The Effective Application of Image Processing Technology in the Practice of Environmental Art Courses under the Background of Internationalization

Liu Jianwei
Tianjin light industry vocational technical college, 300350

Abstract: Image processing technology can provide necessary tools for the practice of environmental art courses. Especially in internationalization, the use of modern technologies such as image processing technology in environmental art courses can be in line with international standards and improve the quality. However, in the actual application, problems such as the unreasonable application mode of environmental art courses and the need to increase the use of image processing technology have arisen. This article will study the problems that arise in the technology in environmental art courses, and provide some opinions and suggestions on how to promote.

1. Introduction
In the context of internationalization, the practice of environmental art courses needs to develop in an intelligent and systematic way. As an important part of the environmental art course, image processing is in line with the requirements. However, there have been problems such as the inability of image processing technology in the application. The paper will briefly analyze the problems, and introduce several methods on how to make the image processing technology effectively.

2. The importance of image processing technology in the practice of environmental art courses in an international context
(1) Improving the authenticity of environmental art practice
The first impact of image processing technology on the practice of environmental art course is to improve the performance. Environmental art includes urban planning, urban design, architectural design, interior design, urban sculpture, mural and others. Learning environmental art requires engineering mathematics, descriptive geometry and engineering drawing, material and structural mechanics, elasticity, fluid mechanics, soil mechanics and others. Image processing technology can carry out size cutting and color description for environmental survey pictures painting and mending operations to provide the necessary operation tools. The purpose is to make students learn more practice methods according to the requirements of the course, image processing, so that the environmental art course practice is more intuitive, and improve the reality of the practice.

(2) Improving the practical efficiency of environmental art courses
Another effect of image processing technology on environmental art courses is to improve the practical efficiency. The main purpose is to equip students with architectural planning and engineering measurement structure design, indoor and outdoor decoration, or the ability of landscape design. Students can use the image processing software of the existing buildings, both inside and outside decoration or landscape design, such as image in interior decoration. Students choose the parameters
of the decorations according to the structure of the actual size, and draw decorations on images or area, make adornment conform to the requirements. When designing environmental art for outdoor landscapes, students can design the surrounding flowers and trees and green belts according to the characteristics of the outdoor. Students can add layers and color to the picture to determine the type and color of the landscape to choose the most suitable outdoor landscape. Environmental art course practice is mainly designed for interior decoration and outdoor landscape. In the traditional design, due to the lack of suitable tools, students cannot understand the real design concepts through the practice of environmental art courses, which makes it difficult to improve. The use of image processing software can improve the practice. Especially for the interior decoration and outdoor landscape of modern buildings, it is necessary to set the size and location of the decorations or landscape through image processing technology, and set the color and tone, so that the interior decoration and outdoor landscape meet the requirements of environmental art.

(3) Improving students’ comprehensive application ability

In addition to improving the authenticity and efficiency of environmental art course practice, image processing technology can also help students improve their comprehensive ability. Image processing technology, as an indispensable operation tool in environmental art courses, belongs to the category of computer science and technology, which is also one of the technologies that need to be mastered in the course practice. The application can not only improve the quality, but also make the course practice play its due role. It can also encourage students to understand and master image processing technology, recognize the role in practice, improve students’ comprehensive application ability, and improve their overall quality[1].

3. Problems in the application of image processing technology in environmental art course under international background

(1) The practicability of image processing technology needs to be improved

Because environmental art courses have high requirements for practice, students need to design for interior decoration or outdoor landscape, while mastering engineering mechanics, structural mechanics, elastic mechanics, structural design, and drawing geometry. The operations such as size reduction, color modulation, brightness, contrast adjustment are performed on the pictures, but in the actual environmental art course practice, due to the uneven operation level of students, the practicality of image processing technology of practice needs to be improved.

(2) Unreasonable practical application mode of environmental art courses

Another problem that needs attention is that the mode of practical application of environmental art courses is not reasonable enough. The practice of environmental art has a relatively obvious career orientation. Therefore, it is necessary to take career orientation as the starting point so that image processing technology can be used. However, there is insufficient application mode and other issues, students cannot understand and apply image processing technology as the correct application mode. Managers need to design practical topics according to practical requirements, provide students with a full range of practice, and play the role of image processing technology. Therefore, managers need to choose a reasonable mode of application[2].

(3) The application of image processing technology in environmental art courses needs to be strengthened

In addition to the practicability of image processing technology needs to be improved and the practical application mode is not reasonable, its application in environmental art courses practice needs to be strengthened, which is also a prone problem. As an important tool in environmental art courses, image processing technology is of great significance for image processing, interior decoration design, outdoor landscape design, and structural design of buildings. To make the environmental art course practice play its due role, the application of image processing technology needs to be increased. However, students’ application of image processing technology is more one-sided, and the advantages cannot be fully utilized.
4. How can image processing technology be effectively applied in the practice of environmental art courses in the context of internationalization

(1) Improving the practicability of image processing technology in the practice of environmental art courses

In order to make the image processing technology effectively applied in the environmental art course in the context of internationalization, the first step is to improve the practicability of image processing technology environmental art course. In the course of the practice, due to the influence of traditional concepts, the practice often stays only in the college teaching. The practice lacks practicality and is only suitable for teaching. The art course practice deviates from the needs of the enterprise, and it cannot make students fully realize the role of image processing technology in the practice of environmental art courses. In addition, students are only at the understanding stage of image processing software, and they are not familiar with the operating specifications of image processing software and the operation of corresponding links. Students will only use technology to practice specific cases in the practice, and it is difficult to use the image processing technology. Therefore, there is a need to improve the practicality of image processing technology.

For example, as shown in figure 1, it is a schematic structural diagram of an image processing device. During the practice of environmental art courses, the college should set the practice as the requirements of corporate design and personnel training. It can guide students to design interior decoration or outdoor landscape design for the more famous areas or buildings. To enable students to better understand the connotation of environmental art practice and improve their professional knowledge skills and comprehensive ability. On the other hand, the environmental art courses can be more in line with teaching requirements. In addition, colleges also need to correctly use or master image processing technology, which not only allows students to use image processing technology, but also enables students to master, thereby improving technology practicality in the practice of environmental art courses[3].

Figure. 1 Schematic diagram of the main structure of the image processing equipment
(2) Setting up the practical application mode of environmental art courses

Another measure that needs to be taken is to set up a practical application mode of environmental art courses. The current environmental art course practice puts forward higher requirements for image processing technology, especially for the application mode of environmental art course practice, which requires managers to be oriented by employment trends. The course practice is divided into basic modules of image processing technology and practical applications and comprehensive implementation modules. Students should apply image processing techniques in accordance with the requirements of each link, such as reducing the size of pictures, color modulation, and adding patterns, so that the interior decoration and outdoor landscape design meet the practical requirements. In practice, students need to understand the application mode of image processing technology, such as the operating specifications of image processing software, modern design concepts, and practical application effects. Through the processing and operation of images, students can better understand environmental art courses, and develop their own qualities and abilities according to the requirements of the courses.

For example, as shown in figure. 2, it is a schematic diagram of an information terminal technology. In the practice of environmental art courses, teachers can use career orientation as a starting point to guide students to understand and learn the principles of image processing technology, operating specifications and application effects. After understanding the principles of image processing technology, they can help students from image processing starting from the practical problems of technology, combining with the actual situation of environmental art course practice, construct a suitable structure for the course practice. First, explain the principles and operation methods of image processing technology to students, provide students with reasonable practical content and requirements, let students use their imagination, design image, and practice based on examples of famous buildings in the area, so that set up a practical application mode of environmental art courses.

Taking the basic image processing algorithm as an example, first, changing the 256 * 256 resolution image to 128 * 128 resolution can divide the source image into 2 * 2 sub-image blocks, and then divide all the pixel color is set according to the color value of F (i, j) to reduce the resolution. Example: F (i, j) F (i, j + 1) F (i, j) F (i, j) F (i + 1, j) F (i + 1, j + 1) becomes F (i, j) F (i, j), secondly, R monochrome, G monochrome, B monochromeize the image, take out the corresponding R, G, B values in each pixel of the image, and use , R, R), (G, G, G), (B, B, B) pixels are redrawn. The relationship between RGB and brightness Y, color difference I, and signal value Q of a color image is:

\[
\begin{bmatrix}
Y \\
I \\
Q \\
\end{bmatrix} =
\begin{bmatrix}
0.31 & 0.59 & 0.11 \\
0.60 & -0.28 & -0.32 \\
0.21 & -0.52 & -0.31 \\
\end{bmatrix}
\begin{bmatrix}
R \\
G \\
B \\
\end{bmatrix}
\]

so \( Y = 0.31R + 0.59G + 0.11B \)
\( I = 0.60R - 0.28G - 0.32B \)
\( Q = 0.21R - 0.52B - 0.31B \)

Finally, the reverse processing of the color image: the corresponding (R, G, B) pixel is replaced by (255 - R, 255 - G, 255 - B).
(4) Strengthening the application of image processing technology in environmental art course practice

In addition to improving the practicability of image processing technology and the reasonable application of environmental art courses, increasing the use of image processing technology is also an important measure. Teachers should strengthen the use of image processing technology and let students recognize the important role of image processing technology, increase art design and improve the quality.

For example, first, teachers can introduce a classic case before practice and the performance methods, operation ways, and image processing technology to students. By introducing the case, students can understand the use of image processing technology. Second, by analyzing the case, it can be divided into multiple feasible links. Through the interpretation of each link, how this link is implemented using image processing technology and other methods to make the practice more intuitive. Finally, applying what they have learned to encourage students to apply image processing techniques to environmental art courses.

**Conclusion:** In the context of internationalization, the use of image processing technology to practice environmental art courses can improve the efficiency of practice, students’ comprehensive ability to use, and the authenticity of practice. With the improvement of the practicality and rationality of image processing technology, it will contribute its due strength to the practice of environmental art courses[4].
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