The Application Inquiry of Immersive Teaching Based on Embodied Cognition Theory in Art Teaching in Junior Middle School

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Abstract: based on the embodied cognitive theory of immersive teaching is a kind of relying on intelligent technology, with embodied cognition as the theoretical basis of teaching method, applied to the junior middle school art classroom teaching, to enhance students' experience, deepen students to the content of comprehension, trigger its positive emotional resonance, promote students comprehensive development of body and mind.Its essential features include the interactivity of learning environment, the equal and harmonious interaction of teacher-student relationship, the dynamics of teaching time and space, and the process and accuracy of learning evaluation. Therefore, this article designs the immersive teaching scheme from the three stages of immersive teaching before, during class and after class, and explores the application strategy of immersive art teaching in junior middle school, hoping to provide reference for improving the effectiveness of art teaching.

Keywords: embodied cognitive theory, immersive teaching, junior middle school, art

1. Introduction

At present, China's artificial intelligence, virtual reality, 5G and other emerging technologies are developing rapidly. Immersive teaching is produced on the basis of these emerging technologies, which can create an immersive learning environment for students, so that they can fully immerse themselves in it and obtain all-round development of body and mind. Art Curriculum Standards for Compulsory Education (2022 edition) emphasizes the curriculum concept of "emphasizing artistic experience", requires "pay attention to students 'artistic perception and emotional experience in the learning process, and stimulate students' interest and enthusiasm in artistic activities" [1]. This shows that experience plays an indispensable role in art learning. Immersive teaching based on embodied cognitive theory can use virtual reality technology to construct the embodied learning experience of "physical presence" in the way of multi-sensory experience, which is helpful to deepen students' artistic aesthetic experience and arouse their emotional resonance.

2. An overview of embodied cognitive theory and immersive teaching

2.1 The basic view of the embodied cognitive theory

Traditional cognitive science holds that people's cognitive process is inseparable. Under the guidance of this theory, the previous classroom teaching often pays too much attention to the cultivation of students' rational thinking, and the classroom knowledge content is far from the real life, leading to a certain mechanical [2] of students' learning. In the 1990s, on the basis of the criticism of isolated cognition, the theory of embodied cognition emerged.

From the meaning of the theory from the literal meaning of "having", "having" refers to the embodiment, and "body" refers to the body, which is the cognitive theory about the body. Many scholars emphasize the embodiment of embodied cognitive theory, that is, the sensory system, motor system and nervous system of the body all affect people's cognitive process.In short, embodied cognition theory attaches great importance to the situational and embodied nature of cognition, and emphasizes the role of body and environment in cognition, which can promote teachers to explore teaching and learning methods more suitable for students' cognitive development [3].

2.2 The connotation of immersive teaching based on embodied cognitive theory

"Immersion" means "immersion in water", which means a person in an atmosphere or activity.Immersion theory is a cognitive psychology theory proposed by American psychologist Mihalie in 1975. He points out that people pay high attention when participating in activities, which will filter all irrelevant perception, and reach the state of "selflessness" [3]. Immersion theory provides theoretical inspiration for immersive teaching.Immersive teaching means that teachers take students 'experience and feelings first, and create an immersive teaching and learning environment in an effective way, so

that students can participate in it with strong interest, so as to stimulate students' interest and motivation in art learning.

In conclusion, embodied cognitive theory for immersive teaching provides more ideal theory support: one is to support the immersive teaching combined with virtual reality learning environment, the new technologies such as virtual reality for classroom teaching to build a personalized, interactive immersive learning ring, environment, enhance the learners experience of learning content, support learners multi-sensory experience;The second is to support the embodied learning mode of immersive teaching, so that students can carry out learning activities in authentic learning scenes, learn by doing, and enhance the diversified experience of the interaction between people and the environment [3].

3. Basic characteristics of immersive teaching based on embodied cognitive theory

3.1 The embodiment and interaction of the learning environment

The learning environment of immersive teaching based on embodied cognitive theory mainly includes physical environment, resource environment and social and cultural environment, etc. Different learning environments interact and influence them to jointly promote the smooth development of immersive classroom teaching [4].

First, it is about the creation of the physical environment. Teachers' reasonable arrangement of the classroom environment can effectively enable students to better master the classroom teaching content. For example, in the calligraphy class, teachers use handwritten calligraphy to display books on the blackboard, and paste calligraphy works on the walls of the classroom, so as to create a book garden, so that students can immerse themselves in the beauty of calligraphy.In addition, field trips are also an effective way to create a learning atmosphere. Combined with the teaching content, teachers lead students to visit museums, art studios, ancient dwellings, etc., so that students can get interactive experience in an intuitive form.Secondly, about the creation of resources and environment. Virtual reality, the rapid development of emerging technologies such as artificial intelligence provides a rich means of human-computer interaction, to fully mobilize students 'visual, hearing, touch and other multi-sensory participation and feedback, for students to create real, situational learning environment, and enhance the realism of teaching content, promote the students' knowledge construction and all-round development.Finally, about the creation of the social and cultural environment.Art contains rich cultural and spiritual connotations. In an immersive class, students can deeply feel the rich humanistic feelings contained in the art works through intuitive feeling, touch and hands-on creation,And in this "moisten things fine and silent" art and in the process of emotional influence, cultural accomplishment and spiritual morality should be improved, and then form correct and positive moral quality, world outlook, outlook on life and values.

3.2 Equality, harmony and interactivity of the teacher-student relationship

The immersive teaching based on the embodied cognitive theory advocates that teachers and students are regarded as the subjects of teaching, and the teacher-student relationship in teaching is mutual communication, mutual respect and mutual sharing.In addition, the immersive classroom contains a variety of teaching activities, in which students learn from activities and games. In this process, teachers and students always interact, emotional resonance and ideological collision to give full play to their subjectivity together.For example, in role playing activities, teachers can use the way of teachers entering the play to complete the role play together with students, this kind of interaction and cooperation makes the relationship between teachers and students more intimate, the atmosphere of the whole class more harmonious, which is conducive to stimulate students 'interest in art learning and improve students' learning effect.

3.3 The dynamics of the teaching time and space

Immersive classroom teaching based on embodied cognitive theory shows the dynamics of time and space. Therefore, teachers need to flexibly allocate teaching time and choose teaching places in the teaching process. In an immersive art class, the classroom is not the only place to acquire knowledge and experience. Teachers can use their spare time to lead students to make field visits and participate in social practice activities, so as to deepen students' learning experience. Teachers can also let the students observe in classroom teaching color and shape, touch the characteristics of different art media and texture, listen to jump rhythm and notes, fully mobilize the students' feeling, officer, make the abstract knowledge, make the students get direct experience for things and form the in-depth understanding of knowledge.

3.4 The process and accuracy of learning evaluation

The immersive teaching based on the embodied cognitive theory focuses on the comprehensive development of students 'body and mind and the process of students' cognitive development. Process evaluation provides a solid guarantee for immersive teaching, and attaches great importance to the multi-subject evaluation method of mutual evaluation between teachers and students, students 'mutual evaluation and students' self-evaluation. The evaluation content needs to involve

students' physical and mental participation in classroom activities, learning attitude, development of various abilities, interpersonal relationship and other aspects. In addition, because immersive teaching is influenced by intelligent technology, its teaching evaluation presents the characteristics of accuracy and man-machine collaboration. With the help of big data and other intelligent technologies, teachers can accurately collect and analyze various data in the learning process in multi-level and dimensions, so as to better clarify the state of students in the process of art learning, and reflect and improve teaching accordingly.

4. Teaching design and application strategy of immersive experience teaching based on embodied cognition theory

The author according to the embodied cognitive theory, to eighth grade second volume art teaching material the first class "harmonious sweet life space" for the teaching content, according to the class, in class, after class teaching stage, from teaching materials and learning analysis, teaching objectives, teaching environment, teaching activities, teaching evaluation, layered homework and teaching reflection design immersive teaching scheme, explore immersive junior middle school art teaching feasible application strategy.

4.1 Before class: create an immersive atmosphere

Before class is the preparatory stage of immersive teaching. Teachers need to design the whole teaching link, including the analysis of learning situation, the integration of teaching content, the determination of teaching objectives and the creation of teaching environment, so as to make the best effect of immersive art teaching.

4.1.1 Instructional objectives

Immersive teaching emphasizes students 'personal experience, emotional communication and interaction between teachers and students in teaching activities. By fully mobilizing students' multi-sensory perception and participation in practical activities, students can devote themselves to learning activities, so as to promote the construction of students' knowledge and the comprehensive development of body and mind. Based on this, the author establishes the teaching goal of "Harmonious and warm Living Space" as the following three aspects.

First, guide the student to understand the different style characteristics of bedroom design, basic design elements and design principles, initially master the drawing method of bedroom design floor plan and effect drawing, deepen the understanding of beautify the bedroom. Secondly, collect the needs and ideas of the community residents for home design and transformation, exercise the students 'interpersonal communication skills and information collection ability; through narration and demonstration, perspective, color and draw an interior design effect drawing and make home design model, so as to improve the students' fine design art performance ability and practical ability. Third, cultivate students 'innovative spirit and ability, so that students feel the aesthetic feeling brought by interior design, stimulate students' love for life, so that they take the initiative to use the knowledge to beautify the living environment.

4.1.2 Textbook and learning situation analysis

First, the teaching material analysis. "Harmonious and Warm Living Space" is an important part of the "Beautiful and pleasant living environment" in the fourth unit of the art textbook of grade 8. The unit belongs to the "comprehensive" exploration, guide students to take the initiative to create, using comprehensive knowledge of household space to carry out the reasonable planning and design, try to draw the rendering of household space design and make fine model, and then appreciate and understand the aesthetic feeling of different design style, arouse the enthusiasm of students love life, beautify the environment.

Second, learning situation analysis. Grade 8 students have initially had a certain design awareness and hands-on operation ability, but some students have less contact with things in daily life and lack of real life experience. Home design and production need to be combined with the actual life, according to the needs of residents and the actual situation. Therefore, this course should be oriented to all students, pay attention to the students 'personality differences, close to the students' actual life experience, so as to cultivate students' independent inquiry spirit and hands-on practical ability.

4.1.3 Teaching environment construction

Making the teaching environment into a historical situation or students' real life situation can bring students an immersive feeling. Immersive places have different forms, including technology-based immersive environments and real-world immersive environments.

First, the creation of a technology-oriented immersive environment. At present, with the rapid development of science and technology in China, virtual reality, artificial intelligence and other intelligent technologies and 3D learning scenes provide a solid guarantee for the effective development of immersive teaching activities. Teachers can introduce virtual

reality technology and 3D technology into the classroom, and combine lighting rendering and music surround to create an immersive learning atmosphere. For example, in the teaching of "Harmonious and Warm Living Space", teachers can make full use of intelligent technology resources, such as 3D interactive screen and music playback, to create a multi-sensory immersive teaching environment.Using 3D interactive screen to intuitively display 3D real renderings of boutique home design, so that students can see the boutique home design case by touching and rotating the screen with 360 degrees ring, laying a foundation for students' next learning and design and production. Secondly, the creation of a real and immersive environment.In the teaching of "Harmonious and Warm Living Space", teachers can lead students out of the classroom to the community where students live to carry out actual investigations and interviews, to understand the ideas and needs of community residents for home renovation design, so as to lay a foundation for the following home design.In addition, teachers can also combine the process of home design, guide students to understand the home house size, the basic house type and size, so as to facilitate students to carry out house type renovation design according to the opinions of residents.The immersive classroom teaching with digital resources and real life environment breaks the limitations of art classroom, so that students out of the classroom, out of the school, so as to improve students' imagination and creativity.

4.2 Class: Promote knowledge immersion with activities

4.2.1 Create real task situations

The real situation is connected with students' life, inquiry tasks and real problems. Students learn and practice in the situation, and immerse themselves in the art class, so as to improve their key abilities of hands-on operation, inquiry and logical thinking.In the harmonious warm living space lesson teaching, teachers can create household design competition task situation, inform students weeks, edge community residents decorate, transform home space needs, according to the school intends to hold a, household design competition, after the game will be excellent design works to show the residents, and further implement.Through the task situation of the home design competition, teachers make the teaching content and students 'real life are closely linked, and the subject is introduced, so as to stimulate students' interest in art learning.

4.2.2 Create an immersive teaching activity

First, interactive games. Games are a convenient tool to stimulate students' interest. Students have high interest and concentration in games, and can immerse themselves in art learning activities.In the teaching of "Harmonious and Warm Living Space", teachers can on the story of the design style of indoor space, make help of the network platform such as Kujiale, and combine with the interactive LED screen to carry out the bedroom furniture collocation game.Students in this platform can choose different design style, color collocation of furniture decoration bedroom space, teachers can take the game to examine the knowledge of interior design style and for color sensibility, collocation ability level, and stimulate students' learning enthusiasm, active classroom atmosphere, make students fully immersed in art activities.

Second, role-playing. Role playing is a unique teaching method of applying drama to teaching. It is a teaching activity in which teachers combine knowledge with performance and creation through various sketches and skits in art classroom teaching.Through role playing, every student can immerse themselves in the fun of art class, thus promoting the understanding of knowledge and deep learning.In the teaching of "Harmonious and Warm Living Space", teachers can use the way of teachers entering the play, and put forward the needs and suggestions of home design and transformation as residents.Students form different home design companies, and some students play the main designers, responsible for distributing the design work and carrying out home design; some students play designer assistants to explain the preliminary home design scheme to customers; some students play the main material designers to assist the selection and purchasing of decorative materials; some students play furniture designers to assist the main designers and customers to complete customized furniture design.To sum up, in the process of role-playing activities, every student is immersed in the task of home design, jointly completes the preliminary investigation activities and designs a unique home space plane and facade design scheme, so that all abilities can be effectively developed.

4.3 After class: to promote knowledge extension with process evaluation and stratified homework

4.3.1 Hierarchical job design

Considering the basic situation of students 'art learning, learning ability, learning attitude, creativity and other aspects, teachers can find that students' learning degree is different. In immersive teaching, teachers need to flexibly design stratified assignments according to students 'personalized differences, so as to promote the internalization and extension of students' knowledge.In the teaching of "Harmonious and Warm Living Space", the teacher designs the homework into three levels of content.Level A homework: students are required to actually measure the length, width and advanced real data of each home space in their homes or neighbors before class; in class, students are required to independently draw the home space graphic design scheme at 1:50 ratio, and the drawing ratio should be accurate; after class, students are required to freely choose the

home space partition they are interested in, and independently draw a rendering map, requiring clear style, uniform color and reasonable spatial layout.Level B homework: before class, students are required to measure the length, width and advanced data of each home space in their home; in class, students are required to draw the graphic design scheme in the ratio of 1:50, and the drawing ratio is accurate; after class, students are required to choose the bedroom, living room, study provided by the teacher, and use the imagination, and then try to draw a rendering drawing of home space, which requires clear style and unified color. Floor C homework: before the class, students are required to actually measure the length, width and advanced real data of their bedroom, living room and study with the help of others; in the class, the teacher provides the home space plan as a reference, and the students are required to try to draw the graphic design scheme of the home space by designing the team; after class, the teacher provides the copy renderings of the bedroom, living room and study, guiding students to choose the favorite style to copy, and requires the complete picture drawing.

4.3.2 Process evaluation

The teaching evaluation of immersive teaching has different characteristics in the evaluation subject, evaluation method and evaluation content. First of all, teachers can introduce different evaluation subject, such as teachers, students, parents, home design professionals, community residents, etc., to the student's home design and rendering a comprehensive evaluation, make the students in the feedback clearly understand their deficiencies in the current learning, in order to promote their own progress and growth. Second, the evaluation method of immersive teaching is more diversified. With the help of intelligent technology, teachers can tailor evaluation plans according to students' personality differences, and use computer vision, speech recognition and big data calculation to carry out accurate data analysis to generate comprehensive evaluation results, so as to improve the teaching plan and formulate more personalized learning plans for students. Finally, the evaluation of immersive teaching content should not only include the students' knowledge degree, and should cover the students in the process of learning, such as the development of ability, group participation and performance, interpersonal communication between teachers and students and students, team cooperation and emotions, attitudes and values, etc.

5. Conclusion

With the continuous advancement of basic education reform, the society attaches more importance to aesthetic education, and the previous art classroom is gradually difficult to meet the development requirements of aesthetic education in the new era.Immersive experience art class focuses on students 'interest needs, unique personality, emotional resonance and aesthetic feelings, which can make students "learn in doing" and "learn in games", deepen students' understanding and aesthetic experience, so as to tap the great potential of students and cultivate students' core quality of art. Therefore, it is the actual demand of diversified aesthetic education in the future to correctly treat the subject status and interest needs of students 'learning, and to make art learning close to students' real life experience.

References

[1] Ministry of Education of PRC. Art Curriculum Standards for Compulsory Education (2022 edition) [M]. Beijing: Beijing Normal University Press, 2022: 2.
[2] Li Ruoyu, Xiao Qing. A new paradigm of landscape design course teaching based on embodied cognition: Immersive teaching [J]. Journal of Chengdu University of Traditional Chinese Medicine (Education Science Edition), 2023, 25(2): 53-56,70.
[3] Ai Xing, Li Wei. Immersive teaching based on embodied cognition: theoretical architecture, essential characteristics and application exploration [J]. Journal of Distance Education, 2021, 39(5): 55-65.
[4] Li Zhihe, Li Pengyuan, Zhou Nana, et al. Design of embodied cognitive learning environment: characteristics, elements, applications and development trends [J]. Journal of Distance Education, 2018, 36(5): 81-90.