Application of AR in Illustration Teaching in Higher Vocational Colleges
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Abstract
With the development of The Times, the progress of the society, the innovation of science and technology, and the new vitality of ancient illustration art, contemporary higher vocational illustration teaching should follow the pace of The Times and combine the old with the new with the education features of higher vocational education and the characteristics of higher vocational students. However, in the context of the rapid development of visual art today, the inherent illustration teaching has been unable to meet the development needs of emerging media, and the illustration course reform is imperative. Currently, there are many deficiencies in the illustration teaching in higher vocational colleges in China that need to be improved, so it is urgent to innovate its teaching methods. Augmented reality (AR) is an extension of virtual reality (VR) technology. The interactive method based on augmented reality provides illustration educators with new ways to express themselves to learning objects, and also establishes a space for illustration learners to explore independently with the most natural interactive way. Starting from the current situation of illustration teaching, this paper systematically analyzes some problems existing in the current illustration course, and applies the characteristics of AR enhancement technology to illustration teaching to improve the existing problems of illustration teaching in higher vocational colleges.

Keywords
Augmented reality; AR; High vocational illustration; teaching.

1. Introduction
With the progress of the society, the scope of illustration has been relatively huge. The changes, the ICONS on the phone app, the cute cartoon drawings on the clothes, and the impromptu graffiti in the corners of the street, we can call it illustration. Illustration, in the Latin sense of the word, originally means "to illuminate." It is a kind of auxiliary and decorative design to enhance the fun of reading. By virtue of its strong expressive force and artistic appeal, illustration has long been changed from an auxiliary to a subject or even independent of the text, and has become an independent art form. Illustration is an important part of modern cartoon art, is an important expression form of modern art, illustration in expression image is often intuitive, the expression of atmosphere directly absorbing nutrition from life, its artistic expression and appeal is very strong, occupies very important position in modern art is widely used in many fields of modern art, involving business, Internet, personal life, cultural diffusion, books, newspapers, etc. The art of illustration has gone through a long history since its birth. In China alone, there are traces of the development of illustration from ancient rock carvings to ancient book illustrations to patterns on blue-and-white porcelain.

Virtual reality, or VR for short, is a relatively novel simulation technology at present. Its essence is to use the virtual environment of three-dimensional mode generated by computer simulation to bring a sense of vision and hearing to users, so that users can be exposed to the virtual world scene. Augmented reality, also called augmented reality, or AR for short, is a new technology based on virtual reality technology, which USES virtual objects in real scenes to "reinforce"
display technology. Compared with virtual reality, it is more realistic and more simplified. AR adopts the new media device of computer simulation virtual environment superimposing the real world environment, so as to enlarge the real world. Moreover, by cutting off the real reality, it also makes its interaction more natural. According to the report of American Battelle Research Institute, there are 10 technological analyses with more significant strategies in 2020. The generation and development of this technology will have a significant impact on the scientific and technological development of the whole scientific and technological community and the world, and AR technology ranks the tenth place.

With the rapid development of multimedia technology, illustration teaching in colleges and universities must change its inherent teaching mode under the new era background. AR technology is applied to illustration courses, making illustration reform and innovation in a diversified direction, and illustration has been developed rapidly. Facing many problems in illustration teaching in higher vocational college education, the development of course teaching has been restricted, and the effectiveness of students' learning has been affected. Through the application of AR in illustration teaching in higher vocational college, the effectiveness of interpolation teaching has been effectively improved.

2. Development Status of AR Augmented Reality Technology

2.1. Features of AR Augmented Reality
AR augmented reality technology has three characteristics, and its application potential in education is mainly reflected in: (1) abstract learning content visualization and visualization; (2) support situational learning in ubiquitous environment; (3) improve learners' sense of existence, intuition and concentration; At present, there have been many practices in education at home and abroad, and three types of augmented reality learning environment teaching methods based on role playing, position and task have been preliminarily formed.

2.2. The Education Potential of AR Augmented Reality
In the field of education, although the virtual learning environment based on AR technology is a new thing, some features of it conform to some viewpoints of education theory. In the AR virtual learning environment, learners interact with the environment and can get feedback results quickly, and decide the next step according to the feedback results, so as to establish the link between knowledge and reaction. AR virtual learning environment includes rich construction kits and performance sites, and emphasizes more control of learners themselves, which not only conforms to Piaget's idea and practice of "moving the laboratory into the classroom", but also conforms to the view of constructivist learning theory that "learning is an experience of real situation". AR has many remarkable features that can be applied to the education field. When combined with multiple types of technologies, AR can exert greater potential.

3. Current Situation and Existing Problems of Illustration Teaching in Higher Vocational Colleges

3.1. Current Situation of Illustration Teaching in Higher Vocational Colleges
Compared with other artistic creation, illustration, as a new subject, is closer to People’s Daily life and practice. It develops constantly with the change of social aesthetics. However, illustration also faces the challenge of modern society. On the one hand, with the rapid development of computer technology and network technology, the society’s requirements for illustration have been raised, and the inherent design of illustration has been difficult to adapt to the development needs of The Times. On the other hand, people's aesthetic characteristics have also undergone a great transformation, and the inherent hand-painted illustration has
been unable to meet people’s aesthetic needs. In such a social environment, the previous illustration model was quickly updated, and innovative and creative approaches were constantly emerging. With the help of scientific and technological innovation, the creation of many complex illustration materials becomes simple and easy with the help of scientific and technological means.

3.2. Problems Existing in Teaching Illustration Courses in Higher Vocational Colleges

3.2.1. Backward Teaching Methods

In recent years, with the rise of illustration, some universities in China have offered illustration courses to meet the needs of illustration market. Illustration has always been an important vocational skill course in the teaching of animation major of art in higher vocational colleges. It can enable students to master illustration techniques within limited class time and have basic painting expression ability, which is the general goal of illustration design teaching. However, there are some problems in the current teaching mode of illustration in higher vocational colleges. Some universities’ illustration courses are not mature. Some universities do not even have professional illustration designers, only temporary transfer of some professional art teachers to teach illustration courses.

Theoretically, the aim of higher vocational education is to train a group of high quality and highly skilled practical talents for the society. The teaching method is directly related to the quality and efficiency of higher vocational courses. Therefore, in order to effectively improve the quality of illustration teaching, the rationality and applicability of education teaching method must be ensured. However, for a long time, there have been serious problems in higher vocational education, such as “focusing on theory rather than practice”, and illustration teaching is no exception. With the advancement of education reform in higher vocational education, the traditional illustration teaching method has been unable to meet the teaching demands of new curriculum standards. In particular, many higher vocational teachers still use the traditional passive knowledge indoctrination mode to teach, but neglect the students’ initiative, which has affected the effectiveness of illustration teaching.

The illustration course in some universities still adopts the inherent teaching mode, and the teacher narrates or adopts multimedia to teach in class. The teacher demonstrates the design process in class and the students do the imitation exercise. This teaching method takes teachers as the subject. Students only master the basic theoretical knowledge taught by teachers and lack practical experience, which limits students’ creative thinking. In this teaching mode, students are generally less motivated, and their learning is confined to the theoretical level and replicative design, instead of applying what they have learned to the changeable practical design.

3.2.2. Lack of School-Enterprise Cooperation

Practical teaching is particularly important in the teaching of illustration in higher vocational colleges. The teaching of illustration should focus on the combination of theory and practice, which requires the school to provide a practice platform for students. However, the teaching content of illustration in some schools is out of line with practice nowadays. Some teachers lack working experience in enterprises themselves, which leads to students’ inability to grasp the key points of study. It is difficult to meet the needs of enterprises after graduation.

It can be seen from the current demand of social enterprises for illustration designers, no matter it is animation design company, media organization or publishing house, there is a great demand for professional illustration designers. But at present many of the higher vocational education to carry out the illustrations education teachers strength is weak, some teachers in colleges and universities teaching thinking still stay in the past, the lack of related knowledge of technology, especially the part of the higher vocational colleges directly to the art of painting
before the teacher assigned to commercial illustration in the teaching, only in the aspect of painting and aesthetic art such as painting asked accomplished, but the lack of ability to use the software and the time development technologies into the classroom, so that they in the process of illustration teaching software to design reasonable knowledge instilled in the student, has affected the students’ actual learning.

3.2.3. Single Assessment Method

Illustration differs from painting in that it has the particularity of providing services for design, but this particularity has not been reflected in some of today's illustration teaching examination. Some of the assessment methods of college students’ scores are still limited to the level of completing several small designs in a certain period of time as stipulated in the final examination. This assessment method is difficult to comprehensively evaluate the knowledge mastered by students. As a result, students are still learning by rote and their practical ability cannot be improved effectively.

4. The Application of AR in Illustration Teaching

From the perspective of AR research with the purpose of applying AR to illustration teaching, AR applied to illustration teaching in higher vocational colleges can improve a series of problems in current illustration teaching in secondary vocational schools through the characteristics of AR. As a high vocational illustration teacher, the author has applied AR to illustration teaching. The following is the author's application of AR to illustration teaching to solve the problems of previous illustration teaching participation and improve students’ learning interest.

4.1. Visualize and Visualize the Abstract Learning Contents of Illustration

First of all, the current new technology is used for teaching and the teaching methods are updated. AR enhances the learning experience by exposing students to the illustration model in person. AR enables students to use the illustration model to enhance their visual perception of realistic situations [1]. Students can observe the illustration model from different perspectives to enhance their understanding of reality. We can use the mobile phone QQ to scan the CG illustration of the minions, and we can watch the minions in multiple directions. The visualization effect produced by these elements of augmented reality can greatly enhance students’ perception of abstract concepts and invisible phenomena.
4.2. **Support the Contextual Learning in the Ubiquitous Context of Illustration**

With the support of mobile devices, wireless network and local registration technology, mobile AR system can enhance the ubiquitous cooperative and situational learning with the help of computer simulation technology, games, models and virtual objects in the real environment. Features of the system include convenience, interactivity, situational, connectivity, and personalization. Many current illustration teaching cannot university-enterprise cooperation in higher vocational colleges, some mobile AR augmented reality is based on the designed to support learning, let the student study in enterprises in the real space, to enhance the environmental awareness of students, to force them to the enterprise standard strict with myself, but also solved the problem of the illustrations in higher vocational colleges teachers lack.

4.3. **Improve the Sense of Existence, Intuition and Concentration of Illustration Learners**

Boring illustration courses, AR augmented reality software immersive learning media, enable learners to have a sense of existence, enhance their intuition and focus on it. First of all, AR can give illustration learners a special space to feel that they are in the same position with others. In illustration learning, intuition is very important for cultivating students’ emotional value, and AR can integrate learners, virtual elements or information and some characteristics into a real environment. Therefore, AR has great potential in cultivating learners’ intuition. Finally, immersive media like AR can give learners an immersive feeling, which is also the subjective feeling one has in a comprehensive and authentic experience[2].

Besides, AR is improved by examination before a single illustration course examination way, improve after examining ways: teachers’ evaluation, students mutual, enterprise evaluation, evaluation, illustration course, the student work drawing process for small video to use AR augmented reality, teachers, students, enterprises, can through scanning the student work, the inspection work drawing process, accurate location and evaluation of students. At present, many colleges and universities hold illustration competitions. At present, motion picture illustration is very popular. By adding animation effect in the process of computer making illustration, the illustration can be moved and saved into GIF format. However, the illustration can only show the static effect to the viewer, who can scan the illustration through QQ and use AR to show the dynamic effect. AR’s application in high vocational illustration effectively solves the problem of single examination method of illustration course.

5. **ENDnotes**

AR augmented reality gives us not only a technical platform or tool, but also the breeding of a new teaching mode and method. AR’s application in illustration teaching in higher vocational colleges solves a series of problems, such as backward illustration teaching method, single course assessment method and lack of school-enterprise cooperation, and provides an effective solution for illustration teaching in colleges and universities to keep pace with The Times, update teaching concepts, enrich teaching methods and cultivate practical illustration design talents.

**References**
