РОЗДІЛ 2. АКТУАЛЬНІ ПИТАННЯ МИСТЕЦЬКОЇ ОСВІТИ ТА ВИХОВАННЯ

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SOUND-CREATIVE MEMORY OF THE MUSICIAN-PERFORMER

The study traces the consistent and indissoluble unity of various aspects of professional memory and sound-formation-process of a musician-performer, which is, in fact, a semantic link in a musician's technique. Based on the concept of "sound-creating will" by K. Martinsen, it is proposed to introduce the concept of "sound-creating memory" into the pianist's glossary.

By sound-creating memory, we mean the central force of performing creativity, the sensation of which is cultivated from the very beginning of communication with music and does not leave the musician along the entire path of his development. This research examines such facets of sound-creating memory as:

- *emotional memory,*
- *auditory memory,*
- *constructive-logical memory,*
- *tactile memory, known in the circle of pianists by the French word "le toucher" and motor memory, which together form the so-called technical element of sound-formation-process.*

Continuing the consideration of the structure of the sound-creative memory of a musician-performer, our special attention is paid to the technical aspect of sound producing in the frame of describing its problematic and methodology of the development. An algorithm for generating sound evenness, evenness of rhythm and evenness of tempo is

described. They form three pillars, on which the controllability of the technical aspect of the musician's sound-creating memory is built. The proposed concept solves the issue not only of developing a virtuoso beginning of performance, expressed in the usual manifestations of speed, dexterity and endurance of performance, but also addresses the category of quality of sound making when performing cantilena, which is largely expressed in the skill of a legato performing.

Introduction

It is a common belief, that "musical memory" is just an ability to learn a text by heart and play it "without notes". On the other hand the majority of performers practically equal the sound-producing-process to the making of dynamic range only. The rhetorical question, however, is whether people who consider the above categories purely in their artisan vein should be considered musicians at all. But if we are talking about that rather narrow stratum of people who really make, perform music for the sake of the music itself, the above-mentioned categories immediately begin to reveal their transcendence and such polyphonic properties that they open unimaginable horizons of knowledge for both performers and researchers.

When we talk about a musician's professional memory, we touch upon a phenomenon that permeates his entire creative life. When we talk about the very creative image of the performer, we inevitably trace his personal sound – that magical property that is both a gift from above and a systemically trained skill. However, with the generally accepted understanding that both of these principles can be developed to the greatest extent, no one for some reason connects them into a single, mutually determining one whole, which is realized in unity. At a minimum, both of these parameters should be in the initial data of talent, but at the same time, in professional literature, they are rarely considered among basic musical abilities. In fact, both of these areas, which require the highest measure of awareness – "understanding" and a heightened "feeling" of oneself, start to drift by itself. But these two colossus – memory and sound – make a musician-being.

From the first moments of acquaintance with music, the future performer begins to accumulate (at first *unconscious*) that layer of personal musical content (archive) without which the very process of mastering piano skills will be devoid of foundation: "before starting to learn playing any instrument, the learner – a child, a teenager or an

adult – must already emotionally own some kind of music; so to speak, keep it in your mind, carry it in your soul and hear with your ear. The whole secret of talent and genius lies in the fact that music already fully lives in their brain before they first touch the key or move the bow along the string; that is why, as a baby, Mozart "immediately" began to play the piano and the violin" [7, p. 11]. The position indicated by H. Neuhaus is realized through repeated listening to music and also corresponds to the "pre-performing" period of education. By its implementation, this idea already launches the very important process of forming the basics of the professional memory of a musician-performer, as far as it synthesizes auditory and emotional aspects of memory. In other words, the creation of that musical "soil" takes place, in which, as said by A. Artobolevskaya, "the teacher seeks to sow his own seeds" [1, p. 10].

At the same step – in parallel with the accumulation of the musical "background" of all further activities of the musician-performer, a conversation about sound-formation-process is about to start. To be more exact, the *preparation* for its professional realization on the instrument (at first as unconscious, as in the case of memory). Buildup (again, in memory) of some motor techniques that *precede* the process of the professional piano "le toucher" making, is realized by exercises that aim at absolute emancipation of the shoulder, elbow, forearm and hand.

Thus, according to our practical observations, the needs of the "pre-performing" period of music education determine the parity work on the primary formation of:

a) mnemonic processes of the performer, initially consisting in aspects of auditory and emotional memory;

b) the basic skills responsible for the freedom of pianism and natural sound production.

These are the milestones of the most favorable scenario for this stage in the development of a musician. As we can see, the very close proximity of the two spheres discussed here reveals itself already.

Initially, these two phenomena – memory and sound – are on a par, although they do *not* show absolute interdependence. But in the future, they begin to intertwine more and more closely.

1. Sound-creative memory of a musician-performer: a systematic approach

In fact, immediately after the primary (pre-performing) period of the musician's training, the entry into the theoretical world of music begins – the entry to the world, which will subsequently be responsible for the rational perception of the configuration of our art. At first, gently and imperceptibly, but then more and more thoroughly, the performer begins his path towards competent reading of the structure and logic of the musical language. And after a certain number of years, there comes an understanding, that the force that allows one to enter the stage with the greatest degree of reliability is called constructive-logical memory. But it is even more important to understand that this highly specific aspect of a musician's professional memory, which is responsible for rational perception and reproduction of the text, is consistently realized precisely in combination with motor and tactile memory, which, in turn, are the basis of sound-producing process.

Let's explain our idea based on the practical performing experience. When working on learning a text, the evolution from the intuitive and unconscious to the non-accidental and conscious is realized through rational comprehension, as well as logical reading of the musical score. It is no secret that the motor, or kinesthetic memory of a musician-performer, which is the strongest for most musicians, becomes a true "accomplice" of the artist only when being supported not only by the auditory and visual aspects of "professional fusion" with the musical piece (by the way, auditory, visual and motor aspects form triad of physical perception of music), but also by a clear constructive-logical analysis, which is itself a systematic "grasping" of the horizontal and vertical of the musical score. Mastering and repeated elaboration of the linear (interval) and harmonic (functional) structural grid of each individual piece acts as an element of work capable of providing such a level of professionalism in which the head, controlling the hands, minimizes white text spots and contributes to a special level of reliability of reproduction and durability of preservation of the text [11, p. 226-227].

But if the constructive-logical memory determines the reliability of the functioning of the motor, tactile memory, then the sense of the vertical and horizontal position, felt by "seeing" fingers – significantly enhances the musician's perception of the constructive element itself. The feeling of the linear and

harmoniously functional movement of musical thought, the feeling of the scores template predicted by the blocks of elements that were previously archived in memory (being characteristic of the composer's language in each individual case), reveals the most important element of the reverse movement from the kinesthetic component to the rational layers of perception and reproduction of a musical piece.

Similarly, the technical perfection of sound-producing, and more broadly, the truly virtuoso mastery of the performer often determines the depth of the semantic reading of the musical canvas.

Obviously, H. Neuhaus was right, when noted the most important and complex dialectics in the relationship between content and resources of performance, recalling that along with the overestimation of technique, there is «<…> a delusion, though much rarer among performers, which consists in underestimating the difficulty and enormity of the task full mastery of the instrument for the sake of … the music itself. <…> The clearer *the goal* (content, music, perfection of performance), the clearer it dictates *the means* to achieve it, <…> "*What*" determines "*how"*, although in the last analysis, "*how"* determines "what"» [7, p. 11]. So, if HOW determines WHAT, therefore, sound – the mastery of pianist's sound-making, the pianist's technique, fulfilling (in varying degrees) any meaningful and conceptual discoveries, stands on a pedestal in relation to the multi-layered and polyphonic emotional memory of a musician?

And really, what is the point of a perfectly read out logic of a musical work, deep understanding of the rhetorical and symbolic layers of the musical scores, if they are not supported by the *performing* expression of the musical idea, which is penetrated into the depths of the soul by fingers? What is the use of comprehensive work on the performer's emotional memory if the technical means of its implementation do not correspond to it? By our definition, the emotional memory of a musician, among other things, implies:

- penetration into the composer's auto-noetic consciousness, his semantic memory, which becomes the objectivity of the existence of music for the very "incarnator" or "executor" of the author's ideas;
- the growth of the performer-interpreter's subjective baggage of experiences, "input" consisted of the artistic and personal knowledge: "reservoir" or "archive" that acts as the basis for the artist's reproductive and productive type of activity;

- reformation of the accumulations formed by the above mentioned levels in the imagination, for their further use in the embodiment of already pianistic and artistic tasks [10, p. 159].

And if, relying on this definition, we fully implemented in the preliminary work this process of accumulation, awareness and preservation of the experience of cognition of an objective composer's as well as subjective personal perception and experience of symbols that ultimately form a meaningful component of the interpretation of a work, what should be the pianistic – sound mastery, so that the meaningful depths and the process of cognition of the composer's "hieroglyphs" inherent in ourselves do not remain "a thing in itself"?

These questions are rhetorical and hardly require a precise answer. Rather, they make one remember that theory without practice is blind, and practice without theory is stupid. It is important to understand that both the deep mastering of the constructive element of the scores, and the emotional scenario of the performance, and the performing aspects of interpretation do not just clarify, make more specific the physical actions and motor sensations of the pianist, they are also *determined by* their quality – their filigree personification on the instrument.

The consistent observation of such a close relationship – to the point of blurring the boundaries – between various aspects of the professional memory of a musician-performer and the mastery of sound-formation-process (which is, in a broad sense, a musician's technique) suggests the possibility of developing a common denominator for both of these phenomena, which can be marked with a phrase – and in fact a "combination of meaning" – **the sound-creating memory**.

It is hard not to notice here the influence of K. Martinsen, who discusses in his book "Individual piano technique" such a phenomenon as the sound-creating will.

According to K. Martinsen, the sound-creative will is what every true pianist absolutely directly feels in himself during the performing work as a central, primary force (it should be noted that, first of all, K. Martinsen is talking here about the auditory principle!). Dividing his concept into six elements, the author warns against the mistaken perception of the whole as a simple summation of its constituent parts. The researcher refers to general psychology: "in the field of the psyche, a product formed from a certain number of elements is more than a simple sum of these elements" [cit. by: 5, p. 28-29]. This provision

precedes the description of six separate directions of the will of the auditory sphere. The researcher systematically emphasizes that each of the formulated aspects of his system – "tone will", "timbral-dynamic will", "line-will", "rhythm-will", "will to form" and "shaping will" – are not individually able to create a work of art, but combined, these "components" form that whole that is greater than their sum, namely, the sound-creating will. We fully adopt this message, emphasizing that, in our deep conviction, the above-mentioned ones – auditory memory, emotional and constructive-logical memory, motor abilities of the performer, his tactile sensations, his "le toucher" in combination with personal psycho-physiological characteristics, are not working "separately", but acting in unity, also form an integral phenomenon, much larger in scale than the very sum of the aspects that formed its basis, a phenomenon that ultimately determines the musician's being in art – **sound-creating memory**.

However, the relationship between our concept and K. Martinen's ideas is not limited to general formal features.

Let us take the first element of the sound-creating will, which is called the "tone will".

"Tone will is, so to speak, an abstract relation of the will to the "kingdom" of sounds. It is not directed towards anything else but a specific sound, as its highness distinguishes it from all other sounds. This ability to imagine a sound of a certain highness, to desire the appearance of such, is not manifested in all musicians in the same way. There are actually two fundamentally different types of giftedness. Some musicians are able to determine immediately the tone of any of the sounds used in practice, they are able to imagine it and want it, – the other – and there are, perhaps, the majority of them – can do this only after having previously received some initial or "comparative" sound of a certain highness. The first category of musicians has absolute, and the second – relative hearing" [5, p. 29-30]. So, K. Martinsen considers the tone will as something given by nature. Similarly, regarding to the sound-creating memory – in that aspect of it that relates directly to sound-formation-process – even at the level of determining the musical inclinations, there are musicians (future musicians), who are naturally gifted with a wonderful *le toucher* and those who are not. And as in the case of the tone will, the presence of this ability still "does not promise" anything. It is much more important that there are performers who unconsciously perceive the sound they

reproduce as the one that is just "given", and those who are in a constant search of its best characteristics throughout their lives. True, in contrast to the formulation of K. Martinsen, in the piano performance art the number of the last ones is much less.

The second element of K. Martinsen's sound-creative will is "timbral-dynamic will". "The specific sound coloring of each instrument is something that is given to the performer mainly in advance. And yet, within this predetermined specific sound, the master's hand is able to change the color of the sound in a wide range on each instrument. Teaching to extract the optimal color from each instrument is the task of instrumental – technical and artistic education. The timbral-dynamic will is that element of sound-creating will, which is a prerequisite for solving this problem. Such musicians – have an exceptional ability of critical hearing the tiniest nuances of the sound characteristics [5, p. 31]. Obviously, this aspect correlates for us with such an important category for musical performance as timbre-dynamic hearing, which is one of the highest forms of functioning of the musical ear, as far as presupposes itself the artistic and aesthetic categories.

And this is where the piano becomes a true king. For it is the piano that is the instrument of the richest timbre-dynamic potential. The colossal resources of loudness dynamics, a huge sound range (about 90 keys), pedals that allow you to create a variety of picturesque and coloristic effects – all this gives a reason to speak, and without exaggeration, about the kaleidoscopically multicolored sonority of a modern grand piano. F. Busoni emphasized that the piano is "a great actor": it is able to imitate the voice of any musical instrument, to imitate any sonority. According to K. Cerny, it is possible to get one hundred different timbre-dynamic gradations on the piano; his "opponents" (F. Blumenfeld, A. Schnabel, V. Gieseking) objected him only in the sense that the piano is capable of not a hundred, but an "innumerable set" of timbre-dynamic nuances [quoted from: 13, p. 68]. Finally, H. Neuhaus claimed the piano to be the most "intellectual" instrument: "Precisely because the piano, as it seems to me, is the most intellectual instrument and does not have the sensual "flesh" of other instruments, therefore, in order to fully reveal all its richest possibilities, it is allowed and needed for all the sound phantasmagorias and miracles, all real diverse timbres and colors of the human's and all the instruments' voices in the world to be concretized in the *imagination* of the performer" [7, p. 63]. However, where do they come from – these

numerous sound landmarks? Where is that musical "box" from which the performer will draw a variety of colors to play them on the instrument? Obviously, in the hierarchy of the sound-creating memory, this role will be given to auditory and emotional memory – the categories which we started our research with. And indeed, returning to the methodology touched upon at the beginning of our presentation – generating of the "listened content" becomes the key to creating that "sound space" that can become an inexhaustible treasure trove of sound characteristics, colors, shades and properties capable of directing influence to the final "appearance" of the piano sound. The following feature should also be noted: auditory memory is largely responsible for the musician's inner hearing. Namely, internal sound representations are a kind of space for archiving and unarchiving the timbre-dynamic properties of sound before constructing it on the instrument.

The third element of K. Martinsen's sound-creative will is called line-will. The researcher defines this aspect as "the first of those elements that form a musical phenomenon from timbral-dynamic will and tone will". This is followed by a practical explanation: "a musical task can be internally solved in two ways. Suppose that it consists in the formation of a tetrachord, in a sequence of sounds do, re, mi, fa. In one case, the main thing for the auditory sphere will be the search for sounds by themselves, in the other case, the goal, intensively living in consciousness, will be the transition from sound to sound. In the first case, the auditory sphere of consciousness is limited by the desire to extract the sounds do, re, mi, fa in turn as some sound points; in the second case, the dominant representation will be the unification of these sound points into a melodic line. [5, p. 32] And indeed, some musicians do not in the least realize the gap between the successions of sounds that are far apart from each other, do not understand the magnitude of the necessary sweeping effort. "An interval" is just a word for them, and not the strongest element of influence in creating a "speaking" interpretation of a musical score. The true sound phenomenon is sometimes terrifyingly far from them, because the true sound phenomenon is not a series of sounds that arise in turn, point by point, but what happens between sounds, the tendency of one sound to strive to another, which is the deepest nerve of the musical miracle. But let's go step by step: in the performing arts, these are internal auditory control, emotional memory and the musician's technique who are

responsible for the qualitative overcoming of the jerky-point nature of the piano and the development of horizontal thinking. We have already carried out the idea that sound mastery is inseparable from the technique itself in the usual sense of the word: virtuosity, endurance, speed and dexterity. Consequently, the practical ability to play truly legato – so important for the categorization of line-will according to K. Martinsen, is associated with technique in a broad sense, which, in turn, acts for us precisely as a category of sound-creative memory. As for the feeling of tension in the sound sequences, which K. Martinsen also mentions, here one cannot but recall the definition of melodic hearing by B. Teplov, according to which the melodic ear consists in "the perception (and reproduction) of a melody as a *musical* melody, and not as a series of sounds going one after another" [12, p. 161]. On our own behalf, we add that this can be realized only if the musician feels and understands that every interval, besides its individual theoretical definition, has its own emotional memory. For a vocalist (a good vocalist), for example, each interval is colored by a certain degree of tension, since the distance between sounds must be "taken"; from a technical point of view, for pianists the interval seems to be a much less problematic area, however, for creating a truly rich sound image, even R. Schumann gave a covenant to pianists to learn from singers vocalization, which is made through "accomplishing" the distance between notes – "reaching out" the intervals, that are associated with a certain rhetorical coloration and are interconnected precisely with the emotional – affectation component, which, is being deposited, first unconsciously, and then consciously – in memory.

"Rhythm will" – the next element of the system – is the rhythmic pulsation of the piano. K. Martinsen refers to H. von Bülow: "in the beginning there was a rhythm", and draws historical parallels with the "conductor's source" of the harpsichord, which was deprived of the opportunity to make accents available to the piano, but had the ability for the most accurate articulation, which made the harpsichord a leader, rhythmic frontrunner for all other instruments. In sound-creating memory – in that aspect of it that concerns both the technical level of the pianist' art and kinesthetic memory – it is the motor skills that play a significant role, partially correlated with K. Martinsen's thought about the rhythm wave. Motor memory forms, on the one hand, the accuracy of spatial orientation during performance – sound creation, on the other – the pulsation of the musical line in time,

requires a separate methodology of mastering, is certainly important and is included in the configuration of sound-creating memory as a separate component.

"The will to form" and "forming will" – the last two facets of the sound-creative will of K. Martinsen relate, on the one hand, to the musical-formal side, and on the other, to the individual content of musical performance [5, p. 33]. "The will to form lives in the composer's soul while a piece is generated as a kind of common survey of the work being created, whether it is a clearly conscious survey, like in Mozart and probably also in Bach and Handel, or, rather, at first a vague, unconscious striving, like in Beethoven. This overall synopsis dominates all the details. The whole canvas needs them only insofar as the whole lives in every detail" [5, p. 34]. So, according to K. Martinsen, the will to form is the force that is manifested in the creative act of the composer. Besides, it is quite obvious that musical performance is not considered in the presence of only one will to form in the musical composition itself. The phenomenology of a convincing performance of any work always boils down to the following: the will to form in the piano piece was internally felt and fulfilled by the personal spiritual forces of the performer.

The latter already gives rise to the Martinsen' concept of "forming will". «Even a great master would have been hampered, probably, by the ideal performance of the separately taken second movement of Beethoven's so-called Moonlight Sonata. If he performs this part in an organic connection with the whole work, if the demonic beginning of its third part is already visible in his performance of the first part, then the middle part blooms almost by itself under his hands, according to F. Liszt, like "a flower between two abysses"» [5, p. 35].

So, what is such a "look from above" at the form, the skill to "rise" upside the score in order to be able to observe the musical canvas through the inside and the outside, if not a constructive-logical memory of a higher level, which we could call a constructive-logical review? We associate "ordinary" constructive-logical memory with detailed perception/reproduction of a musical text with every second analysis of its structural elements. But developing this meaning in depth, we clearly imagine that any construction cannot be thought of solely in relation to its small details. The particular must necessarily serve "the whole". Otherwise, it will only come out "harmony measured by arythmetics", but not "building up a musical form" in any way. That is

why constructive-logical memory is not only based on the knowledge and archiving of the musical language elements like melody and harmony, but also includes the stages of building musical form and drama. In other words, the constructive-logical link not only works in relation to the analysis of small relations in the textual mechanism of a musical score, but also in relation to:

a) the relationship of parts and the whole on the scale of one movement of any work;

b) on the scale of the relation of all parts of a single cycle;

But here, as well as in many other facets of sound-creating memory, we cannot overlook the presence of the factor of emotional memory. Both the will to form of the composer – an area for which it is the author's instinct that is responsible for, and the forming will of the performer, which requires his "sharp look" from being above of the musical canvas, cannot work without feeling the golden section of the musical work, which, as you know, accounts for 62% of the musical score in a whole. And the science of the golden proportion, rooted in ancient Greece, and mathematically penetrating through the centuries, history of art, architecture, painting, and at last music, turns out to be a zone of emotional intuition for musicians who are worried about their baggage of existed experience of art perception and obeys all laws of synthesizing and cultivating precisely the emotional memory of a professional level. This layer goes over the constructive embrace of the form of a piece of music and raises it to a new level, bringing the score into the context of the arts that live according to general laws. It turns out that these are the constructive-logical and emotional aspects of professional memory that are actually responsible for the true accomplishment of the last elements of K. Martinsen's sound-creative will, but in the configuration of sound-creative memory they play only their single role in an ensemble of various aspects.

Having carried out such a polyphonic analysis, which reveals a consistent, although not linear, correlation between the components of K. Martinsen's sound-creating will and sound-creating memory we, in our understanding, firstly, give confirmation that the relationship of our concepts is not limited only to formal signs, and secondly, we can, on the basis of this review, offer a working definition of sound–creative memory itself.

So, inspired by the idea of K. Martinsen, appreciating the acuteness and capacity of his formulations, we insist that the predominant role in

the creation of a musical phenomenon of any order is given to the mnemonic sphere, but not the auditory one. Therefore, by sound memory we understand the central, initial and final power of the performing creativity, the feeling of which is cultivated from the very beginning of communication with music and does not leave the musician along the entire path of his development.

We examined such aspects of sound-creating memory as:

- emotional memory:
  - in relation to the algorithm for the formation of primary skills of musical perception of information,
  - in connection with the deep processes of the formation of the musician's accomplished technique, including both a virtuoso skill and a timbre-dynamic richness,
  - in the development of horizontal thinking,
  - in matters of constructive and logical coverage of the form,
  - in the format of the implementation of the semantic scenario of the score;
- auditory memory:
  - in relation to the same algorithm for the formation of primary skills of musical perception of information,
  - through archiving the experiences of listened content and constructing new one,
  - in relation to the development of sound-formation-process techniques;
- constructive-logical memory:
  - producing the reliability of motor processes,
  - produced by tactile and motor sensations previously archived in memory,
  - in the format of a constructive and logical review of an entire musical canvas;
- tactile and motor memory, which together form the technical element of sound production.

In the next section, we will consider last category, which is the closest to the practical implementation of sound in its physical form.

2. To the question of the algorithm for the development of the technical aspect of the performer's sound-creating memory

As practice shows, not all pianists adequately feel and realize that truly filigree work on pianistic technique contributes not only to the

development of the skill of virtuoso, high-speed and dexterous playing with due endurance, but also solves the much more delicate task of mastering your own hi-qualified sound when performing cantilena. In fact, the jewel-like control of a melody, in which sudden instabilities of weight (sound "dips", "jumping out" notes) are minimized and ideally excluded, directly depends on the controllability of the extremely delicate muscles that are hidden in the fingers of the musician-performer. And this controllability, although being, to a great extent, carried out in the ears, still requires obedience of both the *motor and tactile* apparatus. We separate these aspects for a reason. They are different for us and are linked by analogy with the fact that the kinesthetic memory of a musician-performer is divided into motor and tactile – one is responsible for the memory of distances, the other, at the macro level, is responsible for connection of a finger and the keyboard. However, both aspects are trained with the material that can be attributed to the instructional block of the pianist's work. The scale of this publication does not allow us to highlight this layer in all its aspects and variations, but let us dwell on scales – which are the flagship of the pianist's "small" (or finger) technique, and chords – the most important aspect of "large" technique. J. Hoffman in his famous book "Answers to Questions about Piano Playing" expresses the idea that "a well-played scale is a truly wonderful thing, although they are rarely played well, because they are not practiced enough. Scales are one of the most difficult things in piano playing" [2, p. 85]. Further, the pianist says that he has no idea how a student who seeks to rise above the level of mediocrity can hope for success without fundamental and serious training in all kinds of scales. According to the reminiscences of the performer himself, he was "drilled tirelessly" in this regard [2, p. 85], felt gratitude for it throughout his life. "Do not despise scales, but try to make them *beautiful* [our italics]", – J. Hoffman marks. This clue defines for us the vector of practical work on learning this type of exercise. It is the task of making the scale beautiful – to devote it not only and not so much to the development of the speed and loudness of the fingers, but to the magnificence and controllability of sound – and that goes back for us to the idea of the tutoring the sound-creating memory in its technical aspect. So, together with the understanding that the scales are the basis of pianism for the repertoire from the Baroque and Classicism era to romanticism and partly stylistics of the XX century, we insist that according to the feelings of the musician –

performer, while working on the scales, work should be done on the variety of the melodious and artistic sound production. Yet, big starts with small.

One of the most important "knots" when learning and performing gamma-like sequences is placing the first finger. The keystone point linking the positional blocks of three or four following notes should ideally remain a "seamless" joint, however, it often reveals the stumbling of the performer. Nevertheless everything here starts with a competent "sculpting" – setting the first finger. L. Oborin wrote: The "lying" first finger is awkward, uncomfortable in movements and more tense than the "high" first finger. The player leans on the third finger and then slides down onto the light and high first finger" [8, p. 51-52]. Here's what we find on this issue from H. Neuhaus: "the first finger in advance (vorschlag) is lightly put in place (key), which it should be taken in the very near future, that is, to be ready in time" [7, p. 96]. A. Corto uses a very good formula. The pianist proposes to collect in keys in a sort of claster-sound, that block of the position where sounds are played with two (2nd and 3rd fingers) or three (2nd and 3rd and 4th) fingers in a row and play these peculiar groups alternately with the "problematic" the first finger [4, p. 26]. The above exercise by A. Corto became the basis for Professor G. Popova's development of techniques for rising the smoothness of the 1st finger slipping: "the first finger is taken deeply and thoroughly. Further, using the rhythmic figure of a triplet (with a variable accent), notes from the left and right are played: the third or fourth finger – going before the first, and the second finger – coming after the first finger. Then the sounds "situated by sides" go to two seconds and so on, like that we reach the full position of the consecutive notes, as in the case of A. Corto's exercises.

Absolutely on the same principle, as shown in this example, the fourth – first finger re-throw is worked out. This principle naturally applies to the left hand as well" [9, p. 245].

In our work, we rely on the key points made above and develop in its entirety the idea of using a variable accent. **By a variable accent, we mean such a form of exercise when a certain musical figuration, a certain sound sequence with a scale of two notes or more is played as if "in a circle" – from beginning to end and back, using accents of 3 or 4 sounds. This structure of accenting allows, through alternate attacks, to work out the muscle impulse of each finger engaged in the corresponding position.**

Let's start with the fact that working with triplets with a variable accent to develop smooth insertion is not a unique practice, it has been used from generation to generation as a common way of "cleaning" the connections of the 3rd – 1st / 4th – 1st fingers. However, to use this formula only to work out the insertion of the first finger means to impoverish the process of working out other fingering combinations. So, a variable accent – when three notes are played with an accent on a circular principle, we will be using, for example, through learning the simplest C major (accented notes are printed in large print): DO-re-mi-RE-do-re-MI-re-do-RE-mi-re-DO etc. Let us emphasize that this algorithm provides, by means of alternate impulse, the training of muscle strength for each individual note and in conjunction with neighboring notes, which ensures further evenness and strengthening of the piano apparatus. For continuing of the filigree improvement of the entire scale, we would advise performers to work out combinations of three sounds from each tone of the scale. From the note "re": RE-mi-fa-MI-re-mi-FA-mi-re-MI-fa-mi-RE etc. In accordance with the basic fingering in C major, re-throwing of the 1st finger also happens here: after the 2nd finger on "D" and the third on "E" – goes 1st on "F". What is very important: the re-throwing of the 1st finger in that case is worked out not only when the 1st finger is "in the center" – between the other two fingers of the formula 3rd-1st-2nd / 4th-1st-2nd fingers, but in combination with two consecutive to it – 2nd-3rd and 1st or 3rd-4th and 1st fingers. However, we repeat, the most diverse development of a coherent and seamless re-throwing of the finger does not go on by itself, but in combination with a similar and no less important elaboration of all other possible three-note combinations. So, it will be equally important to pay attention to the bunch of the 2nd-3rd-4th fingers, which, for example, in the C major shown as an example, falls on the notes of sol-la-si: SOL-la-si-LA-sol-la-SI-la-sol-LA-si-la-SOL, etc.

Based on our long-standing experience in performing, we insist that just as important is the separate and detailed development of the smallest musical unit – intonation, consisting of at least two sounds, so is the technical development of the smallest fingering ligaments and sound articulations. The latter idea seems quite simple, but in fact it requires a lot of perseverance and a certain perfectionism in work, which is not given to everyone. So, we have worked out the three-sounding combinations from each tone of the scale. But the work of

varying emphasis does not end there. Now we advise, using the principle already described, to go through the entire scale from each note with a variable accent within the framework of quintoles.

Again, let's take C major as an example. To begin with, we take five consecutive notes, and pay special attention to the "outside" notes in the quintole: Do-re-mi-fa-SOL-fa-mi-re-DO-re-mi-fa-SOL-fa-mi-re-DO. This ligament is worth "rolling" back and forth five or more times. Then we go "inside": do-RE-mi-fa-sol-FA-mi-re-do-RE-mi-fa-sol-FA-mi-re-do-re etc. It is very important to pay attention to the following: working on this "middle" of the quintole with a variable accent of 4 notes, we train the attack of the conditional note "D" from below – as this sound comes after the note "C", and we emphasize the conditional note "F" only when it comes after the sound "SOL" from above. This means that for the full development of these two sounds, they should be played with a variable accent and in such a combination when the note "D" will be accentuated after the note "E" coming from the top (which didn't happen in the first version), and the note "F" – after the note "mi" coming from the bottom, which was also absent in the example described above: do-re-mi-FA-sol-fa-mi-RE-do-re-mi-FA-sol-fa-mi-RE and etc. Now the very center remains. In the case of the described position, this is the sound "mi". Everything is simple here: do-re-MI-fa-sol-fa-MI-re-do-re-MI-fa-sol-fa-MI-re-do-re-mi… When such type of work is done and all five fingers from the selected fingering formula are strengthened, we proceed to a similar algorithm of actions from each note of the scale. By developing "fives" in this way, we train finger strength and *evenness of attack*. It is imperative to ensure that the accented notes, when played with variable accent, are equal in weight. In no case the auditory attention centers should be turned off. The same request applies to "unstressed" notes in each individual formula. A special result is achieved in the case of a simultaneous polishing of the technique of a legato-performing, which should be going alongside with this method.

We would like to pay attention once more on the point, that the work on sound-sculpting through cleaning of pianism in such a way – within the framework of the aforementioned positional/finger fives goes hand by hand with auditory concentration and tone control. Further, as well as these small formulas, all the blocks of passages from any work that require special attention, are strongly recommend to be learned according to the "method" of prof. E. Vaulin, which is reflected

in the pedagogical approach of prof. G. Popova. In her work with students, G. Popova paid tremendous attention to five methods of sound production:

1. Molto legato
2. Non troppo legato
3. Finger staccato
4. Leggiero
5. Jeau perle [9, p. 241–242].

These components are explained: the first technique – "molto legato" is a kind of connecting between consecutive sounds, when each separately taken note is not removed at the moment of playing the next one, but is overexposed to exactly half of its sound. At the same time, sounds should be taken with a pre-prepared, tenacious touch, with support to the bottom of the key (it is absolutely necessary to avoid "slapping" with your fingers). Hearing should be chained to a beautiful, extended sound [in her article G. Popova relies on an example on the exercises of Sh. Ganon. However, we extrapolate exactly this method of performance to scales and all passages of small technique without exception].

It is worth highlighting once again that in general, all technical work should take place with the active participation of hearing. The attitude to the sound determines all the settings for the formation of the student's skills. The urge to sing cultivates the techniques of "singing" the intervals. For many pianists – masters, "taking" the interval is preceded by the "opening" of the finger, due to which the sound is taken with a subtle delay in time, emphasizing the tension and volume of the interval. The principle of reaching of the interval "from the palm", as if by an embracing movement, is musically justified. At the same time, the aforementioned "layering" of notes is realized exclusively by alternating one and two notes with the same time, with a clear removal of the finger at the eighth pauses, which requires special attention. Practice shows that only a few musicians can control the true legato, while this particular technique is the key, "basic" element in the declarative set of performing skills. To bring the pianist closer to the art of truly coherent playing, which, as we noted above, also inseparably affects the further development of the technique of "singing on the piano", this way of studying is precisely advised.

The second technique – "non troppo legato" differs from the previous one by the absence of layering of sounds. On the contrary,

active fingers, as if with small gaps between them, clearly remove each note at the moment of taking the next one. However, you should avoid harshness, roughness of sound, but, as before, feel the support of your fingers on the bottom of the key.

The third technique, "staccato", uses only the fingers, deliberately avoiding the movement of the hand and the weight of the whist. The so called finger staccato is realized with a lashing blow of only the phalanx of the finger and develops their independence. This method is a "central bridge" to the next two exercises and prepares the fingers for high-quality leggiero and jeau perle. The fact is that even playing the dynamic piano shade requires an extremely active muscular impulse. This foundation is laid at the moment of correct and verified work with this technique.

The fourth technique – "leggiero" removes all finger activity implied in the previous three methods. The tenderness of the sound, the feeling of "resting" fingers, as if playing in the air should be cultivating. The goal here is to achieve an aligned pianissimo where evenness is required in both sound and rhythm.

The fifth technique – "jeau perle" (French) translates as "beautiful pearl", or, in our case, "pearl play" – is embodied without taking your fingers off the keys. First, the tip touches the key, then presses it to the support, when a sound appears, at the moment of the subsequent release of the key, the finger does not rise above it. Consistent key feel at the fingertips is realized by positioning, but without overlapping sounds. Soft sound must be achieved – warm and round like pearls. The position is presented as a pearl necklace with strung sounds – beads.

We believe it is domineering to emphasize that it is exactly the "permanent feeling of the keys at the fingertips" that corresponds to the tactile level of the musician's sound memory and also correlates with the fundamentals of performance laid down by the principal professors of the Russian Piano School, who urge to play "at the bottom" of the keyboard/at the bottom of the soundboard.

After the selected "5 keys sections" have been worked out in this way – the technical (power) aspect of the performance and *the sound aspect* has been completely covered on the scale of the five-finger structure – from each single sound and in each hand separately, "rolling" the scales with a gradual increase in speed from slow to fast can be started.

Here we would like to outline another important principle of sound production, which is largely responsible for the technical aspect of the sound-creating memory of the musician-performer.

Based on the simplest laws of physics, we understand that the intensity, the force of sound production depends on the speed and height of the fall of the finger on the key. However, it is precisely the height of the fall, or the height of the swing of the finger, which doesn't help, but stop the pianist's technique. The reason is very simple: at a fast tempo, the pianist does not have time to raise his fingers high in order to enhance the fullness of tip-hit. So is it worth spending a lot of time in the classroom by "finger-walking" – a method that is so often encountered in piano lessons? And if we are talking about the development of the technique of sound production – is it worth it to accustom your fingers to the certain amplitude of the movements at a relatively slow working tempo, if as you accelerate – reaching the required tempo, this amplitude will decrease more and more? These and some other arguments made the professor of the Odessa Conservatory A. Kardashev to develop the most a position, which became central in his pedagogical doctrine: you need to play by a "keyboard" – detecting an almost "airtight" coupling with the surface of the key – the finger should become a continuation of the key-plane, and cultivating the power of sound, using *not* the height that is born from the high rise of the tip, but the distance and the height that is enclosed with the space between the plane of the key in a static – not pressed state of it and the point at which the surface of the key occurs immediately after clicking.

When the task is focused on a fast tempo (but to a great extent being solved at a slow tempo – by playing "by a keyboard" with a strong sound, provided through the minimization the height of the "fall" of the finger to almost one centimeter – the distance that the key instantly travels, descending from its usual position to the bottom of the deck), it is obvious that the speed itself reqiers a significant boost – a lightning-fast impulse of the finger, which will now be responsible for the loudness of the dynamics and the power of sound. A finger that has no amplitude for "acceleration" from above learns to play much more accurately and intensely. However, when cultivating such a forced performance at the level of the smallest muscles and ligaments, special attention is required to the same lightning-fast relaxation. It is no less important than the moment of pressing the key. Moreover, *this method*

also requires psychological self-control, since the position of the finger in a stress-free state on the key in anticipation of the strongest hit of it, during which an instant "muscle shot" occurs, otherwise – relaxation on the keyboard, interspersed with the most intense "shot" – provokes accelerating the overall tempo. The last should be strictly avoided. **Evenness of the sound, evenness of the rhythm and evenness of the tempo are three pillars, the basis on which the controllability of the technical aspect of a musician's sound-creating memory is built.**

Despite the fact that the aforementioned exercise "by the keyboard" requires minimizing the swing of the finger in the air, of course, practicing with a high lift should not be neglected. It is just needed to understand which motor scenario – which motor amplitude the finger should come to when reaching a final tempo, and depending on it – to strive for a close touching, leaving a high swing only for muscle training. In general, the described principle of sound production correlates for us with the message addressed to violinists: to perform "from the string", and this becomes quite clear to the pianists if we admit, just for a second, the analogy between the finger and the bow. We also find statements in favor of playing with "close fingers" from the outstanding composer and performer N. Medtner. In his book about the daily work of a pianist and composer, the author mentions some diary entries: "in small puzzled passages, *raise your fingers less*! To practice without raising the fingers *slowly and quickly*" [6, p. 27]. Obviously, the words in italics by the author himself: "slow and fast" are responsible for the overall slow tempo of performance and the most biting, internally, energetic hitting just at the amplitude of the key's immersion in the soundboard. In a small subsection about the finger touché it is also noted: "the closest possible proximity of the fingers to the keys" [6, p. 25]. In the notes about the specifics of the performance of some of his own works, as well as in relation to the musical pieces of other authors, there are also such summaries: "<…> to practice only by this technique, which consists in the minimum separation of the hand from the keys <…>"; "the maximum approach of the fingers to the keyboard" [6, p. 21]. Here it should be noted, however, that this method of "close" practicing the most "tight" grip of the finger and the key by N. Medtner often appears in combination with "the greatest ease (pp, leggiero) of touches". And it is also often combined with playing with flat fingers, with which we certainly agree. One way or another, it is always worth

remembering that if you can get to the forte through the piano, then you can never get to the piano through the forte. And to develop the skill of performing passages with a light and "chiffon" sound, it is necessary to alternate forced work with the practicing of scales, exercises or passages using the techniques of "leggiero" and "jeu perle", which was already discussed above.

On the other hand, contradicting himself, and, perhaps, simply revealing the dialectic of the approach, the composer writes the opposite: "exercise your fingers first, as it should be for schoolchildren! Getting them up, making energetic hit (while performing in quiet dynamics) at a slow tempo and clenching the hand, concentration at a slow tempo (on this day N. Medtner worked on Chopin's Etude op. 10 No. 4 and wrote in his diary: "fingers got stuck"). If the preliminary work was carried out correctly, with both hands and head, ears (we repeat, with proper concentration and dedication), then the scale will go "like clockwork". *The sound will be smooth and full; the fingers – light and resistant, the touch – controlled and sensitive.*

All of the explained above, only to a small extent describes those techniques that develop tactile memory, which we talked about at the beginning of this section. However, the aspect of the technical embodiment of sound-creating memory is no less important for the memory of distances – motor memory, the work on which will be discussed further.

For the successful working of a pianist, energetic, active muscle tone is required. The elasticity of the tone is combined with the condition of the hands, in which the sound flows through them – from the body and over the fingers and keys into the strings. At the same time, the performer gets the impression that the keyboard "works by itself", and notes are being heard, being sensed, being easily controlled, almost without feeling of the hands. This "transference of sound" requires a state of complete liberty, complete fusion of the pianist with the instrument, the absence of clamping and fixation of the apparatus. At the same time, the performer and the instrument become a single organism: the fingers are felt as a "prolongation of the strings", the palm – the extension of the fingers, the forearm and the entire hand behind it – continue the palm. The body "gives" a hand to the keyboard and strings.

To find the state of "sound transference", the following exercise should be carried out: raise your arms up and feel their lightness –

their weight seems to flow down the back. At the moment of sound-construction, there should be the opposite state: the weight of the hand is, as it were, transmitted from the back to the tip of the fingers and straight to the keyboard – the strings.

With such a basic feeling, we recommend starting to work on the arc movements – the basis that forms the spatial orientation of the hand, a confident sense of distance.

Let's take, for a start, one-finger transpositions through an octave of the weight of the hand. It should start with the 3rd, the most central finger, then turn on the 2nd, 4th, 5th and, finally, the 1st (this sequence is recommended). First, you should exercise with separate hands, then together. The hand is transferred in a wide arc movement, it is necessary to feel it like a wing. At the same time, the sound should be made with good support, melodiously, without the slightest overtones. This exercise should be played calmly, smoothly, with hand resting on the key, without raising the shoulders.

After mastering this technique, one note at a time (monophonic), it is possible (keeping the above settings), to turn on sixth-chords and quart-sixth-chord in the work. Considering that initially it was a question of monophony, and the sixth and six-four chords consist of three voices, the approach to them is carried out through the practicing the arc transfer of the intervals that make up these chords. So, to "gather" the sixth-chord, you first need to play the quart with the second and the fifth fingers, then move on to the third with the first and the second fingers. Finally, together they will form a chord played with the first + the second + the fifth fingers by an arc. For a quart-sixth-chord, similarly, you first need to practice a third with the reference the third and the fifth fingers, then work out a quart with the first and the third and, in the end, combine the first + the third + the fifth fingers into the formula. For the left hand, the principle is identical. Only the fingering differs: the sixth chord will begin with working out the transfer combined with the fifth and the third fingers, then the third and the first, and then combining them into a chord, for a quart-sixth chord it will be the fifth – the second fingers, then the second –the first and, finally, an arc transfer of the chord with three corresponding fingers together.

The "flying" moves of hands from key to key resulting from the arc movement prepare hands for the legato skill, and weight-performing-practicing of the simplest chords prepares the hand for performing more complex and multi-part chords.

The given chords, in our opinion, combine the principles of the development of the tactile and motor aspects of the pianist's sound-creating memory in its technical regard.

In this case, the instructions for practicing the chords will be the following: chords should not be played in a hard position (when the sound is dry and wooden). The chord should, so to speak, "hide" in a soft, gathered hand, which opens when it falls from above to the required position, at the very moment of lowering to the keys. Each individual combination of sounds in their simultaneous grouping must be ready in the representation of the performer right before opening the hand with the ever-present feeling of the width of the palm. While maintaining the principle of practicing with extremely economical movements, avoiding the high raising of the hand above the keyboard and categorically avoiding raising the shoulders, constant attention is given to the support of the fingers and the weight of the entire arm. It is advised to pay special attention to the first finger – it should not lie on the keyboard, it should be somewhat rounded, with its large phalanx at the same time, should be somewhat moved away from the palm, making it visually and "psychologically" wider.

To check the sound quality in chords, it is recommended, after producing a chord, to release a few notes, listening to the remaining sounds: if the remaining notes sound full and even, then the chord was played correctly. To make the chord sound stable and "filled", there are the following types of exercises:

1. Take an octave, feel the elasticity of the arch and the whole hand, then, holding the octave around the edges, with light "patting" movements of the fingers "out of the palm" take the middle sounds of the chord;
2. Take a chord and, without changing the position of the hand, hold the two middle sounds, then remove the first and the fifth fingers and transfer them to the holding ones in the middle (the second and the third / the fourth fingers) with a subsequent return back. Thus, the hand will alternately contract and expand;
3. While holding the first or fifth fingers (conventionally half-duration), play the other three chord sounds with short patting movements (conventional three eighths).

Such wishes for the development of elements of large technic set the sound component as the main task, and only after that – the technological component. However, based on practice, these aspects

should merge together into a “sound technique”, or “technique of sound production”. Remaining the outlined principles on other technical skills and formulas, invariably putting concentration and critical, physical (auditory, tactile, motor) control over sound production at the forefront, the pianist is able to make significant progress in honing his proficiencies and consistently implement K. Leimer’s message about “conscious sound-producing” [3, p. 14-15], which certainly corresponds to the form of the final realization of sound-creating memory.

Conclusions

The interconnection of various aspects of sound-formation-technique and the professional memory of the musician performer considered in the body of the work, and the influence of K. Martinsen’s deep scientific and methodological research in relation to the sound-creative will, lead us to the formulation of a new concept of **“sound-creating memory”** for piano performance.

By sound-creating memory, we mean the central, initial and final power of performing creativity, the sensation of which is cultivated through the methods of development of its various aspects. Constructing of the sound-creating memory begins from the very first moments of communication with music and does not leave the musician along the entire path of his development. We examined such aspects of sound-creating memory as emotional memory, auditory memory, constructive-logical memory, tactile and motor memory, which together form the so-called the technical element of sound production. In accordance to this configuration, **emotional memory** reveals its special significance in relation to the algorithm for the formation of the primary skills of musical perception of information, in connection with the deep processes of the formation of the musician’s versatile technique, including both a virtuoso beginning and timbre-dynamic richness, in the development of horizontal thinking, as well as constructive-logical coverage of the form and, finally, in the format of the implementation of the semantic scenario of the work; **auditory memory** is not second-rate to emotional memory due to the same algorithm for the formation of primary skills in musical perception and reproduction, and is just as important in relation to archiving the past listening experience and constructing a new one. In addition, it is extremely important in relation to the development and control of sound production techniques; **constructive-logical memory**

determines the reliability of motor processes, and itself conditioned by tactile and motor sensations previously archived in memory and is no less important in the format of constructive-logical review of the whole musical canvas; **tactile and motor memory** – the duo, which forms the technical element of the sound production, are responsible both for the development of the virtuoso beginning of the performance, expressed in the usual manifestations of speed, dexterity and endurance of performance, and for the categories of the quality of sound-making when performing the cantilena, which is largely expressed in the skill of the coherent, legato touch. The algorithm proposed in the second paragraph for generating sound evenness, evenness of rhythm and evenness of tempo, forming three pillars, on which the controllability of the technical aspect of the musician's sound memory is built, consists in the regular use of the method of: variable accent developed (and improved) by us, 5 methods of sound production according to E. Vaulin – G. Popova, A. Kardashev's "by keyboard performing" method, and N. Medtner's "close sound production", as well as the principles of "weight practicing".

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