The Application of 2D-3D Mixed Graphics in the Teaching of Graphic Advertising Design

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Abstract. This paper mainly discusses the application of 2D-3D mixed graphics in the teaching of graphic advertising design. By defining the concept of 2D-3D mixed graphics, it mainly analyzes the advantages of 2D-3D mixed graphics in the Design expression compared with other graphic advertising Design expression methods, and discusses its specific teaching methods and steps in the course of plane advertisement design. Through the "three-steps" in teaching is language- sketch- the training process of image enables students to master how to design a graphic advertising design using 2D-3D mixed graphics as the Design expression quickly, and use the most image popular method to obtain good learning effect in teaching.

Introduction

The formation of contradictory space usually uses the transformation and alternation of viewpoints. It shows three-dimensional shape on two-dimensional plane, but in the three-dimensional shape, it shows the ambiguous visual effect. Create chaos in space, form a space between two and three dimensions. [1] There are several common forms of contradictory space, such as bottom reversal [2] (Figure 1). Reverse space (Figure 2) (Up and down, front and back, up and down, etc), 2D-3D mixed graphics (Figure 3) etc. This paper mainly discusses the application of 2D-3D mixed graphics in the teaching of graphic advertising design.

Figure 1. Escher bottom reversal. Figure 2. Shigeo Fukuda reverse space. Figure 3. Escher 2D-3D mixed graphics.
Advantages and Teaching Application of 2-3 Dimensional Mixed Graphict

The Concept of 2-3 Dimensional Mixed Graphics

In traditional sense, contradictory space is equal to mixed dimensional figure\[^{[3]}\]. The 2D-3D mixed graphics proposed in this paper belongs to the mixed dimensional graph, which is a form of expression in the contradictory space. The specific concept is: The two-dimensional image in the two-dimensional plane extends to the three-dimensional space, and has a certain impact on the three-dimensional space, which is called 2D-3D mixed graphics. This kind of graphics is different from the traditional two-dimensional graphics. Because of the contradiction between the two and three dimensions, the visual image of the 2D-3D mixed graphics is very attractive. It can effectively express the creativity of print advertising, with high visual attention, and plays an important role in the teaching of print advertising Design expression.

Master's Classic Case of 2D-3D Mixed Graphics

In the field of design, artists and graphic designers make full use of 2D-3D mixed graphic design techniques. Maurits Cornelis Escher\[^{[4]}\] as early as 1938, he began to explore 2D-3D mixed graphics, Through his imaginative expression, he draws the impossible world like a magician, and we are happy to revel in such a magical visual "deception". Some of Escher's lists now grow from two dimensions to three dimensions, Alligator\[^{[5]}\] (Figure 4) is one of the most famous. In the center of the picture, Escher's sketch book is pressed under a dictionary and a polyhedral plaster model, on which the positive and negative patterns of the image of the alligator are painted. However, these restless alligators ran out of the paper - we can see that there are two general bodies still in the paper, half of them have become entities and cast shadows. They climb up to the dictionary, climb over plaster models, puff in their nostrils, jump from buckets to the table top, and eventually return to the paper screen. This is a very vivid 2D-3D mixed graphics, all unreasonable but reasonable exist in this mixed dimensional picture.

Figure 4. Alligator.
Gunter Ram bow [6] is known as a German visual poet. Among his many design works, there are also classic cases of using 2D-3D mixed graphics. A typical example is a series of advertisements for books designed by Gunter Ram bow for S · Fischer Verlag, the Publishers in Frankfurt. (Figure 5)

![Figure 5. Series of print ads for publishing house by Gunter Ram bow.](image)

In the picture, the window of the book cover sprinkles a piece of sunlight, and the light is projected into the three-dimensional space; the light from the light bulb of the book cover illuminates the environment of the three-dimensional space. In this way, the meaning of 2D-3D mixed graphics is better than the two-dimensional graphics printed on the cover, and the metaphor is more truly mapped to the reality. The light of windows and lights is the light and guidance brought by books, like a lighthouse or light, which always guides people's direction. Holding the book tightly, the book is inseparable from the hand, and the hand is inseparable from the book. It vividly represents the intimate relationship between people and the book, which cannot be separated from each other.

**Advantages of 2D-3D Mixed Graphics in Graphic Advertising Design**

The 2D-3D mixed graphics transplant the familiar, reasonable and fixed program of the objective world into the absurd and abnormal graphics of logic confusion. This is a space logic full of philosophical feelings, which causes strong visual feelings of the audience, and naturally becomes an important form of graphic language in graphic advertising design. [7] 2D-3D mixed graphics is a unique way of expression in graphic advertising design and this kind of graphics has distinct advantages: first of all, 2D-3D mixed graphics break through the two-dimensional image-based way of expression in graphic design. It is presented in multi-level and rich visual form. Secondly, in terms of visual experience, three-dimensional image is often more attractive than a single two-dimensional image, with higher visual attention and stronger ability to attract eyeballs. In the information age, first sight attraction is crucial. Finally, 2D-3D mixed graphics belong to surrealism graphics, which is impossible to exist in reality. Although it is not logical in the picture, it is reasonable to present. From the psychological point of view of the audience, it is easier to stimulate the curiosity of the audience, and the graphic attraction is greatly improved. 2D-3D mixed graphics not only bring people a sense of curiosity and magic illusion, but also arouse people's exploration of the truth, contemplation of philosophy and vision. [8]
How to Use 2D-3D Graphics in Teaching

How to effectively master the design method of such efficient 2D-3D mixed graphics in the teaching of graphic advertising design? Through method experiment and practice in the course, an effective training method is summed up, which is called "three-step" design method. "Three steps" is to complete the design through three steps, including “language-sketch-image”. The specific implementation process is as follows:

Language Description Training

The basic elements of 2D-3D mixed graphics are as follows: first, there must be a two-dimensional plane, such as paper, desktop, book cover, wall, floor, ceiling, etc.; second, there are two-dimensional graphics or images on the two-dimensional plane; third, the local part of the two-dimensional graphics or images should be extended to three-dimensional space; the last element is the extension to three-dimensional space The two-dimensional graphics of the system must have a certain impact on the three-dimensional space environment. For example, painting a washing girl on the wall. The water in her washbasin splashed on my shoes and made my shoes wet. In this language description, the first element is the two-dimensional plane of the wall, the second element is the girl and washbasin painted on the wall, the third element is that the water in the washbasin flows from the picture to the three-dimensional space, the fourth element is that the water has an impact on the objects in the three-dimensional space, my shoes, and the water moistens the shoes. With these four elements, a 2D-3D mixed graphic is completed. The first step requires students to expand their imagination and try to describe a picture with these four basic elements in language. The more specific the picture is, the better the image is. It is better to establish a relationship with the product.

Freehand Sketches Training

The second step is to train the shape of quick sketch on the basis of language description, and present the scene just described by language through the method of quick expression. In the sketch drawing, the composition, perspective, element composition, etc. should be clearly displayed, without detailed description, only the overall effect.

Image Expression Training

For example, to define the specific expression ways, such as: to write practical bitmap expression, flat graphic expression or hand-painted expression, then we can fine depict, pay attention to strictly distinguish the boundaries of two-dimensional and three-dimensional space when designing the expression, when the form in two-dimensional plane transits to three-dimensional space, the traceless connection is the most important, when the two-dimensional form extends to three-dimensional space It must have an impact on the three-dimensional space, that is, the shaping of the sense of reality.

Conclusion

In the teaching of the performance of graphic advertising design, it is easy to construct 2D-3D mixed graphics through "three steps". The theme of graphic advertising design is represented by 2D-3D mixed graphics, and the strange visual conflict from two-dimensional to three-dimensional is created. The visual attraction brought by the dimensional transformation is fully utilized to create a charming graphic advertising.

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