

METHODOLOGICAL APPROACH TO THE ASSESSMENT OF VISUAL MATERIAL,

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Abstract

The study of the aesthetic originality of the synesthetic concepts of the Russian avant-garde of the twentieth century prompted us to think that the scientific method can be applied to the assessment of works of art used as visual material in teaching the disciplines "Aesthetics", "History of Art".

Introduction

Works of art are a reflection of the objective reality of their creators. Art, as we noted earlier, is an open system that exchanges materials, technologies, and information with the external environment. If we apply the scientific method of abstraction, we can highlight the characteristic features of works of art used as visual material in teaching the disciplines "Aesthetics", "History of Art", and then evaluate them according to the criterion of maximum correspondence to a certain direction.

The difficulty was also in the fact that it was necessary to be limited, for example, to 3-4 paintings by artists, since students need time not only to understand them, but also to comprehend the material presented in a lecture time limited by 2 academic hours. The use of visual material, musical accompaniment of lectures contributes to the development of synaesthetic sensations in students, a better understanding and memorization of the material.

The essence of the methodological approach will be considered by us on the example of the assessment and selection of works of art used as visual material when teaching the topics "Non-classical aesthetics" of the discipline "Aesthetics"

and "Contemporary culture and art" of the discipline "History of Art" to students of the Faculty of World Musical Culture of the Moscow Classical Academy them. Maimonides.

We were faced with a specific task: to choose from 7 paintings by 4 artists that would correspond to the avant-garde direction as much as possible. It would be advisable to use them as visual material when teaching the disciplines "Aesthetics" and "Contemporary culture and art".

The selection was made from the following 7 works of art:

1. "Improvisation" - V. Kandinsky.
2. "Musical Overture. Purple wedge" - V. Kandinsky.
3. "Rayonism" - M. Larionov.
4. "Suprematist composition" - K. Malevich.
5. "Suprematism" - K. Malevich.
6. "Non-objective composition" - A. Rodchenko.
7. "Black on black" - A. Rodchenko.

The following factors (parameters) were selected for comparison:

1. Color
2. Line
3. Composition
4. Gravitational associations
5. Feeling of harmony
6. Feeling the era
7. Striving to understand the artist's intention, pushing for reflection.

We were faced with the task of quantifying the above qualitative parameters. This could be done with the help of scoring, but its disadvantage is the subjective way of determining the weight coefficients. The dissertation work proposes an improved technique based on the use of a unique mathematical apparatus - methods of pairwise comparisons and prioritization, using a personal computer.

When developing a methodological approach to assessing the visual material used in teaching the disciplines "Aesthetics", "History of Art", we proceeded from the following:

- the solution of tasks for the assessment of works of art is often carried out in the complete or partial absence of the necessary initial information, which

predetermines the use of expert assessments. With the help of the prioritization method, such tasks can be solved with insufficient initial information and in its complete absence;

- very promising, from our point of view, should be considered the application of the method of prioritization of obtaining a quantitative assessment of works of art used as visual material in the learning process .

Currently, there is no analogue of the application of this method in philosophical and aesthetic research. Our methodological approach is aimed at further development of models for solving similar problems by this method, as well as further dissemination of the experience of solving them and approbation by the author.

When solving the problem of prioritization, we adopted the method of paired comparisons in order to reveal the preferences of experts "in a pure form." This approach is due to the fact that other types of assessments, for example, scoring, require transitivity - the consistency of preferences (if product 1 is better than product 2, and product 2 is better than product 3, then product 1 is better than product 3).

The non-transitivity of the pairwise comparison system can be encountered quite often. First, it is a very common situation when an expert appraiser is not equally familiar with the objects to be assessed, and when assessing some of them, he may admit inaccuracies. Secondly, with a sufficiently large number of objects, their evaluation according to the same criterion can be performed by several experts, and each of them evaluates only a part of the objects, which may cause some contradictions. Third, an expert evaluating all objects may have an unequal discrimination threshold when evaluating different objects. For example, three assessment factors 1, 2, 3 differ slightly in any indicator. The expert badly feels the difference on a certain indicator between factors 1 and 2 and will express his judgment as $1 = 2$, however, the differences between 1 and 3, 2 and 3 are obvious to him and his judgments will be as follows: $1 > 3$ and $2 < 3$, which leads to a non-transitive system of relations: $1 > 3$, $2 < 3$, $2 = 3$. And, finally, fourthly, even if transitive systems of comparisons were obtained for a given criterion during individual assessment by several experts of the same factors, then when they are combined into a group assessment according to the majority rule, transitivity may

be violated. Pairwise comparison of such transitivity does not imply that, is a significant advantage of our approach.

Due to this, the result of pairwise comparison most accurately reflects subjective preference, since the least restrictions are imposed on the choice here, and the method does not impose a priori conditions on the expert.

The quantitative assessment of works of art used as visual material in the learning process was calculated by us on the basis of expert information.

The examination procedure is based on the use of the paired comparison method, according to which all works of art are compared in pairs with each other according to a certain factor, and each subsequent assessment is not related to the previous one. All of these paired scores constitute a paired preference matrix that is processed to obtain the weights for the artwork.

Pairwise assessment was made using the symbols:

- > - better;
- - better or the same;
- = – одинаково;
- - worse or the same;
- < – хуже.

In this case, the absence of the requirement for the transitivity of the system of comparisons, the expert compares the works of art by assessment factors, regardless of the results of other comparisons, including the erroneous one, and one mistake made will not significantly affect the results of calculating the values of the priorities of the works.

In the dissertation work, an approach was applied in which, when solving problems of prioritization, changing coefficients A_{ij} are used, which are purposefully fixed for works of art according to certain comparison factors:

$$A_{ij} = \begin{cases} 1 + y, & \text{если } X_i > X_j; \\ 1 + 0.5 y, & \text{если } X_i \geq X_j; \\ 1, & \text{если } X_i = X_j; \\ 1 - 0.5 y, & \text{если } X_i \leq X_j; \\ 1 + y, & \text{если } X_i < X_j; \end{cases} \quad (1)$$

где $0 < y < 1$; and - любое рациональное число в заданном интервале.

Based on the analysis of the available information or with the help of an expert assessment, the limits of the change in the severity of this factor in the assessed works of art were set, which are recorded in the form of the ratio of the extreme members of the ranked series:

$$K_p = \frac{X_{i \max}}{X_{i \min}} \quad (2)$$

where $X_{i \max}$ is a work of art with the maximum assessment of the factor;

$X_{j \min}$ - a work of art with a minimum assessment of the factor.

According to the found relation K_p , the corresponding coefficients A_{ij} were selected. Next, a square matrix $A = \Pi A_{ij} \Pi$ was built on the basis of a system of paired comparisons and using the selected coefficients A_{ij} .

The calculation of the values of the priorities of the assessment factors $P_i(K)$ is carried out by an iterative method using the formula:

$$p_i(k) = \frac{1}{Q(k)} A_p(k-1), \quad (3)$$

where $k = 1, 2, \dots$;

$$Q_k = \sum_{j=1}^n \sum_{i=1}^n A_{ij} p_i(k-1)$$

- the sum of the components of the vector $A_p(k-1)$;

$p_i(k)$ is the normalized iterated force of the k-th order.

The actual coefficient of the ratio K_f and is compared with the calculated K_p . If the coefficients are consistent, the problem is considered solved. Otherwise, the coefficients A_{ij} are adjusted and the calculation was repeated.

The most difficult and crucial moment in solving our problem was the assessment of the limits of change of this factor in the objects under consideration (determination of K_p). When it is possible to assess the ratio of specific objects for a given factor, a number of works of art must be ranked to determine its extreme members. For this purpose, the prioritization method with arbitrary coefficients A_{ij} was used. Since in solving a problem this is the only direct quantitative assessment, its receipt can be organized more carefully, and, consequently, more qualitatively.

According to the found coefficient K_p , we determine the required coefficients A_{ij} :

$$y = \frac{K_{p-1}}{K_{p+1}} + \frac{0.05}{m}, \quad (4)$$

where K_r is the calculated coefficient of the ratio of the extreme members of the ranked series,

m is the number of works of art being evaluated.

In our case, the non-transitivity of the system of pairwise comparisons and the presence of equality relations in it, the procedure for finding values was as follows:

- Y_p was determined - the preliminary value of Y and the problem of prioritization was solved;

- according to the obtained values of the priorities, the assessment factors were ranked;

- a preliminary actual ratio of the priorities K_{php} of the extreme members of the ranked series was established, obtained using Y_p ;

- определялось окончательное значение корректировкой предварительного значения $y_{п}$ коэффициентом In :

$$W = \frac{K_P}{K_{\Phi\Pi}}; \quad (5)$$

$$y = y_{п} \times W \quad (6)$$

There are several more significant advantages of the method we use:

- the method allows the use of non-transitive source information;

- the procedure for making judgments by experts is simplified and becomes practically feasible, since a direct quantitative assessment of the relationship between works of art by certain comparison factors is not required;

- it becomes possible to reconcile the calculated quantitative relations between the factors and the "true" quantitative relations between them using the selection of the coefficients A_{ij} .

Comparison matrices were obtained in a survey of 157 students of the Faculty of World Musical Culture of the Moscow Classical Academy. Maimonides.

Table 1 shows the results of a quantitative assessment of the selected 7 works of art according to the parameter "Color", which meant the coloristic solution of the picture, the originality of color combinations.

Next, we made a quantitative assessment of works of art according to the "Line" parameter, which meant the graphic features of the picture, the originality of lines and shapes in the image.

By the parameter "Composition" we meant: a way of combining lines, shapes, colors into a single whole; novelty, unusual composition. The parameter "Gravitational associations" refers to the sensations of weightlessness or the heaviness of the material, arising from the perception of the color and plastic foreshortenings of the image. By the parameter "Feeling of harmony" we understood the sensations of orderliness, proportionality of form elements within a holistic composition, consistency, color scheme, arising from the perception of an artistic object. paintings. The parameter "Feeling of the era" is understood as the correspondence of the novelty of the content to the new means of expressiveness (color and graphic-compositional solution). Under the parameter "Striving to understand the artist's intention, prompting for thought" we understood the ability of an art object to activate the process of understanding the concept due to the effect of novelty and originality. The works were evaluated according to each of the above parameters.

Table 1

Quantification of paintings by the "Color" parameter

Conditional number of the picture	1	2	3	4	5	6	7	Score, points
1	=							0,127
2	<	=						0,096
3	<	<	=					0,082
4	>	>	>	=				0,190

5	□	>	>	=	=			0,178
6	□	>	>	□	=	=		0,177
7	>	>	>	□	□	<	=	0,150
X _{i max} - maximum estimate for the parameter								0,077
X _{j min} is the minimum estimate for the parameter								0,194
K _{P given}								2,5
K _{R actual}								2,526
Number of iterations								2

We have made a quantitative assessment of works of art according to the criterion of maximum compliance with the avant-garde direction. Its results are summarized in table. 2. We see that the place in the ranking, determined by calculations, coincides with that found in the course of an intuitive survey of students of the Faculty of World Musical Culture of the Moscow Classical Academy. Maimonides. This indicates the correctness and reliability of the methodology developed and tested by us.

Based on the calculations, we scientifically substantiate the advisability of choosing the discipline “Aesthetics” and “Contemporary culture and art” of the discipline “Art History” as a visual material for teaching the subjects “Non-classical aesthetics” of the discipline “History of Art” to students of the Faculty of World Musical Culture of the Moscow Classical Academy. Maimonides of the following works of art: "Suprematist Composition" - K. Malevich; "Suprematism" - K. Malevich; “Non-Objective Composition” - A. Rodchenko; Black on Black - A. Rodchenko.

table 2

Quantifying works of art
according to the criterion of maximum compliance with the avant-garde direction

Conditional comparison parameter number	Factor weight							Evaluation of the work, points	A place in the ranking, determined by	
	F ₁	F ₂	Φ ₃	Φ ₄	Φ ₅	Φ ₆	F ₇		intuitive survey	calculations
	0,157	0,144	0,151	0,126	0,127	0,153	0,141			
Quantification of factors										
1	2	3	4	5	6	7	8	9	10	11

1	0,127	0,161	0,125	0,131	0,113	0,127	0,147	0,135	5	5
2	0,096	0,155	0,120	0,123	0,092	0,127	0,141	0,129	6	6
3	0,082	0,087	0,095	0,134	0,085	0,114	0,128	0,111	7	7
4	0,190	0,201	0,170	0,155	0,192	0,164	0,153	0,168	1	1
5	0,178	0,158	0,174	0,156	0,198	0,163	0,152	0,164	2	2
6	0,177	0,121	0,158	0,153	0,162	0,152	0,140	0,148	3	3
7	0,150	0,116	0,158	0,148	0,157	0,152	0,140	0,145	4	4

The proposed methodological approach provides a scientifically based assessment, is easy to use and can be recommended for assessing works of art used as visual material in teaching the disciplines "Aesthetics", "History of Art".

It is necessary to note the flexibility of the methodological approach to the assessment of visual material used in teaching the disciplines "Aesthetics", "History of Arts". It can be used to evaluate other works of art with the correct selection of factor signs.

The use of visual material, musical accompaniment in the educational process, selected using the approach developed and tested by us, will contribute to the development of synaesthetic sensations in students, a better understanding and memorization of the material.

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