Practice and effect of information visualization design based on Yunnan Characteristic culture

Pu He

Yunnan Arts University, Yunnan, China

Abstract: Visualization is a more abstract and vivid way of thinking and emotion expression than literal language. The case of this paper is based on theory + practice project -- dynamic design of information visualization. This case is based on sufficient research on Yunnan characteristic culture. After sorting out and selecting the information of Yunnan's animal and plant resources, ethnic customs, regional characteristics and other cultures, the visual expression method is used to design and explore. The combination of Yunnan's characteristic cultural elements and artistic expression through artistic design means can decompose and integrate the information of various themes such as species distribution, process flow and cultural origin. Through the artistic presentation of various forms of visual information programs. The purpose of this project is for the graduate students majoring in animation and digital media art to understand the characteristic cultural resources of Yunnan, master the design principles of information visualization, learn the visualization, organization and simplified presentation methods of complex information, and explore innovative ideas for the extraction and redesign of characteristic elements.

There are 25 ethnic minorities in Yunnan Province, which is rich in ethnic culture. Information visualization design is an indispensable way and method in the process of inheritance and protection of national culture transmission. The graphic and text matching of information makes the information more transmittable, readable, expanded and logical, and can express traditional and complex handicraft skills in an all-round way. Information visualization reflects the accuracy of art, design and graphic information logic. It can effectively improve the deep-seated logic of national culture research objects and effectively spread national culture.

Case overview
1. Case background

This case is produced in the graduate course "Digital Design of Yunnan Traditional Culture", which focuses on the creation project of digital media art in the communication of national culture. The curriculum practice results are abundant, which has exploratory value and significance for the communication of ethnic culture. Through the cognition of ethnic cultural image elements and the data collation of visual images, the practical significance of the visual design of ethnic cultural elements information for the communication of ethnic culture is studied. Guide students to take the initiative to understand the development of national culture and the requirements of "telling Chinese stories well".

2.Case subject

The artistic expression of ethnic minority cultural images in Yunnan can be achieved in various ways. The visualization design of ethnic cultural elements information is based on students' knowledge of ethnic cultural expression forms, and extends the expression of relevant carriers of ethnic culture, such as ethnic costumes, production tools, ethnic activities, festivals, etc. under the requirements of information data and visual visualization. Students are mainly required to have the modeling basis of two-dimensional design and the ability to integrate data elements of information visualization. By learning the method of visualization expression of information of ethnic cultural elements, students are required to integrate and practice artistic languages such as generalization and arrangement of ethnic costumes, production tools, ethnic activities and festivals, visual logic, information accuracy and cultural core sorting. In the face of the relationship between the image characteristics of Yunnan ethnic minority cultural elements, students are required to conduct field research and comb thinking; In the face of the relationship between the communication characteristics of digital media and the elements of artistic national image, students are guided to think about the methodology of information visualization design.

Theoretical basis and important knowledge points
1.Exploration of Yunnan characteristic culture

Yunnan is located in the southwest border area, multi-ethnic cultures blend, has rich ethnic cultural resources, is an important cultural component of Yunnan, minority culture is an important part of the treasure house of Chinese culture. The exploration of Yunnan characteristic national culture, the study of national historical development and the construction of a harmonious society are of great value. The importance, protection and development of ethnic minority cultures are of positive significance to the promotion of spiritual civilization, the inheritance of ethnic culture, the enhancement of the awareness of ethnic culture protection, the strengthening of the construction of ethnic cultural talents and the promotion of the in-depth integration of cultural tourism.

2.Information extraction and design presentation

On the one hand, "information" is the subject of design, on the other hand, it is the source of design. The sensitivity to key information and the ability to extract it directly affect the smooth development of design expression and information transmission. For this case course, how to train students to capture and refine the key points of national culture, learn and integrate diverse and multi-channel cultural information, and explore and innovate various types of design expression is a major core point of information visualization design.

3.The aesthetic principles of information visualization

In the aesthetic experience of information visualization, the evaluation of aesthetic effect is more complex, mainly reflected in the usability of visual cognition and the aesthetics of the layout. The usability of visual cognition is reflected in the process of design content from complex to simple. On the one hand, it emphasizes the recognition of design content and makes it easy to understand. On the other hand, it emphasizes the effectiveness of design content and the efficient extraction and accurate transmission of information. One of the important functions of the aesthetics of the layout is that it can improve the effectiveness of visual cognition to a certain extent, so the style and beauty of the design should be emphasized in the layout design.

Course content
1. Curriculum focus

How to obtain accurate and effective visual information in the field investigation of different ethnic cultural elements in ethnic areas? Through sorting out the effective visual information, we can have a deeper understanding and explore the core values of ethnic culture, and consider the use of media means to inherit and protect their cultural characteristics. Improving the visibility and readability of information of national culture plays an important role in the transmission of national culture.

2.Course difficulty

The difficulty of the course lies in the cognition of the means and methods to obtain accurate and effective ethnic cultural information, as well as the accurate grasp of the degree of cultural elements agreed upon by ethnic culture and ethnic groups. In the process of design and analysis practice, the ontology of ethnic cultural elements should be highly emphasized and seriously treated to avoid the occurrence of contents inconsistent with the ontology of ethnic culture. The profound cultural logic should also be accurately expressed.

3.Course procedure

(1) Explain the content: Cultural identity of ethnic minority images (stimulate students' interest) Watch pictures or videos, correctly guide students to understand the concept and basic knowledge of ethnic culture, thus triggering students' desire to explore their culture, and learn the basic definition, classification, cultural characteristics and expression forms of macro ethnic theory through the process of consulting the basic concept and definition of ethnic culture. On this basis, the distribution, art, culture and folk customs of Yunnan ethnic minorities are preliminarily recognized. Then, the instructor guides the students to think about "the formation of a nation, the definition of a nation, the relationship and differences between ethnic cultures and regions" so that the students can understand the influence of different regions on ethnic culture, as well as the language, customs, folk customs, taboos and other issues involved in ethnic culture. The instructor guides the students to "understand each other's cultures from the perspective of others to increase understanding. To avoid ambiguity caused by unnecessary differences in customs, we can objectively understand the cultural core of different nations in the way of empathy. We can think about what needs to be done?" After a round of brainstorming, the consensus is that "understanding and cognition of the importance of ethnic and ethnic culture, the formation of ethnic cultural differences, the world view of ethnic culture, etc.".

(2)Through painting exercises, conduct training on the extraction, expression and innovation of national cultural elements. Teacher's thesis: Now carry out multi-dimensional overall thinking on national culture with specific purpose, such as combing cultural symbol elements of regional environment,

clothing, production and life, production tools, national activities and national customs. Accurately draw relevant 2D or 3D graphics and models according to the national cultural elements in the first step, classify and integrate them according to the process flow, and carry out fine modeling again for the shortcomings, so as to meet the standards of later design and application.

(3)Combine my own experience in the process of information visualization design, discuss the means of adding digital media art, so as to make the information have more effective communication.

(4)Artistic expression of Yunnan traditional cultural elements, taking "Inheritance like Cloth" as an example: Students conducted detailed research on Miao nationality weaving culture with Miao nationality weaving skills as the theme.

Students state their research content:

"For the Miao people, besides architecture, clothing is one of the most distinctive characteristics. There are many kinds of Miao costumes, and the characteristics of Miao costumes are: silver jewelry, Miao embroidery and batik dyeing. Miao people's men's clothing, the front to the right, the color is mostly blue, black. There are two main types of headscarves for Miao women: one is a black cloth peaked hat with a padded head embroidered with exquisite patterns. It was made of a chic, dark blue, lace embroidered, pointed turban, with a red band hanging down from the back of the hat to the leg. Miao women rarely wear earrings, only when they are dressed, and have few hand and foot ornaments. They do not wear necklaces. The distribution of Miao nationality is too wide, and according to incomplete statistics, there are more than 200 kinds of clothes. Different Miao nationality directly, not to mention the significance of the main color of all kinds of clothes are different, and the most common one in modern times is red, black and blue. Miao dress has no rank distinction, and no color can only be used by anyone. It can be used in the Han books of the Ming and Qing Dynasties, according to the color of the clothes, red Miao, white Miao, green Miao, blue Miao, flower Miao and other different branches of red Miao with dragon and phoenix as ancestors. Dress with red as the base, with white and yellow, etc. The black seedling is the ancestor of Panhu; black and purple are used as the main colors, and yellow and white are used to ornament. Green seedlings to kirin as a totem, mainly with cyan color collocation, collocation of red black gray blue and white seedlings see butterflies as grandmother, white bottom with red black gray blue, or with dark as the bottom with light white pattern, yellow gray and other colors. Green and black represent greatness and holiness in the eyes of the Miao people. The black Dougrain cloth in East Guizhou has penetrated into the local Miao culture. Therefore, the dress of the Miao people in East Guizhou has its own characteristics. Miao men in northwest Guizhou and northeast Yunnan wear patterned linen clothes and wool felt woven with geometric patterns on their shoulders. Hmong men elsewhere generally wear short jackets with a double or left front. Wear long trousers, bundle a big belt, head wrapped green scarf, winter feet more wrapped gaiters. Women's dress: the hair on the head, the scarf, the color of the dress, the embroidered pattern, the availability and length of the skirt, etc., not only from province to province, but also from county to county, and sometimes even from village to village, often have different characteristics. Miao women in Xiangxi and northeast Guizhou are wearing a large front right skirt and trousers. The sleeves, legs and collar are inlaid with floral ornaments. Hmong women elsewhere mostly wear large-collared shorts, long and short pleated skirts with flaps. Some dresses reach the instep, while some skirts just reach the knee. Women also wear many kinds of silver jewelry when they dress up. The Miao women began to embroider when they were girls. The high point of their life is when they are about to get married. If a girl does not know how to embroider or dress in flowers, her companions and affectionate men are not close to her. Embroidery subject matter is very rich, there is a reflection of family life, such as "double phoenix chaoyang", "double lion ball", "magpie make plum"; There is a reflection of production, such as "grain harvest", "six livestock flourishing", "melon seedlings continuous"; Some reflect love, such as "Yuanyang play Lotus", "fish and water flow together", "next to the song" and so on.

The teacher gives guidance and adds the material that plays a role in the modeling and expression of Miao culture: the unique development history of Miao costumes and their love for their ethnic costumes make ancient textile machines and tools quite common in Miao villages in Yunnan. Middle-aged women are basically able to spin thread and weave cloth to sew their own national clothing, but some young people in their twenties can no longer weave. And young girls today do not have to learn to perform linen, spin, weave, cross stitch and sew, as their mothers did. So some of the textile machines at home began to sit idle or sold to people specializing in textile research or museums. Some women became rusty, and even the number of weavers who spun their own thread declined. Many Miao women have begun to buy machine-spun cotton or cashmere yarn mixed with their own twine, which is used as a weft thread. Creative ideas of information visualization design: Focusing on Miao nationality's spinning, weaving

and dyeing. By using information visualization, we can understand the whole process of Miao nationality's self-spinning, self-weaving and self-dyeing. Spinning and weaving occupy one page each, and spinning is divided into two parts. One is the state of cotton, but what tools are used to achieve this state. The left picture shows the tools used to spin thread. Weaving is divided into three parts, including the main Miao desktop loom, four views, and the weaving process, which will also be represented by small giFs. Dyeing is divided into two parts, one is the process of dyeing cloth but the use of tools. Design expression process: both spinning and batik begin with the expression of line draft, followed by drawing and weaving. C4D modeling is used before plane drawing. The weaving process uses frame number to draw and complete the production of GIF. Application idea of design works: focus on Miao nationality's spinning, weaving and dyeing. By using information visualization, we can understand the whole process of self-spinning, self-weaving and self-dyeing of Miao nationality. It is applied to the knowledge reader of illustration and popular science, and the knowledge of related national culture. My work is about textile dyeing of Miao nationality. Why do I do this? After my investigation, I learned that many Miao people no longer spin yarn by themselves and buy thread. Moreover, many families no longer weave cloth, and many looms have been collected in museums. Therefore, I want to make Miao textile more convenient for people to understand by means of information visualization. You can go to the experience museum in Miao village to experience it and promote China's intangible cultural heritage.

Process analysis of weaving:

1) Desktop loom of Miao nationality Horizontal loom of Guizhou nationality is generally composed of warp coiling shaft, cloth coiling shaft, heald bird, machine tool, frame arm and other components. The square wood is made into a four-corner machine tool. The front end of the two vertical beams of the machine tool is opened with dragon holes. The biped column is about 20 centimeters higher than the vertical beam. The front end of the dragon is used to place the Chinese fir as the axis of the winding of the warp shaft, and the two ends are made of wood chips to make a "cross" word, which is used for the timing of the warp and the placement of the bamboo pieces of yarn. The center of the frame is an upright arm. The arm made of fir is an oblique triangle and an F shape. The arm end in the direction of the weaver is provided with a horizontal axis, which can rotate freely.

2)Loom structure The structure of Miao desktop loom is divided into front view, back view, side view and top view.

3)Weaving procedures and steps.

Analysis of dyeing process:

Drawing of patterns - drawing the manuscript with a pencil on the object to be dyed; Wax point - Dip a copper knife in wax for secondary creation; Dyeing - Soak in an indigo dye bath; Wax removal - first clean the float color with clean water, and then put the cloth into boiling water to boil; Cloth - home woven white cloth needs to be washed with grass ash bleaching, and then cooked taro pinch paste on the reverse side of the cloth, to be dried after polishing; Pencil - on the white cloth with a pencil to draw the manuscript, can also according to the paper cut pattern set large outline, draw patterns; Wax knife - Copper knife is composed of two or more pieces of thin copper with the same shape, a section is tied to the wooden handle, the knife edge slightly open in the middle slightly empty, semicircular, triangular, etc.; Heater - folk commonly used oil lamp, furnace and other heating wax, now multi-purpose electric furnace; The main use of indigo dye is dyeing cloth, Guizhou humid climate suitable for the growth of blue; Dyeing bucket - wooden bucket, clay cylinder, plastic bucket;

(5) Creation proposition after class: Create character emoticons according to the ethnic minority cultures they have researched, either dynamically or statically. There is no limit to the technical means, and it is required to comply with the specifications for making emojis.

Exhibition of course works

"Cloth" like inheritance.The visual design of Miao people's weaving technology information, "Inheritance like Cloth", respectively integrates the spinning, weaving and dyeing of Miao people's weaving, and the weaving techniques of traditional handicraft, which is the characteristic handicraft culture of Miao people, so that more people can understand the Miao people's hand-weaving skills and at the same time can spread the intangible traditional culture of Miao people. This creation focuses on Miao nationality's spinning, weaving and dyeing. By using information visualization, we can understand the whole process of Miao nationality's self-spinning, self-weaving and self-dyeing. Spinning and weaving occupy one page each, and spinning is divided into two parts. One is the state of cotton, but what tools are used to achieve this state. The left picture shows the tools used to spin thread. Weaving is divided into three parts, including the main Miao desktop loom, four views, and the weaving process, which will also be represented by small giFs. Dyeing is divided into two parts, one is the process of dyeing cloth but the use of tools. I used ps and procreate to extract and draw

the elements of the loom, weaving technology and Miao weaving culture. After communicating with the instructor for modification, I drew a complete information using element, and finally completed the layout design of information visualization with ps.

To Be Simple. Simple is a visual design of Zhouyi based on text mining technology. In view of the obscure characters such as "hexagrams and lines", "Ci" and "hexagrams" in Zhouyi, the paper designs and expresses them graphically. "Images" of the visual design is for keywords of cha ages developed to extract the zhouyi, according to the "XiongJi" marked "narrative" of four hundred and fifty words of cha ages developed and classification; The visualization design of "word" is to use "keyword" code program to obtain word frequency statistics data of Zhouyi after word segmentation and word removal and other preprocessing for the text in Zhouyi, select the top ten words and words in the data, and express them graphically in the positions of the diagrams and lines; The visualization design of "gua" takes all the hexagrams and lines corresponding to each gua as a unit respectively, and maps them into vectors through TF-IDF calculation and other operations to obtain the word frequency matrix, and finally carries out hierarchical clustering on the obtained word frequency matrix.

Analysis of results

The immediate effect of teaching measures.Through the design of this course, it is expected that the vast majority of students will master the practical points of information visualization design while understanding the minority culture in Yunnan, and be able to visualize the established themes and content through two-dimensional or three-dimensional technology, and lay a solid foundation for more digital creation content in the future. Through course interaction, students can feel the combination of national art culture and design technology, which gives students a preliminary sense of achievement in information visualization design.

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