Creation Research in Digital Painting

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Abstract

The research purpose of this paper is to conduct digital learning through digital painting in order to enhance undergraduate students' digital painting skills, art appreciation, and creative ability. The study subjects are university students. In the digital painting courses, we will mainly focus on the images of animation characters. The research methods will make it possible for students to operate the digital software and hardware practically, to learn the composition of the painting and the design of the color. Furthermore, students will interact with others and join a discussion; at the same time, teachers will help them to record their learning process. And at the end of the course, all their works will be collected and compiled into a personal portfolio. Students can learn how to operate the digital painting software based on the original animated images. After they are proficient in it, teachers encourage students to create scripts of animation stories and animation characters and also improve their painting skills, camera movement skills, and composition design. After the creations are done, students can upload their works on a digital platform that everyone can appreciate and observe. The research results of this paper summarize three conclusions. First, digital painting can boost students' understanding and operation of digital painting software. Second, digital painting can also allow students to have a creative imagination. Third, digital painting provides opportunities for students to observe and exchange ideas on online platforms.

Keywords: Digital Painting, Handed Painting, Art Pedagogy, Digital Creation

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Introduction

In recent years, widespread digital computers and pads using would drive the art creation from handed painting to digital painting. In 2019, due to the impact of COVID-19 pneumonia, the convenience brought by the Internet age has made distance teaching and distance learning frequently, which fits the form of digital creation. To establish an online platform for the observation and discussion of the art courses, as well as to provide modified suggestions, feedback comments from mentors are the key issues. Additional implementation classes of art education on the internet need to propose in pedagogy. Those are included but not limited. Students could create artworks on the Internet, observe, discuss, and modify their works, could record the whole process, could put the draft, modifying, final, and revised works into picture albums, and could convert the achievement into a public or commercial demonstration. Based on the concept, the research would carry on about 20 members of the Animation Club at National I-Lan University in Taiwan. (https://www.facebook.com/withniuacgclub), The research applies in the Animation Club courses at an appointed date and time every biweekly. [1-3]

Handed Painting and Digital Painting

Handed painting is a traditional art creation using materials and painting techniques to achieve the purpose of creation. A new type of creation can combine computer, graphic tablet, software, and selective programs to achieve artistic creation [4]. Handed painting includes various types of painting, like watercolor, oil, sketching, and crayon painting. Handed painting needs various tools for different art paintings, as shown in Fig. 1(a). on the contrary, digital painting needs only a few tools which usually require a digital pen and an electric drawing board correspondingly. The drawing digital package or software would be put under consideration, as shown in Fig. 1(b).



Fig.1: (a) Handed painting needs various tools for different art paintings; (b) Digital painting requires a digital pen and an electric drawing board correspondingly.

Handed painting is quite intuitive for the basics and beginners. When choosing one type of painting for the beginning learners, required minimal and cheap tools have been readily available for several centuries. Of course, well-trained handed painting is recognized and considered to transfer to digital painting easily. However, there are existed expensive special tools, pigments, and consumables for advanced learners. For beginning learners, there is a long trip for learning. Furthermore, difficult preservation of works from moisture, loss, fire, and aging would decrease the progress of learning and douse the enthusiasm of learners. For digital painting, there are seemingly simple tools, a digital pen and an electric drawing board correspondingly, in the beginning stage of the handed painting learners. The

advantages would not possess quick creation and easy modification only, but also could be preserved, transmitted, duplicated, and reappeared achievedly. In addition, complicated digital image processes and effects are possible. On the other hand, trained digital painting is not necessarily to be able to transfer to handed painting. For artists, it may not be easy that digital painting software needs to be selective and well-familiar.

	Handed Painting	Digital Painting
Pros	 Hand-painting is quite intuitive for the basics and beginners. Minimal required tools are cheap and readily available. Trained handed painting is recognized to transfer to digital painting easily. 	 Seemingly the simple tools. A digital pen and an electric drawing board correspondingly. Creation quickly and modification easily. Digital drawings could be preserved, transmitted, duplicated, and reappeared. A complicated digital image process and effect are possible.
Cons	 Expensive for special tools, pigments, consumables, etc., For beginning learners, there is a long trip for learning. Difficult preservation of works from moisture, loss, fire, and aging, etc. 	 Trained digital painting is not necessarily to be able to transfer to handed painting. Digital painting software needs to be selective and well- familiar. Electricity is necessary.

Tab. 1: the advantages and disadvantages of handed painting and digital painting

Elements between Handed Painting and Digital Painting

There are several elements to observe the differences between handed painting and digital painting. The first element is the brush. When artists create, they always hope to express creations more abundantly on the screen. In addition to colors and brushstrokes, it is nothing more than a variety of brushes. Virtual brushes can easily add and define the size, concentration, and shape of the brush in digital painting resulting in completed more different performances. The second element is the rendering. The difference between handed painting and digital painting is found in the use of media and rendering techniques. Watercolor painting is an obvious example. When in handed painting, artists usually add water to lighten the color[4]. However, different techniques could be achieved in a variety of ways, such as erasing, covering, and other covered icons, to achieve a similar performance while digital painting. The third element is canvas and layers. A physical canvas cannot have too many layers of brushstrokes on it, and the acceptable number of smears varies depending on the paper quality. Oppositely, if the memory capacity allows, the digital canvas can be added infinitely as layers and can also be smeared and modified indefinitely. The final element is the aspect ratio and color effects. Use the warp and perspective tools to correct the composition and shape of an image quickly. You can also use filters and color saturation to adjust the color of the picture.

Elements application in practical examples of digital painting

Based on the previous differences, four practical examples, character, landscape, light effect, and object adding, are proposed below. Those elements would be shown the application in the practical creations. Fig.2 is a graph of a character that would highlight color render, shadows, and light direction. When creating a character of a draft, the appearance of a trench soldier in World War I, waving a shovel would be presented. The rough lines roughly draw the shape and shadow of the character, as well as check whether there is any inconsistency in the painting, as shown in Fig.2(a). After the draft is finalized, some lines will be simplified to erase unnecessary lines. Notice that to pay attention to the change in thickness. The lines close to the shadow should be thicker, and the lines that are more affected by the light should be thinner or even disappear, as shown in Fig.2(b). In color rendering, the color block rendering would be adopted. Compared to the thick coating applied directly, the clear distinction method is more suitable for beginners. After we determine the inherent color of the object, we can proceed to the next step, as shown in Fig.2(c). Shadows and lights would be added to try to maintain the integrity of the picture. After confirming the general shape, we added details and highlights to lighten the key points we want to express, as shown in Fig.2(d). Finally, use color correction on the picture to achieve the final effect, as shown in Fig.2(e).



Fig. 2: the progress of the practical character example

The second practical example is a landscape creation. What needs to be paid attention to in landscape painting is perspective. Suppose it is large, far, or small. Distant objects will become very light in color due to their relationship with the atmosphere. On the contrary, the closer the object is, the more it can show the original color of the object. First, a towering building would be drawn to erect in the wilderness. In order to grasp the sense of distance and make sure that the proportion of the picture is appropriate, a landscape draft is shown in Fig.3(a). To draw the background color, what we want to present is the city near dusk. The contrast from the field to the city forms a sharp contrast, as shown in Fig.3(b). The city is a dense and irregular cone shape, and the tower in the middle is soaring into the sky. The work would be added with details and layers, as shown in Fig.3(c). The light source would be added. We want to make an occluded light source so that it can see through the clouds to increase the richness of the light, as shown in Fig.3(d). Adding layers and points of light to the building complex increases the complexity of the city. Of course, this is very fast, and the objects in the distant view do not need to be displayed in too much detail. This will shorten the sense of distance between the far and near. On the contact surface with the ground, A cool-colored style would be chosen to try to add and create a sense of mystery and traces of human activity. Finally, adding spotting and color correction would complete the final product, as shown in Fig.3(e).







Fig. 3: the progress of the practical landscape example.

The next practical example is a creation with a light effect. In this example, we tried to sketch without lines and just paint the shapes with brushes. The picture can be brought into the state faster. When the artists face the needs of the commercial, a variety of concept maps can be produced more quickly so that the team can understand the artists' ideas, as shown in Fig.4(a). After confirming the outline, the smear tool would soften the noise effect brought by the brush and preserve the brush strokes. Furthermore, adding shadows and ambient light would create an atmospheric feeling, as shown in Fig.4(b). Fill in the details of the city. The city would have a kind of sense of technology. Geometric shapes with the modification enhanced the flavor of a modern building. Besides, increase the contrast between the backlight and the foreground, as shown in Fig.4(c). Finally, the clouds are modified into a form similar to God's light. A slight over-exposure would make the picture look foggy to create a sense of mystery, as shown in Fig.4(d).





(c) (d) Fig. 4: the progress of the practical example with a light effect.

The last practical example is a creation adding an object. In this example, we want to add special-shaped geometric man-made objects on the beach. Surrealism can make the artist show his imagination and characteristics very well. First, draw the background, a simple beach, and ocean, and the shape of the mountain is faintly revealed in the back, as shown in Fig.5(a). Adding a geometric object (octahedron) into the sea, it looks like a super-large artificial body, and a little sci-fi flavor makes the picture more interesting, as shown in Fig.5(b). Put on the filter. The filter can generate the tone conversion of the picture very quickly, showing a completely different feeling of the picture. The filter is also a double-edged sword, and it can bring a certain degree of effect to the picture. Although the degree of completion of the picture is not so high, in the face of the filter effect, the artist should use it with caution, as shown in Fig.5(c). Finally, add some special effects and sharpening corrections to achieve the goal, as shown in Fig.5(d).



Fig.5: the progress of the practical example with an object addition.

Community and Gallery Platform

Google cloud HDD or iCloud would be employed to collect student works and final works. These folders are personal, and the permitted accounts can freely view other folder contents, as advisers or teachers, could observe and guide them online. Connections between the internet and popular community could make the exchange of opinions more convenient and soon. Students and artists would get feedback and corrections faster. The platform would make the artworks modify quickly and accomplish maturely.



(a) Fig. 6: Community and Gallery Platform

Conclusion

This paper tried to conduct digital learning through digital painting to enhance beginners' digital painting skills, art appreciation, and creative ability. The differences between both are presented, and listed the advantages and disadvantages of them to distinguish the elements, which would approach the digital painting learning quickly. Besides, The research methods would make it possible for students to operate the digital software and hardware practically, to learn the composition of the painting and the design of the color. Amazingly, creations in the digital painting are easy to create, replicate, edit, modify, and save in a digital system. Digital painting could communicate and publish online. It is better to learn digital painting directly than to transfer from handed painting to digital images. Four examples, characters, landscape, a light effect, and object addition, are explained in the research. Obviously, the painting style, perspective, and composition design in digital painting can boost students' understanding and operation of digital painting software. Second, digital painting can also allow students to have a creative imagination. Third, digital painting provides opportunities for students to observe and exchange ideas on online platforms.

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