

Research on the Application of Virtual Animation in the Inheritance of Intangible Heritage in Higher Vocational Colleges*

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Abstract—At present, the state and governments at all levels attach great importance to the protection and inheritance of intangible cultural heritage, and it is of great significance to integrate the inheritance of intangible cultural heritage into the art teaching of vocational undergraduates. This paper analyzes the particularity of the inheritance of intangible cultural heritage and art education, discusses how to apply virtual animation technology to the teaching of the inheritance of intangible cultural heritage, how to solve the problems of inheritance and learning methods and conduct theoretical and practical research, and explores a new model of talent cultivation that is the perfect combination of science and technology and design art.

Keywords—virtual animation; the inheritance of intangible cultural heritage; art education in higher vocational colleges

I. INTRODUCTION

China's intangible cultural heritage is the cultural treasure accumulated by the whole Chinese nation after thousands of years of history, ups and downs. Due to China's vast territory and numerous ethnic groups, the forms of the intangible cultural heritage are diverse, rich in content and with national characteristics. In addition, China's overall national strength and overall strength have enhanced, and its international status has risen steadily. As a unique "card" of China, intangible cultural heritage exhibits the charming Chinese culture to all parts of the world, attracting many foreign lovers to visit and learn intangible cultural heritage and skills in China, and enhancing China's cultural confidence. Such precious wisdom should be cherished by Chinese people. Strengthening the protection of intangible cultural heritage is an effective way to improve the soft power of China. In recent years, a series of national documents, including *Opinions on Implementing the Project of Inheriting and Developing Excellent Traditional Chinese Culture*, have been issued, which shows that the state attaches great importance to the inheritance and protection of intangible

cultural heritage.

II. ANALYSIS OF THE STATUS QUO OF THE INHERITANCE OF INTANGIBLE CULTURAL HERITAGE

A. Category of Intangible Cultural Heritage

For thousands of years, China's historical development has been influenced by farming culture, and many products are related to folk customs, as well as the appearance of some intangible cultural heritage. China is rich in intangible cultural heritage resources, which have the characteristics of vitality, nationality, folk, regionalism and inheritance [1]. They exist in various forms, such as oral expressions, social customs, traditional handicrafts, traditional performing arts and traditional operas. Intangible cultural heritage comes from life and reflects life. Many of them are familiar and common to us, such as the quintessence of Chinese culture — Peking Opera, folk shadow puppet show, and some rituals and customs with local characteristics, which belong to the category of intangible cultural heritage.

The particularity of different regions has created different styles of similar intangible cultural heritage. In Guangdong province, there are hundreds of intangible cultural heritage projects that have been applied. [2] In the process of product design teaching, related knowledge and examples of intangible cultural heritage in Guangdong province are often involved. In addition to making cultural peripheral creative products with intangible cultural heritage such as Cantonese opera and Panyu watercolor, many other famous local traditional handicrafts also have strong teaching significance, including Guangcai porcelain, Cantonese embroidery, tooth carving, clay sculpture and paper cutting. Students show great enthusiasm and desire to learn these excellent intangible cultural heritages.

B. Analysis of the Status Quo and Problems of the Inheritance of Intangible Cultural Heritage

With the change of society and life, the inheritance of some handicraft skills has been severely challenged, and is in a dilemma of no successor. Many intangible cultural heritage

*Fund: 2018 General Project of Guangdong Higher Vocational and Technical Education Research Association, Research on the Influence and Reform of Virtual Animation on Intangible Heritage Education in Higher Vocational Colleges (Project No.: GDGZ18Y022).

techniques in Guangdong province are now in danger of being lost, and some of the preserved classics can only be seen in public exhibitions such as museums. The reasons are as follows:

1) *There is a lack of communication and promotion of intangible cultural heritage skills:* For the inheritance of intangible cultural heritage skills, Chinese inheritors have been handed down in the traditional mode of oral transmission from generation to generation [3], or through pictures or written records. The inheritance mode is single and limited, and the record is not complete and accurate, which will also lead to the deviation or loss of the inheritance of skills. In addition, the inheritors of intangible cultural heritage in some remote areas with blocked transportation and inconvenient communication are relatively conservative. The inheritors are getting older and older. Although they are skilled in intangible cultural heritage, they cannot effectively inherit, promote and make innovation. This is a pity.

2) *The identity of the inheritor of intangible cultural heritage is strictly required:* The old-style "apprenticeship" promotes the inheritance of some intangible cultural heritage skills to follow traditional rules, which have certain requirements for the selection of inheritors. In some areas, the intangible cultural heritage culture has the rule of "Only for men and not for women, and only to the family and not to outsiders", which leads to the fact that some intangible cultural heritage techniques cannot be widely inherited.

3) *The advent of commercialization era that pursues quick success:* Considering the development problem, the birthplace of some intangible cultural heritage techniques has gradually evolved into tourist attractions. Although this can attract a large number of tourists to come to appreciate them, it is easy to be labeled as commercialization, which makes the local intangible cultural heritage lose its original luster and value.

4) *Internal and external factors:* Some modern and foreign cultures and living habits will also have a certain impact on traditional culture. Taking paper-cut art as an example, in the past, paper-cut was an indispensable skill in people's life during festivals. On festive days, every family would cut out beautiful door flowers and window flowers for pasting. But with the development of urbanization and the change of lifestyle, few people can master this skill any more, and instead are some printed copies.

At present, the society is gradually aware of many problems in the inheritance of intangible cultural heritage, and gradually begins to adopt some new means to publicize China's intangible cultural heritage. Among them, new media advertising is a more common form. For example, the propaganda and education bureau of the Publicity Department of the Central Committee of the CPC and China network television (CNTV) specially created and launched a series of public service advertisements of "Chinese dream" in order to promote traditional Chinese culture and spread core values. The role of "mengwa" is based on the traditional

Chinese folk art "clay figurine zhang" in clay sculpture. The application of folk paper-cut and woodcut elements has been highlighted in many print ads of subway and bus stops. In this way, people can get closer to and understand China's intangible cultural heritage.

III. THE SIGNIFICANCE OF INCORPORATING INTANGIBLE HERITAGE CURRICULUM INTO HIGHER VOCATIONAL ART EDUCATION

The purpose of vocational undergraduate art education is to cultivate advanced technical talents with artistic accomplishment and aesthetic level for China. As far as the art education of vocational undergraduates in China is concerned, students have limited time at school, and the school focuses on training students' practical skills, while the inheritance and education of excellent traditional culture and intangible cultural heritage skills are relatively weak. This is not conducive to the long-term development of students, but also leads to their lack of cultural confidence [4]. General Secretary Xi Jinping has raised four hopes for Chinese literary and art workers. The first point is to hope that everyone will strengthen their cultural self-confidence and use literature and art to inspire the national spirit. When talking about the relationship between the inheritance of China's intangible cultural heritage and talent cultivation, Liu Yandong, vice premier of the State Council, also pointed out that "the cultivation of intangible cultural heritage talents should be combined with vocational education and targeted training, so as to guarantee the inheritance, research and management of intangible cultural heritage talents" [5]. Integrating intangible cultural heritage projects with local characteristics into the art teaching curriculum system of higher vocational colleges can not only supplement students' lack of cultural confidence, improve artistic aesthetics, increase creative inspiration and strengthen practical training, but also stimulate their interest in intangible cultural heritage and achieve the purpose of effective inheritance. For teachers, this is conducive to the improvement of the teaching system of higher vocational arts, the realization of teaching research and reform, and the continuous improvement of teaching ability and level.

IV. EXPLORATION OF INHERITANCE MODE COMBINING INTANGIBLE HERITAGE AND VIRTUAL ANIMATION

A. Advantages of Virtual Animation

The introduction of intangible heritage into higher vocational education cannot only stay in the surface form, but go deep inside to achieve the ideal effect. If teaching is still carried out in the traditional way of "teaching orally and personally", a large number of vocational students need on-site guidance from many masters of intangible heritage, which is also unrealistic.

In recent years, the Internet and digital media industries have developed rapidly. Virtual animation relying on computer technology has practical applications in urban landscape planning, topography-physiognomy modeling, cultural relic protection and display, but it is rarely involved

in the dynamic teaching of intangible heritage. If the classic cases of intangible heritage can be combined computer technology to make the intangible heritage master's traditional manual skills into interactive, situational, artistic and practical virtual animation to guide students, the effect will be much better. As an intuitive form of communication, animation integrates text, sound, movement, image, video and other information in the whole process of simulation techniques. Vivid and dynamic reproduction can deepen students' knowledge and understanding of intangible heritage skills. Its colorful pictures and pleasant sound effects can quickly capture students' visual and auditory centers and arouse their enthusiasm. What's more, virtual animation is more vivid than real objects and books, which is easy to learn and spread.

Animation works based on traditional culture can arouse the resonance of the hearts of Chinese people, and the classic national style animation with rich plots will be well received by the public once it appears. In the second half of the 20th century, a large number of classic Chinese cartoons emerged in China. As long as the mention of *Wu Song's Fighting Tigers*, *Monkeys Grasp for the Moon*, *Beat the White Bone Demon for Three Times* and other works, people immediately think of the past. These animations have innovatively incorporated elements of China's intangible cultural heritage, including shadow puppets, paper-cuts, crosstalk, operas, etc., which not only promoted the development of China's animation industry, but also popularized the intangible cultural heritage, which can be used as a successful precedent for reference. But now, China's CG (computer animation) technology has made a leap forward, from two-dimensional hand-drawn animation to three-dimensional computer modeling animation, to make animation work with stronger visual impact and better effect. Although China's animated films in recent years, *Monkey King Hero Is Back*, *White Snake*, and *Nezha*, are still based on traditional Chinese folk stories, *Journey to the West*, *Tale of the White Snake*, *The Legend and the Hero*. The production team is bold and innovative, the post-processing is very delicate, and the social popularity continues to rise after the release, which confirms the rise of China's domestic animation. With such a strong technical background, the combination of virtual animation and intangible cultural heritage has a high-quality guarantee.

B. The Presentation of Virtual Animation

Based on the existing animation types, the inheritance of intangible heritage can be presented through the following forms of virtual animation. The first is GIF. As the most basic form of animation, GIF is simple in production, short in cycle, low in cost. It is simple and convenient, and can be viewed and reproduced freely through daily electronic devices. The second is animated video. It includes Flash short film and two, three dimensional animation works, the production process is relatively more tedious, and there are certain requirements for playing equipment and procedures, but the picture, sound quality effect of finished one is more excellent. The third is VR-Virtual Reality. The production of VR animation is more complicated and requires better

equipment. However, it can generate a multi-sensory space covering vision, hearing, touch, smell and other senses. It also adds interactivity on the basis of watching and listening, and simulates the whole process of participating in the production of intangible heritage, with realistic effects and a strong sense of experience, as if you were on the scene. The fourth is holographic projection. The 3D image technology has a strong stereo effect and can be observed around a 360-degree angle of view. Basically, it can achieve the effect of mixing the spurious with the genuine, however, the implementation conditions are limited by the site, and the current equipment requirements are also the highest.

C. The Formation of Faculty Team for Intangible Heritage Inheritance

It is an important process to focus on the exploration of excellent and inheritable intangible cultural heritage elements and classify them. [7] In order to ensure the successful development and implementation of this new teaching model, it is necessary to establish a special team of teachers to take charge of the research. First of all, the local intangible cultural heritage masters are invited to participate in the teaching as professional technical advisers or part-time teachers. Secondly, it is necessary to optimize and expand the "double-type" teachers such as middle and senior "craft artists" in school. As the main force in carrying out the work and connecting the above with the following, the teachers in our school should not only have the strength to participate in the teaching of intangible cultural heritage skills, but also have the ability to participate in the production of a series of intangible cultural heritage virtual animations. Finally, a vivid and interesting virtual animation of intangible cultural heritage is produced by sorting out materials and combining with artistic innovation, which can be used as teaching resources and used for follow-up research. Therefore, the overall level of faculty team of intangible cultural heritage inheritance will be improved.

D. Communication Strategy of Virtual Animation of Intangible Heritage

After the completion of virtual animation production of intangible cultural heritage, it can form a kind of high-quality resource, so as to realize long-term preservation and inheritance. However, only when it is reasonably used can it be passed on and taught. Due to the different knowledge structure and background of students from different majors, their understanding and feelings of the same thing will also be different. Therefore, it's necessary to treat them differently instead of generically. Firstly, the animation of intangible cultural heritage should be introduced into art inheritance courses as a daily teaching resource, and appropriate animation forms should be selected according to the characteristics of students in different learning stages. For example, it's possible to use interactive VR virtual reality animation in class, build VR training room as a classroom for specialized courses of intangible heritage. After the teacher's on-site teaching demonstration, students can improve their proficiency, deepen their impression and improve the accuracy of the practice through virtual animation. In the preview and review stage after class, GIF

and animated video with high portability can be used. By setting up special learning web pages to place video resources or using mainstream social software to share and spread animations, students can learn and study intangible heritage skills independently at any time and place, which is not limited by the site and can also improve the teaching effect. For students majoring in non-arts, relatively simple elective courses on intangible cultural heritage can be set up, which mainly take animation of intangible cultural heritage as the basic materials for teaching.

Efforts should be made to create a "second classroom" for intangible culture, such as lectures and activities on intangible cultural heritage. In addition, competition of intangible cultural heritage inheritance and innovative design works should be organized regularly to promote learning with prizes and stimulate students' interest in intangible cultural heritage. More students are encouraged to participate in the study of intangible cultural heritage skills and participate in the artistic creation of intangible cultural heritage works, so as to understand, and even fall in love with intangible cultural heritage.

With reference to successful cases to carry on the innovation of inheritance form, Hunan Provincial Museum has adopted a new virtual exhibition mode after reconstruction and transformation. In the exhibition hall, the original series of "Mawangdui" precious cultural relics are vividly displayed and introduced by streaming media animation, 3D technology, virtual imaging and other high-tech technologies. The created multi-dimensional space is dazzling, while the combination of virtual and real makes visitors has a sense of history and involvement.

Similarly, the authors first set and produced the animation of the intangible heritage space according to the needs of the exhibition, and the real scenes of intangible heritage works are placed in the enclosed space, video and audio playback devices are then placed at different angles, set the playing order of the device according to the time of deduction, and use digital media technology to promote and introduce intangible heritage skills, so as to enhance the interactivity and make the whole process of the creation of intangible heritage works "live" in space. In addition, different video devices can be used to show animation of intangible heritage skills around classrooms, squares, canteens and dormitories, so that students can easily experience intangible heritage culture during breaks. "Intangible cultural heritage art space" and "animation virtual space" will be built in places with conditions in the school to perfectly combine science and art [8].

E. The Implementation and Exploration of Application Mode

At present, projects on the inheritance of intangible heritage have been carried out, and masters of intangible heritage from Guangdong province, such as clay sculpture, paper cutting and Guangcai porcelain, have been invited to the school to teach intangible heritage skills. For example, Wang Zengfeng, a master of folk Mansu in Guangzhou, gave guidance and teaching on clay sculpture creation. (See "Fig. 1") Mansu is an art form that combines cartoon and sculpture. It requires relatively simple materials and processing techniques. It is not restricted by teaching space and has high teaching flexibility. At the same time, learning Mansu is also beneficial to the comprehensive development of students majoring in art.



Fig. 1. Wang Zengfeng, a master of Mansu, gave on-site teaching.

The author also filmed the teaching process of the master of intangible heritage in an all-round way. After integrating relevant teaching materials, the author started the production of some animation video of intangible heritage teaching (See "Fig. 2"). The animation, *Guofeng Paper-cut*, is an example. First, design continuity according to the steps of paper cutting, and then use Adobe Illustrator and Photoshop to draw and color the plane graphic materials, then, design the actions of the static material in Adobe after effects and add video effects. The main color of the whole animation is "Chinese red". There are also intangible heritage patterns and paper-cut fonts on the background of video. Background music is a Chinese-style song, and the dynamic steps of paper-cut are consistent with the rhythm of background music, and finally a virtual cartoon is formed. It not only brings vivid and interesting virtual dynamic paper-cut technique teaching, but also brings students unprecedented beauty of artistic conception.

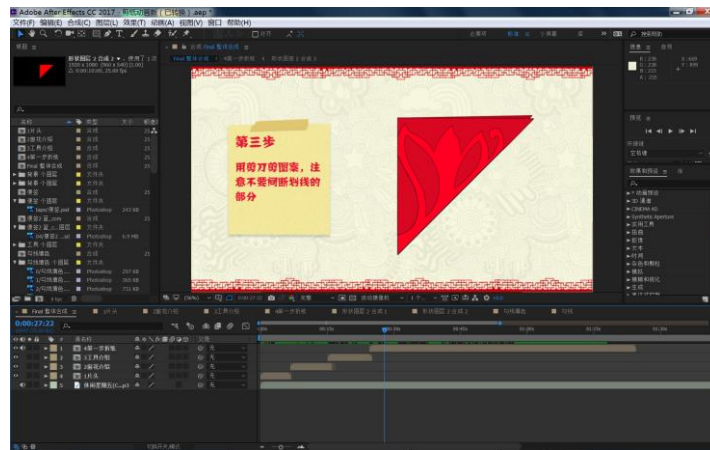


Fig. 2. Production interface of paper cutting teaching animation video.

V. CONCLUSION

At present, the education of the inheritance of intangible heritage skills is still in its infancy. What needed in the future is not only to use virtual animation in school teaching. Instead, it's necessary to build a network platform for the inheritance of intangible heritage skills and establish relevant databases. In this way, the audience will no longer be limited to the people on campus, and the general public can also understand and learn intangible cultural skills through APP programs or public accounts, so as to realize the socialization and comprehensive popularization of intangible cultural heritage.

It is a hot topic in today's society to advocate the "craftsman spirit", which is exactly what every inheritor of intangible heritage must possess. Teachers in colleges and universities should do their best to cultivate a batch of "craftsmen" in the new era who carry on the tradition, innovate and take responsibility, and pass on the outstanding intangible cultural heritage of the Chinese nation from generation to generation.

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