

Application of Scaffolding Teaching Model in the Modern Media Art Module of High School Art Taking the Teaching of "The Charm of Digital Painting" as an Example

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ABSTRACT

The development of technology has promoted the emergence of modern media art and also posed new challenges for the reform of art education. The application of traditional teaching models in modern media art modules faces new problems, such as unclear teaching objectives, single teaching content, and imperfect teaching process design and evaluation mechanisms. To address these issues, this paper explores the application of scaffolding teaching mode in the modern media art module of high school art. Taking the teaching of "The Charm of Digital Painting" as an example, the structure and basic links of scaffolding teaching model are elaborated in detail. In practical applications, a learning goal framework is established for students, guiding them to gradually explore the mysteries of digital painting. In the final evaluation of diversified teaching, students should recognize their strengths and weaknesses, consolidate their exploratory knowledge, and improve their independent learning and innovation abilities. Teachers have also improved their professional competence and application ability of modern educational technology in this process.

Keywords: *Scaffolding teaching model, High school art modern media art module, Instructional design, Independent learning ability.*

1. INTRODUCTION

With the deepening of the reform of basic education curriculum, the scaffolding teaching concept is increasingly receiving attention in art teaching. "The European Community Distance Education and Training Project" interprets scaffolding instruction as the construction of a conceptual framework for learners to understand knowledge, in which the concepts are key to deepening learners' understanding of problems.[1] In short, scaffolding teaching guides students to gradually deepen their understanding and cultivate their ability to solve problems independently through a carefully designed conceptual framework.

Nowadays, the concept of scaffolding teaching has become relatively mature, but its application in the modern media art module of high school art is still in its infancy. The current teaching of this module faces many challenges, such as unclear

teaching objectives, single teaching content, and imperfect teaching process design and evaluation mechanisms. Not only does it affect students' learning outcomes, but it also constrains the development of modern media art education. Given the unique advantages of scaffolding instruction in enhancing students' cognitive and self-directed learning abilities, this study aims to explore its application in the modern media art module of high school art. By constructing the teaching case of "The Charm of Digital Painting", not only does it demonstrate in detail the implementation process and significant effects of scaffolding teaching in modern media art modules, but it also provides useful references and inspirations for the reform and innovation of art education, and provides more operational guidance for art educators.

2. THE CONCEPT AND STRUCTURE OF SCAFFOLDING TEACHING MODEL

“Scaffolding teaching is a relatively mature teaching model developed based on Vygotsky's ‘zone of proximal development’ theory, proposed by American educator Bruner under the constructivist teaching philosophy.” [2] “Rosenthal pointed out that the scaffolding teaching model is

when teachers or higher-level peers provide assistance and guidance to learners when they make mistakes while solving problems alone.” [3] This indicates that the scaffolding teaching model is an auxiliary and supplementary tool for students on the basis of self-directed learning. Its purpose is not limited to immediate support during the learning process, but also dedicated to building a conceptual system that promotes learners' knowledge deepening and long-term development.

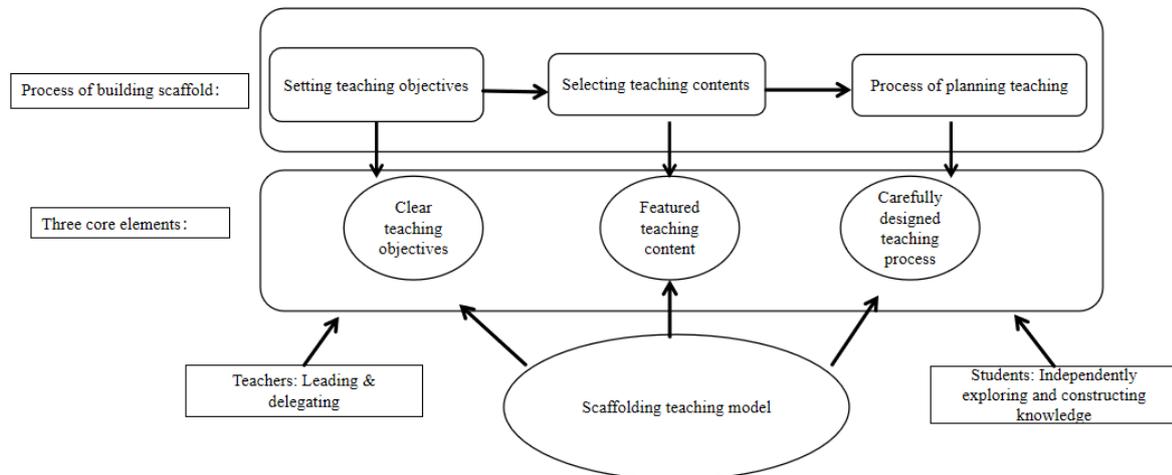


Figure 1 Structure of scaffolding teaching model.

The scaffolding teaching model is a student-centered teaching method that has a clear model structure (see “Figure 1”) and mainly relies on three core elements to construct a learning framework: clear teaching objectives, selected teaching content, and carefully designed teaching processes. The process of "building a framework" is actually about setting clear teaching objectives, selecting appropriate teaching content, and planning the entire teaching process. In scaffolding teaching, teachers guide and empower students to manage their learning. Students use scaffolding to explore independently and construct knowledge. Ultimately, teachers and students jointly evaluate the effectiveness, consolidate knowledge, and adjust teaching.

3. THE BASIC LINKS OF SCAFFOLDING TEACHING MODEL

He Kekang has proposed five basic steps for implementing scaffolding teaching: scaffolding, entering the context, independent exploration, collaborative learning, and effectiveness evaluation,

providing clear process guidance for specific teaching practices.[4]

- Scaffolding: It is to clearly present teaching objectives and learning tasks in accordance with the requirements of the “zone of proximal development”.
- Creating a situation: It is to create questions or scenarios related to the learning content, and stimulate students' interest in exploration.
- Independent exploration: Students combine basic knowledge, course objectives, and key and difficult points to attempt to independently complete practical content through a given theme.
- Collaborative learning: It emphasizes the communication and cooperation between students. At the discussion stage, independent thinking ability is required. In the sharing of collective thinking achievements, the original cognitive structure is adjusted to make students' learning more in-depth and comprehensive.
- Effect evaluation: "The evaluation content includes: self-directed learning ability,

contributions made to group collaborative learning, and whether the meaning construction of the learned knowledge has been completed.” [5] This link is to adopt diversified evaluation methods and construct a systematic framework for a scaffolding teaching evaluation system.

4. HIGH SCHOOL ART MODERN MEDIA ART MODULE AND PROBLEMS IN TEACHING

The "National Curriculum Standards for High School Art (2017 Edition)" states that "modern media art refers to emerging art forms that use multimedia devices and technologies to express ideas, thoughts, and emotions. Multimedia equipment and technology mainly include video equipment and technology, computer equipment and technology, and Internet communication equipment and technology." [6] Through the study of this module, students can master the skills of using multimedia devices, cultivate artistic thinking and creativity, and lay a solid foundation for future learning and life. However, there are some problems in the teaching structure and process of the high school modern media art module, which not only hinders the development of the curriculum, but also restricts the comprehensive development of students.

4.1 Unclear Teaching Objectives and Skill Orientation

In high school modern media art teaching, unclear teaching objectives and skill orientation are key factors that constrain teaching quality.

The first is that the teaching objectives lack clarity and specificity, making it difficult to provide students with precise direction and guidance for self-directed learning. The second is that skill-oriented teaching objective focuses too much on students' skill mastery and neglects the cultivation of students' comprehensive qualities. In the long run, students' artistic perception, aesthetic and creative abilities will be severely limited, and simple skill training can easily breed students' aversion to learning, limiting the cultivation of their independent exploration ability.

4.2 The Teaching Content Being Disconnected from the Needs of Students

When selecting specific teaching content, teachers often overly rely on specific textbooks or teaching resources, failing to fully consider the individualized needs and differences of each student.

This singular and stereotyped teaching content is not only disconnected from students' actual situations and learning backgrounds, resulting in a significant reduction in the practicality and effectiveness of learning, but also difficult to truly stimulate their intrinsic learning interest and strong motivation for independent exploration.

4.3 Imperfect Teaching Process Design and Evaluation Mechanism

The basic elements of the scaffolding teaching model clearly define the design and evaluation mechanism of the teaching process. However, in actual teaching, the traditional "cramming" teaching design still pervades modern media art classrooms, which violates the student-centered teaching philosophy. Not only does it hinder the development of students' independent learning and innovation abilities, but it may also lead to teachers falling into teaching bottlenecks and difficulty in self-growth.

The effectiveness evaluation overly relies on one-way teacher evaluation, neglecting the improvement of students' performance, progress, and comprehensive literacy in the learning process. This not only leads to the inability to comprehensively and objectively reflect the overall learning situation of students, but also affects the cultivation of students' ability for self-reflection and self-evaluation.

5. STRATEGIES FOR SOLVING EXISTING PROBLEMS IN HIGH SCHOOL ART MODERN MEDIA ART TEACHING

How to apply scaffolding teaching mode and update teaching status in high school art modern media art teaching is a question worth exploring.

5.1 Clearly Defining Teaching Objectives and Indicating the Direction of Efforts

“Scaffolding teaching requires teachers to create certain teaching scenarios based on teaching objectives to stimulate students' curiosity and thirst for knowledge, thereby guiding students to embark on a journey of exploring the unknown world with great interest.”[7] Therefore, determining teaching objectives is a prerequisite for the implementation of scaffolding teaching. Teachers should cover multiple dimensions such as skill improvement, artistic literacy cultivation, and emotional comprehension through three-dimensional objectives, ensuring that students can obtain clear learning directions and expected outcomes at each stage, and guiding students to climb step by step to higher learning levels.

5.2 Enriching Teaching Content and Paying Attention to Students' Needs

“Scaffolding teaching emphasizes that teachers should adjust teaching content and methods according to students' development level, ensuring that learning tasks are adapted to students' abilities.” [8] Guided by this philosophy, teachers can actively embrace modern technology, fully utilize online resources and a wide range of social resources, and weave a rich and colorful learning network for students. At the same time, teachers can pay close attention to students' interests, and their daily discoveries and questions can become sources of inspiration for teaching design. By building a learning framework closely linked to students' needs, teachers can stimulate their enthusiasm for exploration.

5.3 Improving Teaching Process Design and Diversifying Evaluation Mechanisms

The scaffolding teaching model focuses on teachers playing the role of guides. Teachers need to carefully plan the teaching process, including scaffolding, situational introduction, independent exploration, and collaborative learning. Each step should set clear learning goals and provide necessary auxiliary means. At the same time, a diversified evaluation system should be established, such as student self-evaluation, group peer evaluation, and teacher evaluation, to comprehensively measure students' learning effectiveness and comprehensive abilities.

6. TEACHING PRACTICE OF INTEGRATING SCAFFOLDING TEACHING INTO MODERN MEDIA ART: TAKING "THE CHARM OF DIGITAL PAINTING" AS AN EXAMPLE

In order to systematically explain the application significance of scaffolding teaching in modern media art module teaching and solve the existing problems in high school art modern media art module, this article will demonstrate the teaching process based on the structure of the scaffolding teaching model, starting from its basic elements and using "The Charm of Digital Painting" as an example.

It should be noted that in order to meet teaching needs, this article divides the "independent exploration" in the basic process into two parts: one is the exploratory exploration of basic knowledge, and the other is the independent creation of the practical part. Therefore, the teaching design will revolve around six parts.

6.1 Building the Cornerstone: Accurately Positioning the Teaching Objectives of "Digital Painting"

Before the course begins, teachers need to have a comprehensive understanding of the "The Charm of Digital Painting" lesson, clarify teaching objectives through lesson preparation, and establish a learning framework around the requirements of the "zone of proximal development" and the needs of students:

6.1.1 Student Analysis

Cognitive analysis: Firstly, it is the students' existing cognitive foundation. High school students have a strong interest in digital technology and have mastered the basic elements of traditional painting through the appreciation module. However, as an emerging form of painting, digital painting is poorly understood by students and their attitudes towards it vary greatly. Therefore, it is hoped that through the study of this lesson, students will be inspired to develop an interest in digital painting, understand the basic elements and steps of digital painting, and attempt to independently complete a digital painting work. Emotion analysis: This lesson is closely related to technological life, and learning digital painting is an important way to understand and participate in the development of today's era.

Exposure to new content is also easier to stimulate students' interest. But new content often comes with challenges, and how to guide students appropriately and exercise their exploratory spirit is also the focus of this lesson.

6.1.2 Teaching Objectives

"Setting goals is one of the fundamental characteristics of human behavior, and the same goes for art education behavior. The three-dimensional objectives of art courses are the basis for people to select and process teaching content, choose and apply teaching methods, and also the basic reference for the teaching evaluation." [9] Based on the analysis of the learning situation, combined with the school's technical resources, and based on the curriculum standards, the teaching objectives of this lesson are constructed to address the problems existing in modern media art teaching in high school art today.

- **Unlocking of Digital Art Skills:** Through course learning, students can experience the similarities and differences between digital painting and traditional painting, and understand the application knowledge of digital painting software.

The determination of this goal is to strengthen students' underlying logic, enhance their confidence in exploration with a solid foundation, and lay a knowledge platform for the later construction of learning scaffolds. It should be noted that since this section is intended to stimulate the interest of all students in exploration, it should be designed for all students and select standards that most students can achieve.

- **Mastery of Digital Art Methods:** Preliminary understanding of the basic drawing procedures of digital painting software. Students can experience the convenience and infinite potential of digital painting through their discussion, generalization and summarization.

Professor Yin Shaochun understands process and method objectives as "learning to design learning processes and apply learning methods." [10] In the process, teachers are only assistants to learning, and it is the students who truly attempt to design the process and apply methods. Teachers only point out learning entry points to students and encourage them to think independently and explore collaboratively. For example, teachers can display the drawing process diagram of the digital painting work "Female Chariot" and set learning tasks to

clarify the methods that students need to master. Under clear guidance and through self-study and group exploration, students can analyze the painting steps of "The Female Prince" to understand the basic process of digital painting and feel the advantages of digital painting.

- **Emotional Resonance of Digital Art:** Students should use new tools, materials, and art language software, actively discover and record the beauty in life, and express their inner feelings and thoughts. Students' sense of identification can be further enhanced with digital technology through learning digital painting.

Digital painting is a product that conforms to the development of the information age. Through the aesthetic connotations contained in digital painting, the spiritual connotation of this lesson is extracted, gradually making students realize the value of digital painting design and cultivating their interest and innovative spirit in modern media art.

The three-dimensional objectives clearly define the learning scope of digital painting, solving the problem of vague objectives in the past and surpassing the limitations of traditional skill teaching. Under this framework, students achieve balanced and rich growth in creativity, artistic emotions, comprehensive qualities, and ways of thinking.

6.2 Situational Guidance: Igniting the Passion for Exploring "Digital Art"

Knowledge depends on specific contexts. Everyone will re-understand and construct knowledge in different contexts, giving it new meaning. Creating scenarios to lay the foundation for the main teaching content while effectively stimulating students' interest is an efficient way to encourage students to quickly enter deep learning.

At the beginning of the teaching of "The Charm of Digital Painting", by playing the promotional video of CCTV's "Intelligent Era", students were prompted to think: "In the era of rapid development of information and intelligence, to what extent have information, digital, and machines developed today? Can you use digital technology reasonably to integrate into this society?" The futuristic technology scenes and a series of heart wrenching questions from scientists in the video can easily stimulate students' interest and quickly put them into a learning state. After playing the video, the teacher asked, "In today's rapidly developing digital

technology, digital painting has become a new type of painting. Although its painting form is unique, novel, and convenient to create, there are still many repellers who believe that digital painting is just an imitation of tradition and has no meaning in itself. What do you think about this?" As the question was raised, it naturally led to the theme of this lesson and also brought students' thoughts into the exploration stage.

In the context introduction section, combined with the historical background of the students, rich online video resources were selected to stimulate students' strong interest in exploration, greatly improving the current situation of lack of diversity and innovation in teaching content.

6.3 Exploration: Unlocking the Mysterious Journey of the "Digital Brush"

Exploration refers to the process of individuals or groups searching, discovering, and researching in unknown fields. In the educational environment, it specifically refers to the behavior of students actively learning new knowledge or skills through independent thinking, practical operation, and other means. The introduction of exploration into teaching through the scaffolding teaching mode not only innovates the traditional teaching mode but also implements the requirements for cultivating core competencies.

Based on the questions raised in the context, the teacher presents two paintings with the same theme to students, providing them with a basis for exploration. They are the popular digital painting "Black Myth: Wukong" and the traditional painting "Chaos in the Heavenly Palace". The collision between popularity and tradition is eye-catching to students, who explore the similarities and differences in their creation, expression, storage, and dissemination methods independently, and thus summarize the characteristics of digital painting. When comparing two works, teachers only need to remind students of the direction of thinking, and the real problem participants must be implemented by the students themselves. In the exploration, teachers should try to analyze each comparison point, and summarize the overall connotation of digital painting by summarizing the understanding of the creation, expression, storage, and dissemination methods of digital painting (see "Figure 2"). After students understand the characteristics of digital painting, the teacher added, "There are so many advantages to digital painting, and I believe everyone is eager to experience it. Before experiencing it firsthand, we also need to understand the basic knowledge of digital painting on the basis of student exploration, basic concepts such as common types and resolutions of digital painting were supplemented, deepening students' understanding of digital painting.

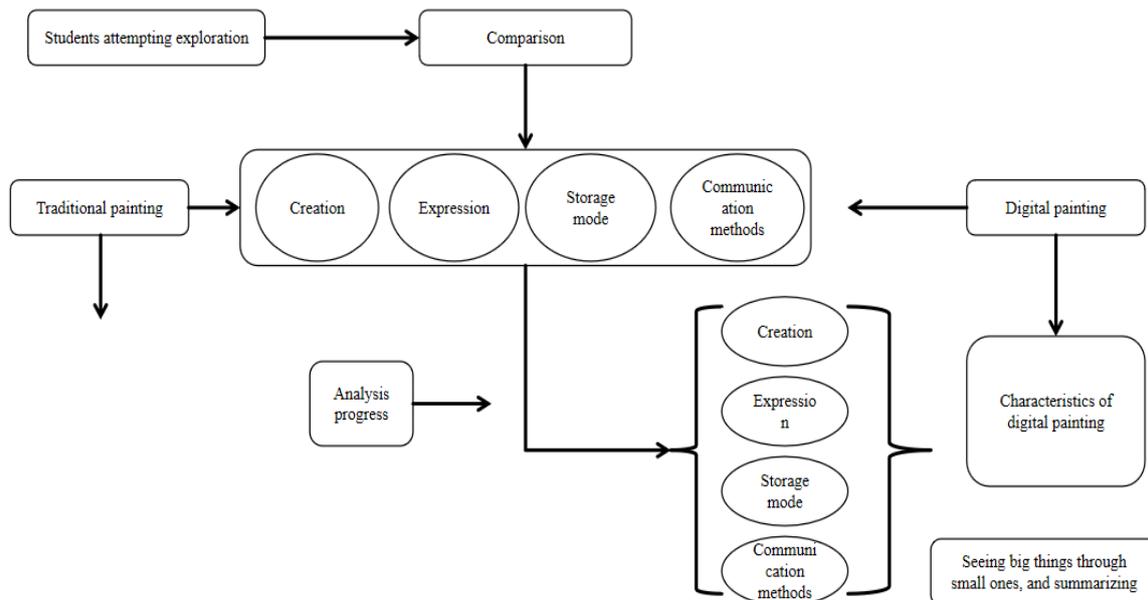


Figure 2 Comparison and exploration design diagram.

Integrating popular elements, students are familiar with into teaching, enriching teaching

content while aligning with students' concerns. Through the comparative analysis of old and new,

students have successfully taken the first step of exploration, not only allowing them to experience the joy of exploration but also improving their ability to comprehensively analyze and grasp things.

6.4 Thought Collision: Collaborative Research on the Creative Blueprint of "Digital Art"

Students can express their personal opinions through group communication, while also gaining unique insights from others through group collaboration. Through problem guidance, collaborative learning among students will have more direction. Therefore, after understanding the characteristics of digital painting, the teacher raised an inquiry question: "Technology is everywhere in our daily lives, and it has had a huge impact on our learning and entertainment methods. So, have you ever thought that digital painting, spurred by technology, has truly changed the creative methods of artists?"

Students think with questions in mind and observe and discuss the drawing steps of "The Female Prince" through group collaboration. The teacher presents the creative process of traditional Chinese painting together, facilitating their intuitive comparison between the two painting styles. Through the analysis of the painting process of "The Female Prince" and the comparison with

traditional painting, students have learned about the latest forms of painting creation, laying the foundation for the independent exploration part in the future.

In the process of joint exploration, teachers design challenging and attractive questions to encourage students to actively participate in group discussions, truly paying attention to their inner needs for exploration.

6.5 Creation Soaring: Creating a Wonderful Chapter of "Digital Painting"

The ultimate goal of scaffolding instruction is to encourage students to achieve independent learning. In this process, by gradually reducing the support of the scaffold, students need to learn independent thinking, self-monitoring, and self-regulation, thereby cultivating their ability for self-directed learning. At this stage, students need to independently practice the knowledge and skills they have learned, and complete digital painting creations independently. This is not only a test of the previous learning process, but also an important manifestation of students' ability to learn independently. At the same time, it is connected with the subsequent evaluation and reflection process, forming a complete learning loop. See "Figure 3" for details.

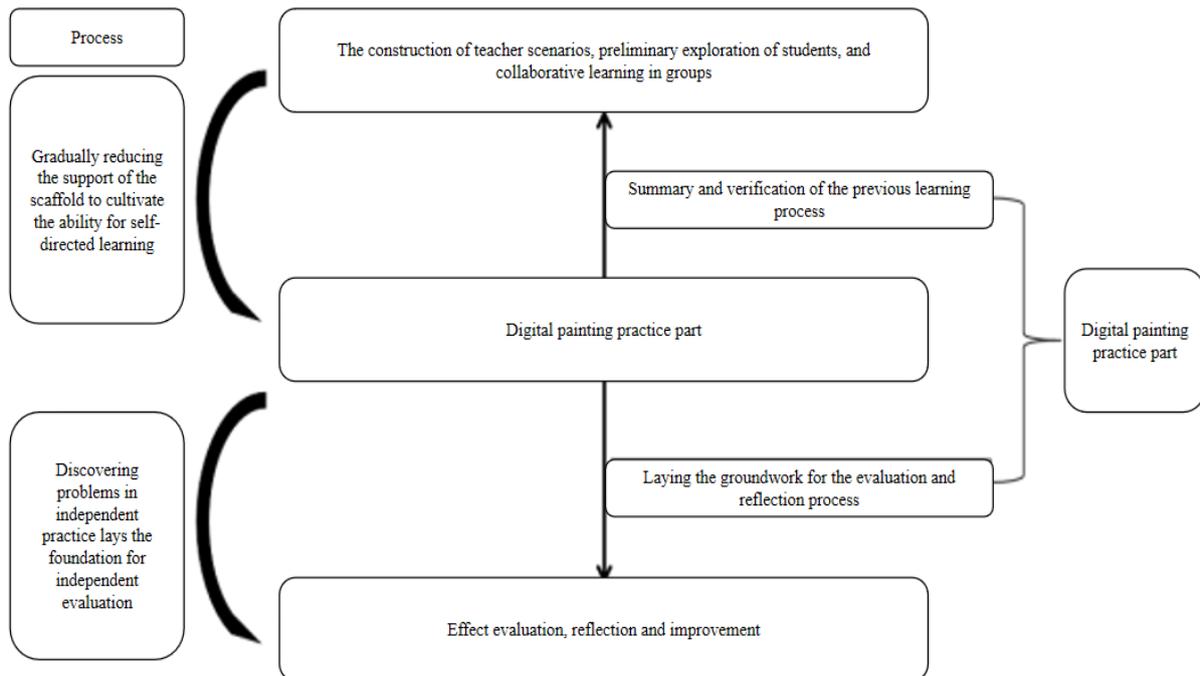


Figure 3 The role of digital painting practice.

Through the construction of teacher scenarios in the early stage, preliminary exploration by students, and collaborative learning in groups, students have mastered the theoretical knowledge and skills of digital painting. The teaching content will move on to the practical part of digital painting. Part of it mainly focuses on students' self-directed learning and independent creation. Teachers, as facilitators of learning activities, only provide moderate guidance. Teachers provide digital paintings that are close to students' daily lives for them to find inspiration. While respecting students' creative personalities, teachers should also pay attention to the content that students are truly interested in.

- **Preparation Stage:** Teachers showcase campus themed digital paintings to students, exploring the constituent elements and underlying meanings of each painting. After understanding each artwork, the teachers encourage students to actively create with the theme of "Our Campus" and integrate their emotions, and complete a unique work on the computer through a digital board.
- **Computer Drawing Stage:** Students create according to the theme, guided by the digital drawing process, and use their active creativity to express novel ideas in their minds on "drawing paper". Students can explore various painting tools in the software independently and boldly combine them. They can think about how to use the unique properties of digital painting to express campus themes, striving to present digital painting works that conform to the aesthetic of the times and are rich in emotions.

In the process of painting, every step from creating layers, selecting tools, organizing the image to color matching and adjusting effects requires students to independently try and explore. In the process of independent exploration, students are no longer passive recipients of technology, but active explorers and innovators, each step filled with curiosity about the unknown and the exploration of their own potential.

6.6 Teaching Reflection: Learning from the Growth Trajectory of "Digital Art" Together

"The evaluation of art teaching guided by core literacy should not only test students' understanding and mastery of art knowledge and skills, but also emphasize their ability to construct art knowledge,

comprehensively apply it, and solve problems in real situations. It should also emphasize students' post learning reflection." [11]Therefore, in the final part of this section's teaching design, teaching evaluation is integrated to test the teaching effectiveness of teachers and the learning effectiveness of students through multidimensional evaluation feedback.

The evaluation mechanism of this lesson is mainly divided into three aspects: teacher evaluation, peer evaluation, and self-evaluation, aiming to enable students to listen to the professional advice of teachers and the unique insights of classmates, and ultimately deepen their grasp of the content of this lesson through self reflection, discover their own strengths, clarify the problems and shortcomings in learning, play to their strengths and avoid weaknesses, and continuously adjust and optimize their learning strategies in the future.

At the beginning of the evaluation, the teachers should encourage students to showcase their creative works in groups, and provides targeted improvement suggestions from a professional perspective. Subsequently, other group members are encouraged to speak up actively, and during the peer evaluation process, they can learn to evaluate others objectively. In the process of evaluating others, they can not only discover their own shortcomings but also cultivate critical thinking. Finally, for self-reflection, the teachers ask the evaluated students a question: "Looking back at the learning process, which presenter can share their feelings during the creative process with everyone?"

After considering the professional evaluation of teachers and mutual evaluation among classmates, students can have a clearer understanding of themselves and recognize their level of knowledge mastery. For example, students with rich imagination but lacking in skills can follow the professional guidance of teachers and master more efficient creative methods; Students who are technically skilled but lack creativity can draw inspiration from their classmates' unique perspectives to broaden their creative horizons and ways of thinking.

7. CONCLUSION

The application of scaffolding teaching model in high school art and modern media art can stimulate students' independent exploration ability.

It solves the problems of unclear teaching objectives and single content in this field, and improves teaching effectiveness. In this model, teachers transform into supporters and guides of students, implementing the student-centered philosophy.

However, it should be noted that relying solely on classroom teaching will limit students' horizons. Therefore, expanding to interdisciplinary integration, blended learning online and offline, and personalized learning path design is necessary to break traditional limitations and create a more open and flexible learning environment, which still needs to be continuously explored in practice.

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