Research on the Application of Semantic Expression Based on Visual Construction Technology in Oil Painting Teaching

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Abstract

In order to improve the efficiency in oil painting creation, the paper researches on the visual construction technology in oil painting teaching. In this paper, bilateral reference filtering and mathematical morphology operation is used to build Pyramid reference image sequence. Experimental results show that the new reference image sequence has more texture direction and clear boundary which is easier to draw. At the same time, because this algorithm based on the human visual sensitivity region in the drawing style of painting of the fine layer made according to the sensitivity coefficient for the strokes starting point threshold adjustment, direction precision improvement and strengthen the boundary constraints, this algorithm generates the oil content is clear, has a more prominent effect of painting. The experiment result shows the proposed method can be applied well in the oil painting teaching.

Keywords: Semantic expression, Visual construction, Oil painting teaching

1. Introduction

Oil painting is a kind of painting that is made of fast drying vegetable oil (linseed oil, poppy oil, walnut oil and so on), and is made on canvas, linen, cardboard or board. The diluents used in the painting are volatile turpentine and dry linseed oil. The paint attached to the screen has a strong hardness. When the screen is dry, it can keep its gloss for a long time. With the covering power and transparent performance of the pigment, the depicting objects are fully displayed, and the color is rich and the three-dimensional texture is strong. Oil painting is one of the main paintings of Western painting.

Oil painting is the predecessor of the fifteenth Century in Europe before the painting in tempera, after the Dutch painter Jan Van Ike (1385 -1441) of painting materials to carry forward the improved. Inyan Van Ike has made a unique contribution to the deep development of the art of oil painting, which is regarded as the "father of oil painting". Much modern oil painting pigment is mixed with linseed oil, after processing the cloth or wood paint, oil paint is dry because no color, variety of color harmonic does not become dirty, the painter can draw the rich and vivid colors. Oil paints are opaque and overlay, so painting can be drawn from deep to shallow, covering layer by layer to create a three-dimensional sense of painting (Arnheim, 1993).

Painting has become the history of Western painting in the way the body painting, and Western paintings are mainly paintings. With the development of time, oil painting is becoming more and more popular, the most famous of which is an ordinary woman in "Mona Lisa" and is widely used. In the late nineteenth Century, due to the development of science and technology, many new materials were used in oil painting fields, such as acrylic paint, paint and so on.

In the appreciation of an oil painting, mainly from the ideological content of the works, artistic skills can be illustrated in two aspects of appreciation. Oil painting originated in the west, and any oil painting needs to rely on the visual image to reflect the content of the thought. On the one hand, the image created by oil painting brings the viewer to an artistic realm reflected by the painter, causing the resonance between thoughts and feelings and producing aesthetic function. On the other hand, the ornamental understands and enriches the connotation of the oil painting according to his own life experience. The understanding of an oil painting is different from the depth understood by people, and it is associated with the quality of the ornamental. The ideological content conveyed by the excellent oil painting works, and the sentiment of the people is cultivated. Figure 1 shows an oil painting.

To improve the spiritual realm of human beings, the appreciation of artistic skills should be understood and understood in the language of oil painting. The material of the oil painting itself has the characteristics different from the ink painting and the watercolor. The beauty of this material is a major feature of the oil painting.

The skillful works are embodied in the artist's mastery of the material and the skillful use of materials and tools to shape the image. The picture reflects the harmonious relationship between the whole and the part, and the opposite relationship between the rich and the unifying.
2. Overview

The historical conditions of the early development of oil painting laid the realistic tendency of the classical oil painting. In fifteenth Century the European Renaissance, humanism for criticism of religion, with a focus on the positive requirement of social reality, many famous painters to gradually get rid of a single Christian classic theme creation, to observe and direct depiction of the then life figures, landscapes, objects, so that the works of religious subject with the reality of secular factors with obvious, some artists fully depict real life real. Renaissance painters inherited the Greek, Rome's artistic concept, which not only focus on work to describe an event or fact, but also reveals the antecedents and consequences of events or facts, thus forming a typical plot and pay attention to the idea of creating typical image art. At the same time, the painter also explored the application of anatomy, perspective in painting, the function of the distribution of the picture and darkness, and formed the scientific principle of the modeling. The use of human anatomy to the figures in the painting are as real as accurate proportion, shape, depth and space structure; establish perspective focus make painting form through the composition of the illusion, instant visual perception and reality in the directional scenery in the same darkness; make images in a unified picture issued the main source of light, forming a clear hierarchy from the near to the distant. The artistic theme of humanism and the pursuit of realistic modeling concept cannot be perfected in other kinds of paintings, because the limitation of tool materials, and the performance of oil painting tool materials is suitable for fully representing the two. As a result, classical oil painting has become a long - made and highly realistic look (Weiss, 1982; Kim, 1980).

Some oil paintings in the seventeenth Century emphasized the light perception of oil painting, and created the dramatic atmosphere of the picture with the contrast of color, cold and warm, contrast of light and shade, contrast of thickness and layer. Caravaggio Italy painters before he ordered painting in the light of harmonious effect, he strengthened the picture contrast between light and dark, often with a large dark background picture plane off a bright foreground figure, feel the light. Spanish painter el. Greco will be treated as objects in mottled light, he is not from the shade two decent shape dark distribution but from discontinuous scattered, the color changes in temperature also form a continuous change, continuous pen dignified, color level of permeability in extrusion of each other, the screen gives a whirling effect, some even filling a mysterious and disturbing atmosphere. Holland painter Rembrandt also put the light as a means of expression of people's mental state, he made many portraits, figures are shrouded in dark blocks, only show brightness important part of face, hands and other distinctive. He used the calm color in the dark with thin layers, the dark is deep, light painting is coated with thick and painting knife pile method, resulting in heavy volume. At the same time, the use of strokes was also explored by many painters.

The development of oil painting had a new trend in nineteenth Century, mainly the change of oil painting color. The earliest British painter Constable J. directly with the painting in the outdoor painting, rich colors, with fine brushwork in his local color to blend into juxtaposition, distinctive color, the picture is the classic brown tone brighter. The color of the color - color color wheel poles can enhance each other principle lightness and strength in juxtaposition, in later scientific understanding, but Constable with observation of the natural emotion obtained in practice and the principle of complementary color, in part by. His work has inspired the French painter Delacroix e.. Delacroix dominated the creation with the idea of romanticism and created a large number of thematic paintings based on the historical events of the time. He will be more applied to the complementary relation between the creation of color performance, using active strokes, contrast color in many parts of the picture, enhances the color brightness and gorgeous feeling, forming a shock when painting style. Many painters
of the French Barbizon School of landscape painting in the natural climate conditions of different understanding of the relationship between landscape light color, natural color and environmental color, realize color to reflect the time, environment, atmosphere, foil art theme, constitute a major significance of artistic conception and emotion regulation. A large number of landscape paintings have drawn a particular color atmosphere, such as natural wind, rain, morning and twilight (Wiley, 1998; Faxon, 1991).

The European oil painting in nineteenth Century has a clear School of art, although it is mainly embodied in the theme and content of the art, but oil painting techniques also have their own features. Like the neoclassical painting images focus on rigorous and solid sense, the classical traditional style rule; romanticism around the theme of the tragedy, and strive to tension in color, brushwork and movement factors composition lines create painting plot; a focus on the expression to the figure in the painting mood, more pictures in the green, purple, a sentimental, green tone quiet mood. Although the modern painting of the face is relatively rich, but have the overall characteristics of the realistic, their common performance: a painting is a unity of art form, color tone unified picture the local color, local color form a harmonious relation in transition in the gradient of each other, there is no isolated color; basic strokes it is used for shaping the image of the exposure level is limited, and unified in the long or short, or some orderly disposition; unified images were depicted at the centre of the composition, formation and effect of real horizon isomorphism.

From the beginning of the end of the nineteenth Century, has undergone a fundamental change in Western painting. The relatively narrow artistic function and integrated realism of traditional oil painting have reached the high degree of saturation of their own system, so they tend to break up in the transformation of philosophical concepts and artistic concepts. Oil painting is no longer the principle of creating the art of imitation of nature and reproducing nature, and the artistic image of the artist's free construction is regarded as a new reality. Artists no longer depict nature through the form of oil painting, but regard oil painting as a medium to express their spiritual and emotional world, and construct works by imagination and fantasy. After the Impressionist school, three painters first abandoned the traditional oil painting model. V. Van Gogh makes a strong, bright color full of strong sense of force with an acute and unrestrained stroke, showing uneasiness in his heart. P. Gao is made up of a symbolic color and shape. The space of the work is contrary to the traditional form and has a non-descriptive and mysterious atmosphere. P. Cezanne explored the art image with geometry, creating a picture of a world rich in its own order. Their works have become a symbol of the upheaval of the oil painting. Figure 2 shows the work of P. Cezanne.

Figure 2. The work of P. Cezanne

In twentieth Century oil painting, from different artistic ideas of different genres, and restrict the art forms a variety of tendency, factors of traditional painting techniques in the form of art is often used as a concept to be strengthened, and even to the extreme, a form of painting language is highly valued by. For example: the main body and neglect the color for free structure Cubism; focus on the strong color

The effect of equilibrium state in the Fauvism; through the disorderly use of color and brushwork expressive expressionism distorted psychology; abstraction of pure color in the point, line and surface composition; and pigment random rejection, splashing, dripping on the canvas of abstract expressionism etc.. In the last hundred years, modern western oil painting schools have been numerous and successively replaced. As long as the tools and materials of oil painting are used as the molding medium, the artist can create an arbitrary picture of oil painting (Tinari, 2007; Aton, 2002).
With the continuous expansion of the concept of art, the combination of oil painting materials and other materials leads to a comprehensive art that does not belong to a specific painting species. Therefore, oil painting is also losing its status as the main painting species in the West.

3. Technique in oil painting teaching

Generally speaking, sketches are rough draft, and outline the general shape of objects with arbitrary lines. What determines the final effect is color modeling. The sketch may be the case for an artist who uses direct painting. For the artists of the classical realistic painting, the sketch is very important. It is the whole of the artist's modeling language. Because the sketch is the most basic art expression, it is the first step of the communication between the artist and the nature. Here we examine the young painter of his sketches, as shown in figure 3.

(1) First sketch out a tentative draft, draw a large composition on the paper with a pencil on the paper, and make a sketch of the model against the model. Painters are mostly emotional factors when they are sketching, and the shape and spirit of the characters are as close as possible to the objects (Centeno, 2009; Golahny, 1990).

(2) Temperament fully appreciate the model in the painting process, firmly seize this opportunity to strengthen the open spirit. Then, the painter processes, generalizes and refines according to the sketches.

(3) The creation of third sketches on the basis of the continuous evolution of the first two sketches and the purification of the language. This step emphasizes the contour line processing, makes the shape more plump, the character produces a kind of embossment feeling under the effect of light and shadow. At the same time, to enrich the local content, the painting is more affirmative. After the sketch was finalized, the painter copied the sketches to the canvas with an extremely strict method (square magnification). From this perspective, sketch is a flexible modeling process, which allows or even encourages continuous revision and adjustment, all of which are aimed at determining a clear and satisfying visual image. At the beginning of any oil painting, there is a reason and a lot of time to take a sketch. Sketch is not always on the top. It can be directly modified or adjusted on the canvas with the line. It can also use simple color to determine the relationship between the main color and the color of the picture.

![Figure 3. Young painter’s sketches](image)

Through the development of oil painting, we can see that the beauty of the color layer is constantly excavated and created. The function and strong plasticity of oil painting pigments are incomparable to other kinds of paintings. This characteristic makes oil paintings produce rhythm and strength that can resonate with people's thoughts and feelings. Under the effect of writing, molding is not only a task to complete the modeling, but also has a direct impact on the texture effect of the picture. Rembrandt and Lubensi are all good at mastering and controlling texture, because texture directly conveys the artist's psychological feelings and affects the intensity of his works. The rational expression of the so-called texture includes not only the imitation and reproduction of the texture to the object's texture, but also the description and expression of the overall mood of the picture. In the traditional realistic painting, the texture is capable of texture reconstruction task, object fine and coarse texture are available corresponding texture to imitate, but this is a very passive behavior, but the real beauty is a thing of the texture is who can express the picture of the rhythm and the artist's emotion, has the height of the texture of harmonious order. This texture often transcends the limitations of the texture of the spirit through the whole picture and the viewer's heart, becoming the beauty of the color layer that is extracted from the concrete. In this sense, it is abstract. But in the traditional painting which in turn attached to the realistic object, fusion by the overall atmosphere of small to large.

Transparent color is a multilevel depiction of pigments that are diluted by the color oil without white. The next layer must be dried after each layer. Because the color of each layer is thinner, the color of the lower layer
can be revealed vaguely, and the color of the upper layer will change into subtle tints. For example, the heavy blue on the deep red layer will produce rich effects in the blue and purple way, which is warm in cold, which is often the color that cannot be transferred on the palette. This kind of drawing is suitable for representing the texture and the sense of reality of the object. It can, in particular, depict the exquisite skin color changes of the characters and feel the blood flowing beneath the skin. It is the shortcomings of narrow gamut, exquisite production process, complete the work a long time, not easy to express the painter's artistic creation of instant emotion (Townsend, 1984; Price, 2000).

The opaque coating color is also called hierarchical coloring method. When painting with monochromatic draw large body appearance, and then use the color of multi-level shape, dark often painted thin, medium and light layers of thick coating, or cover or stay, the formation of color contrast. Because the thickness is different, it shows the rich rhyme and texture of the color. There is no strict distinction between the two paintings of transparency and opaque, and painters are often used in a painting. In the dark shadow of the performance or images, with a transparent coating method can produce a stable and profound sense of volume and space; opaque cover color method in the dark outside the body is easy to mold, increase the color saturation. Most painters before nineteenth Century adopted these two methods of painting. The time of making works is generally longer. After finishing some paintings, they will be placed for a long time until they are completely dried.

Opaque coloring is also called direct coloring. That is to say, after making the contour of the object image on the canvas, we will lay the color on the basis of the color sense of the object or the conception of the picture's color. Basically, once the picture is finished, the incorrect part will be scraped with the drawing knife and then continue to be colored. In this painting, the pigments dipped in each pen are strong, the color saturation is high, and the strokes are clear. It is easy to express the vivid feelings of the painting. Many painters in the middle of the middle of the nineteenth Century used this kind of painting more. In order to make a full effect to the colored color, must pay attention to the use of gesture namely coating method, coating method used consists of coating, powder coating and coating thickness. Is the use of one-way color intensity, uniform style painted a large area color, suitable for shaping the static form in the smooth and stable composition; powder coating refers to the natural tendency of the painting form on the basis of turning the brush strokes, loose and flexible; thick coating is whole or partial thick pile of pigment. Some form of up to a few millimeters in color or color, the pigment showed texture, taste, the image has been strengthened.

The color of dark tone light coating has its significant advantages, especially the object of painting is very complex and difficult to grasp the painting posture with its advantages are more obvious. First, because it is monochrome, in the drafting stage can let go to solve the problem of sketch and composition, do not need to take into account the color. Second, with a shallow layer of thin can be repeatedly modified, not general painting because the altered too much clutter and pollution problems. In the drafting stage to solve the problems such as sketch, color and edge, then focus on the color and structure, would be easier.

The first step: the middle tone and cooked brown ivory black tone synthetic micro warm, to be cooked brown, add the turpentine thin, transparent, with bristles on the canvas pen (with a moderate degree of roughness, the dark canvas) - hair area and body painting. A little thicker color should be used for drawing hair, that is to add a little turpentine in the middle tone of the contract, and the hair will cover the whole face, but it should be able to express the strong expression of the person in the picture. I do not treat the hair as a hair treatment, and treat it as a dark color that determines the size and shape. Even in the beginning, shades and sketches try to be accurate. Draw one part, and then draw another part. Each part is interrelated, and some of the inaccuracy will affect others, and the whole situation can't be controlled.

The second step: this step is to draw the image of the human body clearly. Use a soft cloth to wipe off some of the original tones along the body's arm and the upper surface of the arched knee, causing a bright level. You can use a clean soft cloth or a pen dipped in turpentine change tone, but in a profile stage absolutely cannot use an opaque white. At this stage, the border problem is as important as the shadows and the sketch. From the top of the shoulder to the wrist and through the stretched knees, the sidelines are quite obvious, while the side line from the armpit to the bottom of the wrist is not so obvious. These are not accidental phenomena.

The third step: draw all the main shiny parts on the body. The head, arm, shoulder, and curved knee temporarily do not move them, and develop bright tones at the lower part of the torso, the buttocks, the closed foot, and the stretched leg. The original color layer of these parts is dry and can be wiped out with a soft cloth dipped in turpentine. The rest may seem vague, but it is still accurate. In addition to a particularly bright part, the tone and shape are correct and the position is appropriate.

The third step, color in a variety of ways. In the forearm, shoulder blade parts of triceps and back, with heavy flat strokes. In the middle of the raised thigh, the knee and the chest are basically used as a coloring knife. In the arms, legs and feet are between the lift, and the pelvises are behind these shadows, with a thin and transparent pigment. In the whole process, it is very important to maintain transparency in the dark. Strong light opaque and strong transparent shadow interaction bring the human body three-dimensional sense. In the processing stage, but also the dark spots under her arm gently scraping with a palette knife, these dazzling spots
are formed in the horizontal strokes thick rough surface structure on the canvas. In addition, the badger brushes are also used to smooth those ugly strokes under the buttocks and underneath the extended legs. Badger brushes and mink brushes can form a beautiful and soft brush, but they often have weak and loose effects. They must be paid attention to when they are used. The final human body: the cloth painting, 20 "x 30". At the completion stage, we are committed to the processing of the border again. In the obvious turning place, if the top of the knee can be raised, the sideline is clearer; in the place where the shape is turning blunt, such as the inside raised thigh and the left side of the hair and the background, the sideline is blurred. On the shoulder and the foot that is disturbed, use thick coating (that is, with thick pigments on the surface).

4. Semantic expression based on visual construction technology

The painting style of drawing strokes based on the classical algorithm the main idea is to establish multi reference images of Gauss Pyramid from the static input graph, Sober filter function is then used in each layer to get the gradient information of the image, thereby establishing a starting point and direction of the brush, and then from coarse to fine gradually realize on canvas by drawing: Gauss filter kernel processing reference image sequence, in order to get the size of the original image and the reference layer sequence; the stroke starting point, first established corresponding to grid and stroke radius, then statistical pixel error reference image corresponding to the area in the current and the sum of the canvas in each grid, if the threshold is greater than the value of a user given the definition of the grid in the region need to establish a stroke center is the starting point and starting point of pixels of the pixel values within the grid area of maximum error The direction of the stroke is judged mainly based on the gradient information at the starting point of the stroke.

These factors will be calculated to stroke rendering algorithm, which can draw the high light region and shadow region, have certain light visual effect for stroke model in vision, transparency and other factors also introduce the edge, trying to draw closer to the effect of stroke painter hand drawing style. Strokes from the visual perception of it, some sensitive areas often exist in image information, such as human face, close range photography scene in golden point. When the painting effect, if in the area of the style of drawing is rough, it will greatly damage the ornamental effect, so we need to do according to the importance of regional boundary constraints to some extent. According to the distribution of the image to determine the importance of each region boundary extraction strength, then extracted by the boundary constraint to stroke. 1) first use face region. The search is adapted to the circular region of the face detection technology. As a hot topic in the field of computer vision, face detection algorithm has been developed very perfect. This paper uses face detection technology for face detection. In general, the eyes and the surrounding parts are particularly sensitive, while the eyes usually in the upper part of the circular region in addition to do. At the same time the enhanced circular area, need to consider the asymptotic effect and its surrounding roughness. According to the above analysis, based on the circular area and its surrounding detect faces are as follows: the importance of parameter setting will face unified semi-circle set importance parameters alpha 1, the second half is set to a region 2. at the same time in the circular area of the outer circumference, in accordance with the pixels from the center is proportional to the distance the importance parameters decreased gradually, at 2 times the radius of the center distance The pixel point, the point of the importance of parameters is reduced to 0,2) near the focus. The scenery landscape vision map, visual focus of general position in the image center is lower, so the importance of detection is similar to the above method in this area. Usually in close range image on the upper part of the 2 golden points. Above close focus detection method. The experiment result is shown as following figure 4.

Figure 4. The experiment result
5. Conclusion

In order to apply the real image into the style of painting, a painting style rendering algorithm. The paper researches on the visual construction technology in oil painting teaching. In this paper, bilateral reference filtering and mathematical morphology operation is used to build Pyramid reference image sequence. At the same time, because this algorithm based on the human visual sensitivity region in the drawing style of painting of the fine layer made according to the sensitivity coefficient for the strokes starting point threshold adjustment, direction precision improvement and strengthen the boundary constraints, this algorithm generates the oil content is clear, has a more prominent effect of painting. According to the characteristics of painting, combined with bilateral filtering and mathematical morphology operation to establish improved multilayer structure reference image sequence in Pyramid; then put forward the vision to stroke algorithm based on graph layout. To detect the face region by using importance the visual focus detection method, and starting point, 29 draw according to these regional information direction accuracy improvement and strengthen the image texture boundary constraints, to clear the effect of primary and secondary oil content. The experimental results show that the proposed algorithm can achieve better visual effect. Experimental results show that the new reference image sequence has more texture direction and clear boundary which is easier to draw. The experiment result shows the proposed method can be applied well in the oil painting teaching.

References