



Comparison and Evaluation Methods of the Differences between Chinese and Western Art from the Perspective of Big Data

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ABSTRACT

In the era of big data, Internet technology and information processing technology have developed rapidly; How to effectively obtain, analyze and use data has become a hot issue. The expression of Chinese and Western art is also greatly different from the traditional expression. The thought, art and culture of Chinese people are very different from those of other countries and nationalities, which leads to the style of painting, dance or singing. This paper aims to compare and explore the differences between Chinese and Western art history styles from the perspective of big data. This paper discusses and analyzes the application of big data technology in the comparison of Chinese and Western art differences, makes a detailed study in combination with Chinese and western excellent paintings, and puts forward the algorithm of big data technology. Through a questionnaire survey of teachers and students in a university, it is found that 34% of Teachers and 21% of students pay more attention to freehand painting; 23% of teachers and 36% of students pay more attention to realism; It proves the feasibility and effectiveness of applying the big data technology proposed in this paper to the comparison of Chinese and Western art differences.

Keywords: *Big Data Technology, Chinese and Western Art History, Style Differences, Expression Techniques*

1. INTRODUCTION

As two completely independent systems, Chinese and Western art and culture are briefly and partially integrated in the long process of development [1][7], but Chinese and Western art and culture are still very different and have great differences. This paper simply combs the concept of big data and has a clearer understanding of the concept of big data from multiple fields and perspectives. Through comprehensive comparative analysis of the characteristics of big data, it is recognized that the essential connotation of big data's description of the material world is a digital reflection of the objective world. Therefore, this paper makes a comparative analysis of the differences between Chinese and Western art through big data. Chinese and Western painting are far apart. With the deepening of globalization, the development of art presents the trend of internationalization and diversification. Research to shorten the gap between Chinese and Western painting art, resolve cultural conflicts, and carry forward the two

major painting arts. Communication and development are urgent problems for Chinese and Western artists to solve [3][9].

The colors of traditional Chinese and Western paintings have their own origins, form their own systems, and their differences are huge, which fully reflects the differences in aesthetic concepts and expression methods of traditional Chinese and Western painting colors [2][6]. Further in-depth analysis and research on the color characteristics and expression methods of traditional Chinese and Western paintings, deepen the understanding of different regions and different national painting forms, and therefore understand the complementarity of traditional Chinese and Western painting colors due to various differences, which will benefit us Reference and innovation in artistic practice [4][5].

With the development of sensor terminal technology, computer system can collect almost all the information it wants to see or cannot see. The material world of human life is slowly mapped to the data world. Through

the processing of information platform and data mining and analysis, the sea information is selectively transformed into visual data, and the material is being digitized. Even the direct or potential connection between the material world can be found in the data world. Therefore, based on big data technology, this paper compares and analyzes the differences between Chinese and Western art, deeply analyzes and studies the Chinese and Western art ideas, expression methods and color characteristics, and deepens the understanding and understanding of different aesthetic concepts and artistic values. The traditional Chinese and Western art style is the source of reference for today's social art style. Deeply understand the development process, ideas and expression of Chinese and Western art history styles, so as to integrate new art styles.

2. A COMPARATIVE STUDY OF THE DIFFERENCES BETWEEN CHINESE AND WESTERN ART STYLES

2.1. Comparison of Big Data Technology Applied to Chinese and Western Art Differences

The of big data is based on the application, which is the summary of its characteristics and functions in the application process. It is not only a method of data management and processing, but also a new logical discovery based on data analysis. It transforms the research on things into the research on data. Through quantitative data analysis, it examines the reliability of data. Big data can be regarded as a new way to understand things and a new way to discover and innovate. The differences between Chinese and Western art can be compared and evaluated through big data technology.

As the result of material data, big data is also the premise of data materialization. Data materialization and physical data are opposite processes. In this paper, materials are transformed into data in order to understand the differences between Chinese and Western culture, art, language and so on. The data law mined by data analysis is a true reflection of the differences between Chinese and Western art, is in line with the changes of material law, and is consistent with the knowledge from practice to knowledge guiding practice, which is one of the reactions of data materialization.

In the era of big data, analyzing the differences between China and the west can summarize the laws of things through data analysis, so as to guide practical activities; Chinese and Western artistic expression techniques and aesthetic concepts can also be expressed in the form of numerical values and charts, which can more intuitively show the value of some concepts. For

example, Chinese artists tend to look at the world from a holistic and comprehensive perspective, while western painting tends to express specific practical and spiritual things. At the same time, the research differences of relevance thinking from the perspective of big data make the evaluation criteria inconsistent.

2.2. Differences between Chinese and Western Art

(1)Ideas: The difference between Chinese and Western painting art is mainly in the ideological concepts and expression techniques between the two. It is necessary to compare the similarities and differences between Chinese and Western paintings from this perspective [8]. Affected by unique geographical, climate and other factors, our country began to settle and live during the ancient humans, relying on collective power for production and life, and in the process of relying on wisdom for agricultural production and collective life, the ancestors gradually formed a unity of nature and man. Philosophical concept, and with the progress of society, the ideological system is influenced by orthodox ideology—Confucianism. Chinese artists pay attention to the integration of themselves with the heavenly way, the doctrine of the mean, and the world of great harmony. They are more inclined to look at the world as a whole and comprehensively. Combine thinking and experience the artistic conception of things. There is a big difference between Western painting and art ideas and China. The development of language and culture in the Western world is derived from the Christian civilization of ancient Greece and ancient Rome in the Middle Ages. After the modern industrial revolution, it has undergone independent development and evolution. Affected by the humanism of the Renaissance movement, Western music, painting, and literature have been innovated, and their painting art often expresses concrete reality and spiritual things. From this we can see that there are huge differences in the development of Chinese and Western civilization history, which affects the ideological concepts, culture and art of China and the West, and there are also large differences.

(2)Performance techniques: The ideological foundation and aesthetic concepts on which Chinese and Western art relies are the key to the difference between Chinese and Western painting art. At the same time, the expression form and technique between the two are also the focus of comparison between Chinese and Western paintings. Chinese painting is not an independent art form. Combining the same origin of calligraphy and painting, the development of stippling has gradually formed two forms of painting and calligraphy. In addition, influenced by production and life and the ideological concept of "the harmony between man and nature", Chinese painting and The close relationship

with nature determines the style of Chinese painting. Most of the Chinese paintings are based on landscape paintings. When painting, they pay attention to being casual and casual, and borrow objects to express the subjective emotions and thoughts of the creators. Therefore, the paintings more prominently resemble the spirit, express the spirit and partiality. abstract. There are obvious differences between the expressions of Western painting and Chinese painting. It pays more attention to realism, emphasizes tracing and imitation, and is more concrete. When painting, it is more rational thinking, and painting is rarely used to express the subjective consciousness of the creator.

(3)Color form: Western painting art's application of color forms is somewhat different from that of Chinese painting. Colors are strictly distinguished. Colors such as black, white, and gray are achromatic, while other colors are colored. In the painting process, light and The relationship between color, especially impressionist painters, is not highly valued by classical painting, and focuses more on expressing the relationship between light and shade. Because Western painting art attaches great importance to realism and the use of color, the paintings created are often of graceful, solemn and magnificent types.

It can be seen that there are essential differences between Chinese painting art and Western painting art in the cognition and application of color forms.

2.3. Research on the Differences between Chinese and Western Paintings

(1)"Gleaner"-Miller: Jean François Millet is a famous painter in the history of modern French painting."Gleaners" has a strong realistic style, reproducing rural life, and at the same time it shows the author's careful observation of life, and meticulous depiction of details, such as the folds on the peasant woman's body and rough hands, with emphasis Highly realistic, starting with details, make the work more tense and can bring a certain impact. In addition, as mentioned above, Western painting art attaches great importance to the use of "light and shadow" and "block surface", and does not leave white space to show the texture and richness of the work. The contrast between light and dark shows that the object has more vitality.

(2)"Shrimp"-Qi Baishi:Unlike Western painting art, Chinese traditional painting art focuses more on "ink and wash" and "line", highlighting the texture of things with the intensity of ink. The representative work "Shrimp" by Qi Baishi, the master of Chinese painting, is a direct manifestation of the emphasis on "line" and "ink color" in Chinese painting art. The shrimp's feet and whiskers in the "Shrimp" work are very line-like, with varying thickness and intensity. It is not messy, and uses the shade of ink to outline the body of the group of

shrimps, showing the sense of distance and rhythm of the virtual reality, especially the ink color change of the shrimp brain, which has a strong penetrating power. The most commendable thing is that there is no trace of pen and ink to outline the objects in the water, but only the shrimps, but the changes of ink colors and lines outline the smart and light picture of the shrimps playing in the water.

Although at first glance, this painting seems to be a casual work, and it is quite different from the original shrimp, but Chinese painting has always not emphasized the appearance and resemblance. The most representative feature of the shrimp is between the like and the non-like. Grasping the individuality of things, their similarities with other things are chosen or hidden. It can be seen that Master Qi Baishi's observation of life things is subtle to capture its charm, and he has superb painting skills to show it vivid and vividly displayed.

3. EXPERIMENT

3.1. Questionnaire Design

This paper selects teachers and students of a university for a questionnaire survey. This questionnaire is formulated and revised on this basis. After the questionnaire design is completed, find experts for review and guidance. The main contents of the survey include the basic situation of the 300 teachers and students surveyed, as well as the understanding of the differences between Chinese and Western art history styles.

3.2. The Reliability of the Questionnaire and the Algorithm

In order to test the reliability and stability of the questionnaire, the variance of the questionnaire results was first calculated, and then the reliability of the returned questionnaire was tested by the method of "half-half reliability" test. Using formula (1) to calculate the reliability coefficient, the correlation coefficient of the questionnaire is $r=0.883$. According to the theories and methods of modern scientific research, when the reliability of a test reaches 0.80 or more, it can be regarded as a test with higher reliability. The test results confirm that the questionnaire is reliable.

$$S^2 = \frac{(M-x_1)^2+(M-x_2)^2+(M-x_3)^2+\dots+(M-x_n)^2}{n} \quad (1)$$

$$r = 1 - \frac{S^2(1 - r_1)}{S_n^2} \quad (2)$$

$$r = \frac{2r_{ban}}{1+r_{ban}} \quad (3)$$

If the data required by the task is stored on the node executing the task, the task does not need to access the data remotely through the network. The comparison task

can be performed immediately without additional data movement between nodes. Let $C(a, b)$, W , W_i , and d_i represent the comparison task between data a and B , the task set performed by node i , and the data set stored on node i , respectively. Good data locality can be described as formula (4):

$$\forall C(a,b) \in R, \exists f \in \{1, \dots, H\}, a \in D_f \wedge b \in D_f \wedge C(a,b) \in W_f \quad (4)$$

The load balancing of the system can be expressed as formula (5):

$$\forall W \in \{W_1, W_2, \dots, W_N\}, W_i \leq \left\lceil \frac{M(M-1)}{2N} \right\rceil \quad (5)$$

Where, w_i represents the number of comparison tasks performed by the i th node. For the distributed system with n nodes and M data, a total of $M(M-1) / 2$ comparison tasks need to be assigned to each node.

3.3. Data Analysis Method

On the basis of obtaining literature and related materials, use Excel2016 and SPSS17.0 to perform statistics and analysis on the recovered data. After obtaining the corresponding required data, further sorting and writing are carried out.

4. DISCUSSION

4.1. Performance Techniques

This article makes a related survey on which expression technique is more focused in the painting process. The survey results are shown in Table 1:

Table 1: Focus on performance techniques

performance techniques	Teachers	Students
Freehand	34%	21%
Realistic	23%	36%
Three-dimensional	16%	24%
Sense of space	27%	19%

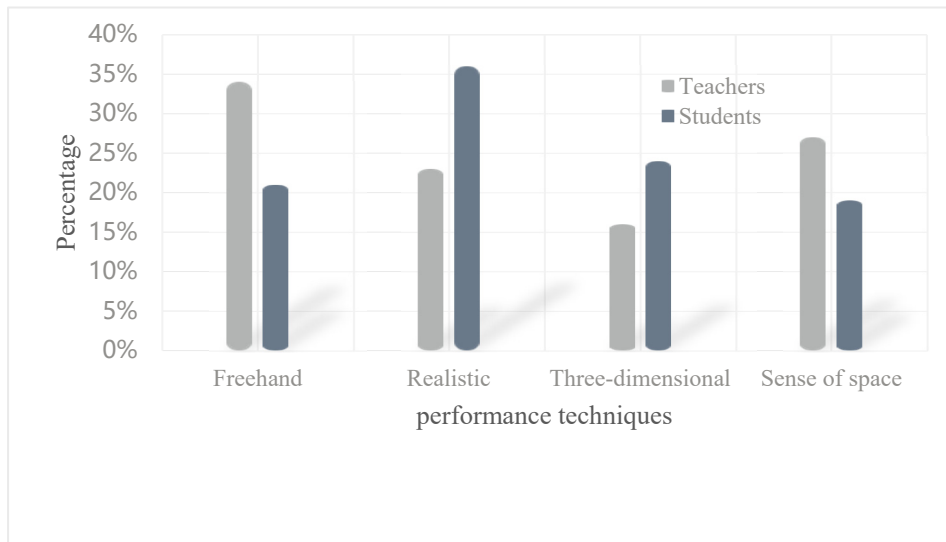


Figure 1. Focus on performance techniques

As can be seen from Figure 2, in the painting process, 34% of teachers and 21% of students focus more on freehand brushwork; 23% of teachers and 36% students focus on realism; 16% of teachers focus more

on freehand brushwork. There are 24% of students; 27% of teachers are more focused on freehand brushwork, and 19% of students.

4.2. Differences between Chinese and Western Art

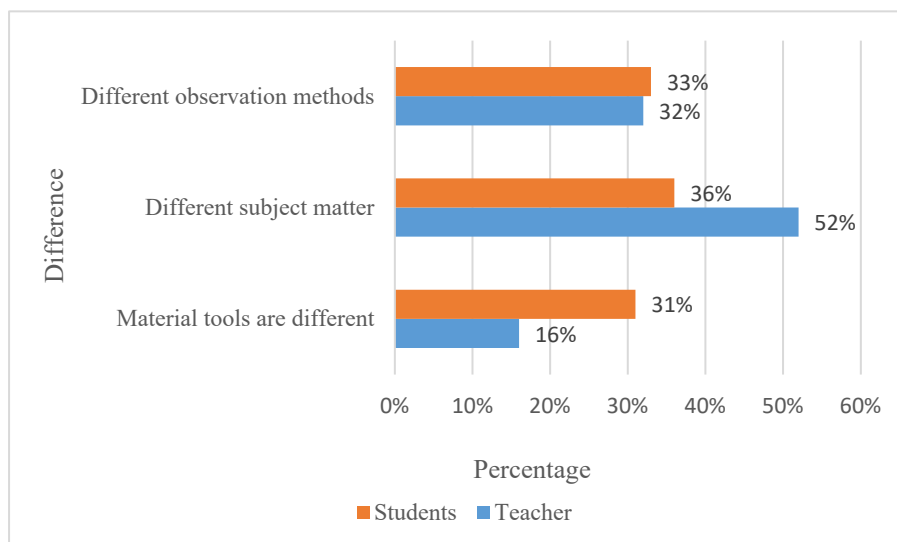


Figure 2. Differences between Chinese and Western Art

It can be seen from Figure 2 that 16% of teachers think that the materials and tools of Chinese and Western art are different, and 31% of students. Western classical paintings use oil paints, oil paint brushes, and wooden boards and oil canvas as the carrier, while traditional Chinese paintings use oil paints, oil brushes, and canvas. Ink, plant colors, mineral colors, brushes, using rice paper and silk as the carrier; 52% of teachers think that Chinese and Western art have different themes and 36% of students. Western classical painting emphasizes people most, and figure painting is very prosperous in China Traditional painting emphasizes the harmony between man and nature. Figure painting has become a supporting role since Tang Dynasty. Landscape painting is very prosperous; 32% of teachers and 33% of students believe that Chinese and Western art have different observation methods. Western classical painting started from the Renaissance, and The science is closely integrated, emphasizing the perspective and proportional relationship, and the painter's observation method adopts focus perspective. Chinese traditional painting uses scatter perspective. There are no particularly complete and detailed art theory works of the West. There are only some painting theories circulating, such as the "three-distance method", "six essentials" and so on.

5. CONCLUSIONS

With the advent of the era of big data, more and more materials can be digitized, and more and more material laws can be mined from data analysis. This is an opposite process and an interactive process. This paper discusses and analyzes the big data technology, applies it to analyze and evaluate the differences between Chinese and Western art, and comprehensively analyzes the differences between Chinese and Western

art from the aspects of concept, performance techniques, color forms and so on. Although this paper proves the feasibility and effectiveness of the comparison and evaluation method of Chinese and Western art differences from the perspective of big data through big data technology algorithms and experiments, there are also some deficiencies. There are errors in the algorithm and the experimental data are not comprehensive enough, so the conclusion needs to be further studied.

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