functions, age factor). There are several techniques and ways of selection of accompaniment : harmonic, melodic, analogy, imitation, mathematical, verbal and others. In contrast, the mathematical one is the most accurate and efficient method. Chord of accompaniment is made in accordance with the matrix law, determinant of which is the cipher value of the chord elements(Shtaingardt D.A. 1978).In order to save more time and to speed up this kind of activity, the pupil should memorize the chords not separate music notes, and in symbols, having a clear idea about metro – rhythmic pattern of ready-made chords. The digital techniques of selection of accompaniment to the base melody relieves a pupil from a great volume of labour-consuming, tiresome work and radically simplifies this activity. During the carrying on of practice homework, the pupil can independently operate with chords written in a digital format.

Successful performance of a music composition, as well as, the dynamic development of pupil's manual technique depend on a choice of optimal variant of fingerings. Rational fingering is used in accordance with the teacher's personal experience, and also taking into account the child's individual peculiarities (age factor, motor functions, the length of fingers). It is not necessary to write out the fingerings for all play in detail, the most rational is fragment marking of fingerings in technically difficult and key places of the text. In the method of microcycles, it is necessary to use the letter fingerings :" t "-thumb," i "-index, " m "- medium," r "-nameless, " l "- little finger.

Relaxation after each microcycle is the main condition for the successful mastering by practical skills of playing a music instrument. Time of pauses in longitude of 5-10-15-20 – seconds between cycles is rather a key condition. At the earliest stages of music teaching the intermediate pauses are used after each microcycle and their time-limit is possible till 2 – 3 minutes. None the less, at later stages of music teaching when the pupil has mastered the practical skills and has perfected various ways of technical activity, the intermediate interval of pauses is reduced and definitely strived to minimum, it is natural, that the time of pauses between the microcycles is shortened to seconds only. The purpose of the method of microcycles is designed thus to help children to master the practical skills of integration of the music material through brief, episodic cycles; the periodical use relaxation of the brain's strained nervous centers; and the sequential alternation of attention to the following kind of activity.

For creative and techniques of the pupil's growth, it is necessary to adhere to a certain sequence in teaching methods and the selection of the study material for the scheme " from simple to complex ". Melody is the main expressive means of the music. With the help of melody a child learns to express sounds in time and form, in content and character. The sounds of melody should be located close to each other, large intervals are difficult to children. Music examples are composed of highly dynamic and carefully selected material.Fig5(Practical Examples). Repertory material is based on a combination of various technical tasks and ways of performance of actions in their practical unity. It is desirable to include the most interesting folk songs, dances which are based on movements and speech, have a bright expressed melody and stable metro-rhythmic fundament.

Summary

"Reflection" – digital technology on music teaching of children by methods of "Algorithm of Microcycles " is joined to a number of related disciplines : physiology, neurophysiology, psychology, pedagogic, it requires the support and realization of neurophysiological investigations devoted to studying of the influence of given technology on the state of leading functional systems of the child's organism.

Statistics and practice show that the period of learning by standard music grammar is delayed for several years. Already at the early stage of learning at Children's Music School, within of two – three months, up to thirty percent of children lose their interest to music subject and leave study. This phenomenon is explained by the study overload arising at the first contact of the child to difficult format of adopted note coding and decoding of music information. The developed stage – by – stage technology of teaching on digital format eliminates the negative statistics, solves a number of pedagogical and practical problems arising in the course of music education. At the third stage of learning, while transition to the forms traditional music letter, the breakage of the formed stereotype will not cause much effort and difficulty as the child already freely owns a digital base of coordinated music-acoustic skills and habits, and besides it, the technology of algorithm is designed in such manner that solves this moment of transition, naturally, so that the psycho-emotional self – affirmation of the child will require purposeful activity in studying of standard music format.

Fig.6

On the base of pedagogical experience, we have come to the conclusion: the method of algorithm is founded upon a physiological point of view, proven in practice and can be applied with success in the developing of educational programs with use of the computer and MIDI – technology. The authors' main task is to describe the structure of technology of A,B,C,D,E – algorithm, typical model features and physiological mechanism of forming and maintenance of technical skills and habits of the child.

Scientific article "Algorithm of Microcycles "is intended for acquainting of teachers, psychologists, students and others with the system of intensive music education of children at early school age (7-9 years old). Authors of the scientific article will be grateful for valuable reviews, comments, recommendations and proposals which will be considered and applied in scientific researches in this direction with the aim of aesthetic education of children.

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Authors' Resume

The scientific article " Algorithm of Microcycles " raises the topic or question of the necessity of the use of the digital technology in the system of music education .

Application of informational technology will allow teachers to improve quality, speed and efficiency at the second period of the music education of children.

The scientific conception " Reflection " proposes to investigate the neurophysiological mechanisms of child's mental activity, to solve some number of practical and pedagogic problems, to identify the new technology direction in the system of music education. Stepanov S.M.

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7.http://reflectionmusic.ucoz.com/ . Fig.4.5(Practical Examples).Fig6.