

Fourier coefficients can be used to initialize weights of neural networks in order to start the learning process with a low error.

Axo-axonic architectures can be used to forecast signals since they behave like *Fourier* analysis. This kind of connections can also be implemented on *Time-Delay* networks to improve results when dealing periodic signals. Some applications have been developed in order to forecast stock markets, weather and load demand.

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MUSIC AS THE SOURCE OF INFORMATION INFLUENCE AND SOUL EDUCATION

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Extended Abstract

Unlike other works of art (painting, sculpture, etc.) a musical composition should be performed, it should sound to become accessible. Therefore, the role of the musical masterly performance is extremely important. But presently it has increased in importance when music through mass communication media i.e. radio, television, sound recording becomes in the full sense of the word the property of millions.

Art in all its genres as a means of information helps to recreate a picture of one or other epoch as a whole. Moreover, art has a profound impact on education: it can be positive or negative, creative or destructive. Let us dwell on such aspect of music as means of information and the value of musical mastery activity for bringing information to hearers of the alternating generations.

Unlike other works of art (painting, sculpture etc.) a musical composition should be performed, it should sound to become intelligible. Therefore, the role of the musical masterly performance is extremely important. But presently

it becomes particularly great in the XXI century when music becomes a true property of the masses due to mass media – radio, television, sound recording.

The educative importance of music as a means of forming the spiritual culture of a person grows as well. Clearly, a great deal depends on performers. They can breath new life into the musical composition, but they can necrotize it. They can educate with music, they can awaken love in it, and, vice versa, discourage a person from interest, love for music etc.

At present the research on the theoretical and practical aspects of the musical masterly performance is paid a great attention. But far from being all is developed in the field of the mastery art theory. In particularly, the masterly performance concept developed by B.L.Yavorsky, one of the greatest native musicians-researchers, known, first of all, for his own theory of fret rhythm afterwards called a theory of musical thinking, was kept in the background. The views of the scientist were repeatedly the subject of speculations, debates, discussions. He repeatedly wrote himself for the press outlining the fundamental tenets of his theoretical system. Despite controversial points the system developed by Yavorsky appealed to researches for its singularity, novelty, breadth of phenomenon scope in art, stimulated the creative search.

The basis for this system is the association of the theory with the history of the musical practice development and, first of all, an objective scientific investigation into particularities of musical thinking as a reflection of the social reality.

Long 22 years the name of Yavorsky was not mentioned despite the fact that all the works on the musical theory with all their dissimilarity from the teaching of B.L. Yavorsky were linked in one way or another with it, borrowing from it at times rather significant and at other times side elements and appropriate terminological innovations (the case in the point are the works of 40-ies).

Interest in studying the heritage left by B.L. Yavorsky increased noticeably after publication of the first volume of the collection "B.L.Yavorsky. Articles, reminiscence, correspondence". In the 70-ies the works on different aspects of theoretical heritage of Yavorsky appeared. Among them there are the papers by A.Farbshtain, V.Bajevsky, M.Aranovsky, Yu.Kohn, I.Naboque, L.Maslionkova and others. All the authors underline the historical importance of the theory created by Yavorsky in explaining continuous flow of a musical thought based on the principle of inclination to contradictory elements, in approaching music with a wide range of phenomena, interdisciplinary sciences and arts, this gives the possibility to reveal the features in common with different types of artistic creative work, types of thinking and perception, favors their mutual enrichment and further development. Theoretical tenets developed by Yavorsky are distinguished not only for a profound scientific substantiation, but also for interconnection. He is "the first Russian scientist who created the generalized system embracing all musical speech as a whole".

Systematically the process of revealing the musical composition "biography" can be presented in the way, presented in figure 1.

As K.V. Zenkin asserts, the level of historical-theoretical generalizations reached by Yavorsky is the problem of the future of musical science and the history of culture. At the same time the author says about dialectics of historical concept created by Yavorsky, about filling it with a powerful pulse of Russian philosophical thought of XIX-XX centuries. Each epoch, according to Yavorsky, passes a number of development stages (cognitive, motive, emotional, volitional, contemplative) and at the same time it is the integrity. Style is the constant of the epoch. That is why speaking about the musical-historical concept of Yavorsky it is possible to speak about the concept of musical styles. The ideas of Yavorsky about music are the ideas about integral organism in the whole completeness of untangling the spiritual-psycho-physiological image of a person in the sequence of the age phases.

Yavorsky introduced the concept of a symbol into the musical theory and practice and made it in a conclusive and evident way. (K.Zenkin. Symbolism in Yavorsky's thinking). The concept of a symbol was universal for Yavorsky, it was universal helping to recreate the integral philosophy of culture and art. Condition of searching for analogies between different arts was a thought about the unity of the universe, it was filled with a vivid sensual representation. Yavorsky's world outlook was a dynamic one.

Unity of theory and practice was the basic one in the activity of Yavorsky. He paid a great attention to training musicians-performers, creation of theoretical foundations of performance mastery. In his new methods of educating musicians he was striving for realization of the universal concept of the mastery based on the synthesis of inventing and performance. Yavorsky introduces the idea of a symbol into mastery offering the **idea of the gesture-symbol, which must correspond to the symbol of movement** – volitional, flying, emotional, motive – depending on the style of the work being performed. Diversity of touches to a key, orchestration of the piano widened the boundaries of the performance individualization. Striving for a profound understanding of musical symbols Yavorsky turns to other arts having created the universal concept of mastery based on the styles.

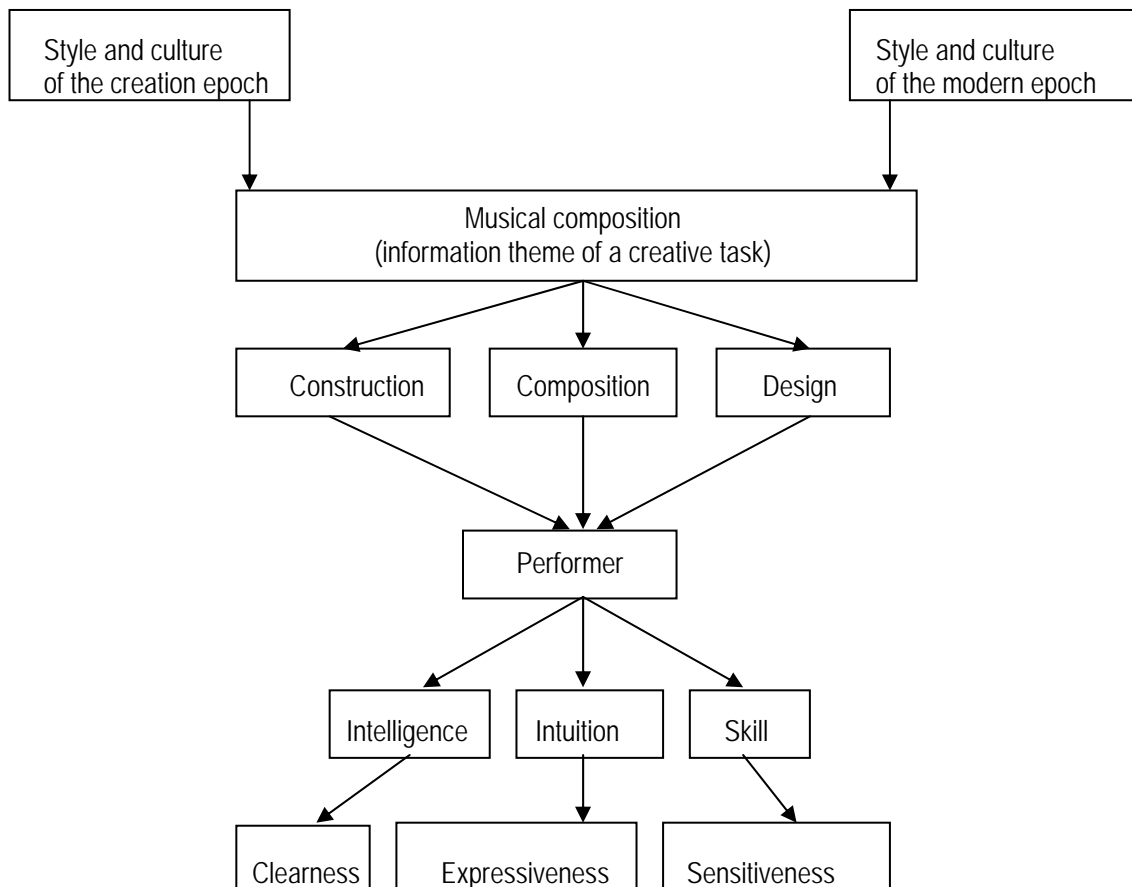


Figure 1

There sources of bringing information and sources of its perception in the musical art.

According to this Yavorsky recognizes "five types of musical performance:

1. No mention could be made if poor performance is met so often.
2. Performance reproduced not by a performer himself, but representing totality of the impact of education, teacher or tradition on a performer; such a type is assumed to be named the unskilled performance [...].
3. Performance of the temporal architectonic sound construction deprived of a vivid rhythm inherent to it, contributed into the composition by the author's spirit and presenting on this basis the whole process of the author's sensations. With such a type of performance the composition is perceived only by eyes: such a performance filled with good intentions can be called a bureaucratic one: it satisfies the most the modern middle-level cognition.
4. Performance when artistic composition is considered by a performer as a possibility to reveal his own personality without attending to the question whether this rhythmic of the composition fits to that rhythmic with

which it was created by the author. Here one is forced to come into collision with the problem of pithiness, interest, significance of the performer himself [...]. With such a performance the composition is also perceived only with eyes and then the performer provides it with his vivid rhythm expressing his emotional experience and the hearer attention is taken up perceiving it, he pays little attention the composition or even doesn't notice it. It is needless to say that performance of the academic type cannot exist absolutely without the influence of the performer's personality, but this influence is not so strong to divert the hearer's attention from the sound architectonics and make him to concentrate himself on revealing the performer personality.

5. Performance, the author dreams about, where the author's personality (to what extent it has manifested itself) and the performer's personality harmonically merge; the vivid rhythm, resulting when performing the composition, owes to its origin to the presentation of the author's fillings revived in the fillings of the performer adding his own individuality not contradicting to the possibilities contributed by the author. With such a performance the performer perceived the composition not only with his eyes but he perceived its whole form with his essence and according to this form he reproduced fillings and transmitted them..." (the model is presented in the Diagram 1.)

According to this a specific performer's capability for perception generates a reciprocal capability in the hearers. It is no coincidence that the performers' typification continues here the hearers' typification:

"Equally there are five types of audience:

1. Inadequate audience, which is not able to listen: the reasons for this can be different.
2. The audience paying attention only to the scholastic accuracy of performance: absence of stoppage, errors, presence of highly specialized methods (scales, octaves, mediant, sixth, leaps, glissando, flageolets, etc.) what is the hand, finger, voice training, whether words are clear, how vowels and consonants are pronounced, whether the performance answers the prescribed tradition.
3. The audience requiring to perform the composition exactly as it was written, as it is seen with eyes, just with the eyes of the listener, but the listener's eyes know sometimes the author's remarks so poorly that attribute precision of the author's remarks to the performer's self-will. Such an audience likes to hear the compositions well-known to it; [...] it particularly rises against manifestation of the performer's personality, [...] having heard the performance presenting the same composition in the clearly expressed new presentation trying to elucidate the contents of the composition in its own way, maybe even at the expense of appearance, the audience does not become aware of the performance and, at best, gives no ear to it indifferently.
4. The audience searching not for a good performance of the composition but manifestation of the performer's personality; that is why deterioration of the composition has little or no effect on this audience and it makes difference between compositions only because they give more or less space for the performer's self-will, but those compositions that do not allow such a self-will for some reason or other are referred by this audience to the rank of scientific, serious, dry music [...].
5. The audience [...] capable to estimate the performance, where harmonically united the author's and performer's personalities, to estimate both the author and the performer taking advantage of their joint manifestation, to get the same fillings, imparting at the same time individual particularities inherent to every hearer".

For Yavorsky the work on the composition was the process of studying its "biography" i.e. getting a comprehensive and complete information about it.

In this respect memories of L.A. Averbuh about the work of Yavorsky on the march by Vagner –List from the opera "Tanguiezer": This march should draw in the people imagination the medieval splendid festival, the whole environment of the castle, grandeur of the feudal lord, diversity of the ranges and dresses, difference of steps, perspective of the long procession". Yavorsky told about a secluded life of the inhabitants of the medieval castles waiting impatiently for the festival held once a year, a herald was sent to a tower (here Yavorsky showed the pitch of the trumpet so that an image-bearing representation favors perspective space piano sounding). Representation of the order of the procession, a step which could be when foot-wear had non-bending soles, accompaniment of very picturesque, figurative detailed account using performance made it possible to obtain the desired result – the march was performed vividly, with necessary perspective of sounding, having preserved all the wealth of colors of the original text for the orchestra.

One of the examples in the system for performer's analysis developed by Yavorsky is the analysis of the of the play by List "Sposalizio" from the cycle "Years of wandering". The story of creation of the play from this cycle is known from the musical history. Yavorsky strove to find more vivid visual image which would help to perceive more profound the musical image (Yavorsky was far from artificial "attaching" of musical compositions to the works of art literature etc. It was one of the possible methods directed to mobilization of creative fantasy, creative imagination of the musician which facilitated in the given case interpretation of the program music and widened parallels with the compositions of adjoining arts, horizons in the field of music through the search of analogies). Raphael's picture of the same name was such a striking illustration.

The myth about the betrothal of Maria and Joseph overcame the double temporal distance: Raphael brought it in the conditions of the XVI century in Italy and then the impression produced by the picture was found in List's composition. Yavorsky told about the plot of the picture and paid attention to the peculiarities of the architecture of Italian cathedrals known to him from his visits to Italy, where a cathedral and a church bell tower were built together, about a peculiar sonority emerging due to connection of the sounding of the big bell and the bells of the small dome with silver hand-bells (held usually by boys). If the action takes place before the cathedral in the Raphael's then List's music is perceived as if the action takes place in the cathedral itself. That is why the scientist joins the plot of the picture with the description of the Italian cathedrals' architecture. Monographic data were accompanied with a number of requirements:

1. compiling of the vocabulary of terms met in the composition;
2. graphical presentation of the composition dynamic scheme;
3. definition of the instruments creating the timbre diversity.

All the requirements were directed to the revealing the constructive-composition traits of the composition and design corresponding to it. Yavorsky connected the composition fret instability with two moments: the first, with the instability of the composition's' plot itself, the second, with the visual perception of the architecture style of Gothic creating the feeling of instability. Development of the fret foundation of the composition was regarded as comparison of principles-symbols in the unity of constructive-composition traits: invocatory chime, blows of the bell, sounding of the organ and choir, intonation of the question-answer connected with the ceremony, a light chime. The constructive- composition scheme was created in correspondence with the sequence of the composition development.

Introduction (beginning) includes 29 bars and symbolizes the first sounds of the bell in the empty cathedral signifying the call. Gradually people arrive. The next 38 bars (8-30) are the plot of the composition – the choir sounds during the wedding, its melody is interlaced with the ringing of the hand-bells, medium-size bells, organ. Before the intonation of the question-answer appeared (bars 60 – 67) silence set in the cathedral. Then the sounding increases – the action is developing. The bar 67 is a distinctive division of two-part symmetrical structure of the composition: the first part consists of 67 bars, the second one consists of 66 bars + fermata. So, the events (peripetia) signify animation in the cathedral (45 bars) concerning the ceremony taking place on the background of the inviting ringing naturally brining to the culmination-triumph (bars 109 –112 + fermata). And in conclusion of the composition (bars 113-120) the intonations of the introduction sound mournfully, events move away from us, everything come to a standstill. The last 14 bars are culs-de-lampe of the composition.

Yavorsky presented his ideas of the figurative contents of the composition exactly and impressively in the criticism concerning its performance by Ferruccio Buzoni "giving neither the general sentiments in the cathedral and action, nor all-filling, all-penetrating bell sounding from the vague distant bell's call till the ecstatic symphony of bells ending with voices of hand-bells in the empty disappearing in darkness of the church".

Information underlies any activity (possession of information, its quantity and methods of its transmission). All this influences psychological self-programming and the choice of the corresponding valuable orientation.

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