Retraction

Retracted: Teaching Design and Practice Based on the Dissemination of Professional Knowledge in Digital Media Environment Art Design

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Teaching Design and Practice Based on the Dissemination of Professional Knowledge in Digital Media Environment Art Design

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ABSTRACT At present, with the rapid development of the computer Internet, digital media art based on digital technology, to create a high aesthetic works of art and information products. Digital media has gradually evolved into the latest technology in the world, covering a wide range of fields, including education. Its reasonable application in teaching design can significantly improve teaching efficiency and quality. Based on the above background, the purpose of this paper is based on the digital media environment art design professional knowledge communication teaching design and practice. Therefore, this study will be based on the connotation and core of digital media environmental art knowledge construction theory, based on the actual teaching situation in China, to construct a universal teaching mode. This study comprehensively uses the methods of literature research, action research and investigation. First of all, the connotation of digital media characteristics, basic principles, process law and other content of in-depth exploration. Secondly, based on the content of theoretical exploration, combined with the actual teaching situation in China, the design principles and design ideas of the teaching mode are determined, and the "IG-GC two-level six stage knowledge construction teaching mode" is constructed. Finally, the teaching model is applied to real teaching cases, and it is found that the new teaching mode can improve students' scores by 20%. The rationality and effectiveness of the teaching mode are preliminarily verified through standardized tests and questionnaire interviews.

INDEX TERMS Digital Media, Environmental Art Design, Teaching Design, Knowledge Construction

I. INTRODUCTION

In the process of the integration of the world economy and the market, the environmental art design professionals with strong practical function as the main feature and directly acting on the social service function are paid more and more attention by the society, and the environmental art design education has also received great attention. At the same time, there are various problems in the development of social environment and art design. Among them, the separation of professional basic lectures and professional courses is more serious. The education of basic professional courses has not formed a systematic, professional and independent education system, but it always depends on the educational methods and educational ideas of painting major. The traditional idea is that art design is just inferior product of pure plastic art specialty. Because painting and art design are not treated as two different fields, traditional painting can not be removed from entrance examination requirements and professional education. This is particularly significant in the mainstream basic courses of environmental art design. This situation hinders the normal development of the mainstream of environmental art design.

The new web-based architecture and digital storage capabilities make online social interaction more important, more discussive and substantive. As the digital media environment continues to change its interfaces, protocols, and member settings (including privacy configuration), Jamerson believes that this new normal - continuous change - poses a challenge to the collective memory and attention work of community organizations. Focusing on the influence of digital information technology on memory and culture, this paper emphasizes that the struggle for externalization is of great significance to the daily work of collective action. Li discussed the possibility of determining the lexicographic needs of language users by analyzing user generated content in digital

media, and analyzed more than 1000 language related issues and comments on Slovenian language consulting websites, Facebook groups and news forums [1-2]. The relationship between sense of belonging needs and social participation is mediated by college students' use of digital media. Kong research provides empirical evidence of the positive impact of digital media on social behavior, and helps to further understand the mechanism of social participation caused by the need for belonging through the use of digital media [3]. Chen is committed to providing students and mentors with "systematic and comprehensive reference materials" in the field of new media and digital media. In terms of content, this work is not aimed at those who work in the field of science or social sciences, but mainly for scholars in the humanities [4]. Those who are looking for more technology in the field of digital media are advised to go elsewhere.

In view of the relationship between urban environmental art design and environmental protection, Huang introduced that urban environmental art is the product of social and times development and needs to be combined with environmental protection. As a part of modern life, it is an important factor to highlight urban environmental protection and plays a decisive role in improving people's quality of life [5]. With the rapid development of art and design, designers must pay more attention to the needs of culture and spirit. Designers need to find the roots in the history of art and design in the East and the west, as a reference, so as to trigger innovation and inspiration. In view of this common phenomenon, Kim studies the history of environmental design, uses the method of comparative analysis to explore the relationship between reference method and environmental art design, and determines the importance of reference method in environmental art design [6-7]. The purpose of environmental art design curriculum reform is to improve students' practical ability and realize the improvement of students' application ability. Under the guidance of practical teaching, teachers carry out the teaching reform of environmental art design course. The starting point of the reform is to improve students' practical ability and application ability, change the traditional teaching method, and promote the wide application of new teaching mode. The main content of gansner is the problems existing in the teaching reform of environmental art design course, and how to change from traditional teaching to modern teaching

With the current trend of higher education reform, this study will change the traditional education concept and method of experimental course, establish a new design experiment education mode, reform with students as the direction, and supplement through planned experiment, exploratory experiment and comprehensive experiment.

II. DIGITAL MEDIA ENVIRONMENT ART DESIGN MAJOR

A. CHARACTERISTICS OF DIGITAL MEDIA ART

As an independent art form, digital media art has the same unique artistic form as traditional art. Digital media art must belong to the category of visual and audio-visual art. Compared with traditional art, its expressive power is beyond the forms of painting, photography, dance and drama[8-9]. It has the following characteristics:

1) DIGITIZATION OF CREATIVE TOOLS

Digital media art is a new art form which combines digital media technology and art elements. Compared with traditional art, digital media art tends to interact with people, people and machines. Its creation and aesthetic activities are always accompanied by the functionality of technology, but also pursue the aesthetic enjoyment of art. In the world of multimedia digital art, all art elements are digital, including color, sound, line and so on. It's just a variation and combination of "0" and "1.". Therefore, the prominent feature of multimedia digital art is that it mainly uses computer as the creation tool or projection means, such as interactive multimedia art works, electronic games, film and television art works, electronic composition works, etc. Due to the existence of digital media, art is closely related to computer and Internet[10]. Most projects use the computer screen itself as a projection tool and spread geometrically with the Internet[11-12].

2) THE INTERACTIVITY OF WORKS DISPLAY

The most important characteristic of network communication is its interactivity and interactivity. The interactivity and interactivity of network art lies in that it is an art based on Internet technology platform. The project view is not linear and requires the viewer to click the hyperlink. In this process, in order to complete the investigation of the project, network works gradually develop under the interactive control of the public. Many digital media works of art are unique in that they require user participation or interaction[13-14]. This possibility can be seen in online games, virtual reality tours, dynamic flash interactive sites and other projects[15-16].

3) THE DIVERSITY OF WORKS

Due to the emergence of computer and new media, the traditional classification of art and media has been broken. Its essence is the art of "0" and "1" based on digital language. Under the processing of digital technology, various multimedia information, such as sound, image, text, film, video, etc., are processed. Translated into a unified digital language. Digital media art combines the expression of traditional painting and post-processing of photography, as well as film editing skills. With the development and popularization of digital image, text and video processing technology, digital media art expands the artist's imagination and creative thinking, and presents various phenomena in life by means of "integration" and "interaction". In human's creation, his expression is more abundant and more humanized.

4) SHOW THE UNIVERSALITY OF THE SUBJECT MATTER

As a new multimedia art and mass art, digital media art, with its comprehensive technical means and multi-media forms of expression, enables its artistic expression ability to play far beyond the traditional art of painting, photography, dance, drama, film and so on[17-18]. Different from the traditional art which takes the objective world as the performance and challenge, digital media art challenges the subjective world. The direction of digital media art is to create a nonexistent future world or virtual world. The most common themes of digital media art are people, society, universe, man and nature, technology and culture[19].

5) THE POPULARIZATION OF ART COMMUNICATION

In the traditional way of communication, the circulation of a project must go through the one-way choice of publishers or media[20]. As a result, many projects are buried. With the advent of computers and the Internet, people are free to choose where to publish their articles. Your own works can even be deleted, completed or modified at any time. Digital media art forms will provide people with a broader art space, especially for those who do not have time. Money and opportunities to experience the fun of creating art[21-22]. The reduction of technology platform will lead to "non specialization of art and communication technology creation", replacing the technology provided for creators, communication and recipients. Today, with the development of the Internet, the continuous development of "network community" and "micro blog group", the evaluation of artistic value is becoming more and more democratic and cosmopolitan[23]. The traditional artistic creation methods and aesthetic criticism concepts no longer exist. They are effective in popular culture or popular art. In this era, the trend of cultural generalization and aesthetic popularization is obvious. The daily, refined and professional aesthetic art is more suitable for modern people's cultural life[24-25]. The characteristics of humor and ridicule, the black humor and laughter in folk art, reflect the Democratic artistic characteristics of "everyone participates", no matter how high or low the digital media art is.

B. ENVIRONMENTAL DESIGN

Environmental design is a new subject full of vitality and continuous improvement. At present, there is no complete teaching theory system. At the same time, environmental planning is also a design department which takes both art and technology into consideration, and must have corresponding technical skills. This is also the professional quality required by environmental design major. Its research object, theoretical system and scientific field are not perfect, and there is no definite definition. The students express their own opinions and fail to form a large system. This is the current stage of environmental planning. For this definition, most multi-disciplinary projects and industry experts and researchers have different views, there is no effective statement and normality.

People's life depends on specific environment, just like nomadic culture, fishing culture and culture in culture, which shows that human life and production are closely related to environmental factors. Here, environmental planning is the design of living space on which people live. Human beings constantly transform and adapt to the environment, at the same time, they constantly project their own understanding of the part of human creation, and create an artificial environment that is compatible with the national culture and customs. With the rapid development of industrialization, "enough to change the natural processes prevalent in the ecosystem" has become an irresistible trend. At the same time, it also caused a chain reaction of environmental problems. The emergence of environmental art also meets the expectations of the times for the urgent solution of environmental problems.

This is probably the earliest record of the concept of "environmental art" in China. In the living space of human beings, the space composed of buildings is the most important activity space in people's daily life. The most intuitive form for human beings to change the natural environment is architecture. The repeated arrangement and combination of buildings create the most important artificial living space city. As the main body of artificial environment, architecture separates the original space into internal environment and external environment. Human beings distinguish living environment, working environment, business environment, learning environment and so on by different functions. Therefore, environmental design is to explore how people, architecture and environment coexist harmoniously. Because of its complex disciplinary characteristics, environmental design has rich content and complex disciplinary structure, so it has more complex and multifaceted needs for its teaching. We should consider how to combine professional courses with multi-directional professional design courses organically. Digital media should run through the courses to form progressive and orderly knowledge links.

C. BUILDING INFORMATION MODEL

The BIM model is continuously enriched and refined with the development of the construction cycle, and the BIM information is being updated at the same time. In the design stage, BIM core models include architectural models, structural models, and electromechanical models. Structural models can be divided into user models, structural analysis design models, and structural construction drawing models. Equipment models include water supply and drainage models, electrical models, and HVAC models. Among the three models, the architectural model is the foundation. After the structural model and the electromechanical model extract information from the architectural model, they can perform secondary modeling based on their professional needs. In the process of secondary modeling, each professional model will be modified many times until a BIM model that meets the requirements is formed.

Structural models can be divided into structural user models, structural analysis and design models, and structural construction drawing models according to their uses. The structural user model is a structural model established by users using structural modeling software or a structural model formed by building a structure. The model contains various horizontal and vertical structural components. The structural analysis and design model is a model used for finite element calculation and analysis formed by processing the structural user model and supplementing information such as loads and connections. The structural construction drawing model is to supplement the reinforcement information to the design model to form the final model of the design stage used to produce construction drawings.

According to the current engineering project process, the construction drawing model can be delivered to the builder and the construction party as the final result of the design stage, or the construction drawing information can be extracted from the construction drawing model and drawn into a two-dimensional drawing for design delivery. In the construction phase, the construction party also needs to deepen the design on the design deliverables and realize the deepened design model. In the construction phase, there are mainly 4D models that include time, 5D models that include costs, and the continued

expansion of ND models and deepening design models.Current research is mostly focused on the previous studies with direct experience effects, while ignoring the deepening of the design model. application. The research content of this subject is based on the realization of the construction drawing model in the design stage, and further extends to the realization of the construction drawing deepening design model, in order to realize the integration with the existing BIM research results and realize the complete BIM information model.

D. ENVIRONMENTAL ART DESIGN

In the process of creating environmental planning, "planning" is the premise, which limits the scope of thinking. Thinking is a means, using different forms of expression, eventually forming a design product; and design performance as an intermediary, both are organically combined by dyed graphics and images. It is the most direct and convenient way to express design thinking. It can make real-time interaction and feedback between human abstract thinking and concrete expression.

The central purpose of design is to serve the people. Environmental art design is to create a comfortable, beautiful and reasonable internal and external environment for people. This is a kind of human creative behavior combining art and technology. As an environmental art designer, its artistic thinking is the time characteristic of the thinking process, that is, the corresponding understanding of the thinking process. In order to better understand the synchronous characteristics of thinking, understand the general law of environmental art thought in design, and understand the characteristics of each stage in the design process. Good planning can not be achieved overnight, but must have a complete scientific system. In fact, the process of design expression is to transform the abstract thinking and visual image of the designer into the form of reality, and faithfully record the designer's thinking mode and design results in the design process.

Due to the improvement of design classification, environmental art design is a very professional family style design in its fields, from city to design. The first mock exam is not a single model that can be followed. It starts from the evolution of artistic thought and has strong procedural characteristics. First of all, the environmental planning process has a certain time limit, which is similar to the general technical work. Each part of the design has clear objectives and tasks, and it can not go to the level of environmental planning relying on the expression of direct inspiration. A good decision must be combined with rational and perceptual analysis and optimization, and achieve the best state in the process. According to Lederer, the father of western design methods, the evolution process of design thinking can be divided into the following ten parts: (as shown in Figure 1)

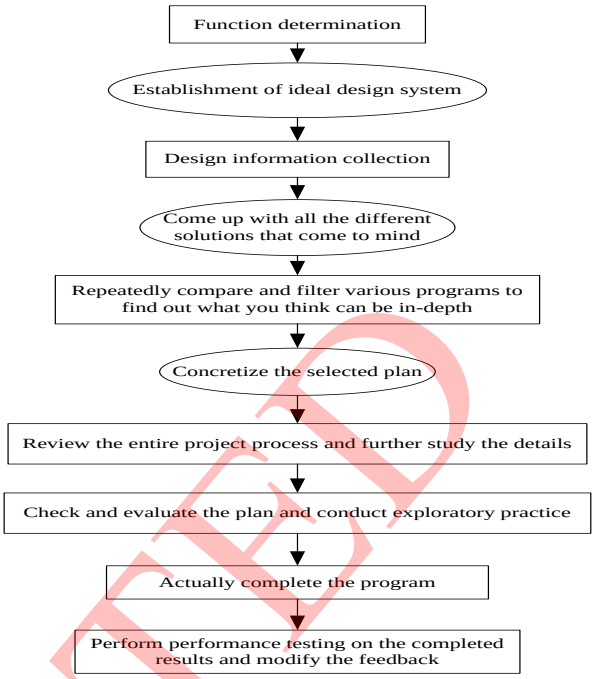

FIGURE 1. Leder's design thinking decomposition process

In the overall time process, we should arrange the thinking progress reasonably, so that we can adjust the thinking process according to our own situation. Ryder's methodology on the design process focuses on analyzing the laws of the design process from a large framework, which helps us understand the scientific and artistic nature of the design process.

III. EXPERIMENTAL EDUCATION DESIGN

A. EXPERIMENTAL GROUPING

In addition to in-depth analysis of the experimental group, this study also used the method of horizontal random experiment, behind the two homogeneous groups. Qualitative and quantitative methods were used for data collection and analysis. On the one hand, this study adopts the method of horizontal random experiment to test two homogeneous groups:

$$\begin{matrix} R & X & O_1 \\ R & - & O_2 \end{matrix} \quad (1)$$

"R" is a subject selected according to the principle of random distribution. In this experiment, it refers to two equal categories: "O_1" and "O_2" are two equal categories after different experimental treatments. Individual knowledge level, cooperative learning ability, the process of forming opinions, positive cognitive attitude, etc. "X" and "-" are experimental treatment methods, which are described as follows:

(1) "X" refers to the implementation of IG-GC in experimental class.

(2) "-" refers to the application of traditional teaching methods in the control class, mainly giving lectures and cooperating with simple group discussion.

B. DATA COLLECTION

The data analysis of this survey mainly starts from two aspects: Four-dimensional teaching objectives, five points, and six levels of IG-GC to construct teaching knowledge and teaching methods. The analysis content can be further divided into summary content and program content. Abstract content is tested through the final results, including knowledge summary and standardized testing. For the content based on the process, we should adopt the methods of note, investigation and interview. In general, this study adopts qualitative and quantitative data collection and analysis methods to meet the data needs of comparative analysis. For the two categories of experimental classes and their in-depth analysis, the specific analysis contents and data sources are shown in Table 1.

TABLE I
ANALYSIS CONTENT AND DATA SOURCES

Group number	Quantity of knowledge	Cognitive complexity of knowledge	Cognitive complexity of knowledge (average)
1	1	4	4.00
2	3	1；2；2	1.67
3	2	2；2	2.00
4	2	2；1	1.50
5	4	2；1；2；1	1.50
6	3	2；2；3	2.33
7	2	2；2	2.00

C. DESIGN OF EXPERIMENTAL SELF-STUDY RESOURCES

(1) Digital media works are generally educational cases, that is, the "task" of task driven learning. The design of task is very important. In other words, it needs to contain specific knowledge points, and the difficulty is only "jumping contact". These "digital media works" are also the display of excellent works. At present, the selection standard of works is to improve the design level of students through the analysis of works, and highlight the design feeling and unique characteristics.

(2) Digital media materials and teaching materials are important support for students to complete the teaching work, and their structure is convenient for students to use. For the open creative works materials, students' course websites are not too many and need to be found on more professional information websites.

(3) Video course is an important method for students to learn by themselves. Its feature is that beginners can practice according to the video operation, which is an important method to start learning quickly. This is a feature of not performing too long video tutorials. We need to use the method of "divided" to divide the course into knowledge points. In this way, students can maintain enthusiasm and efficiency, which is conducive to self-learning.

(4) Graphics course is an important method for students to learn by themselves, which is suitable for students with specific foundation. Students can quickly confirm or skip the self-study knowledge and concentrate on learning new knowledge. In addition, it is easier to grasp the rhythm of the overall design of the work. Therefore, the design of graphics course focuses on its comprehensiveness and comprehensiveness, and can emphasize the main new knowledge.

(5) PPT software, because the digital media design course is mainly functional, the role of software is to explain and summarize the basic concepts and principles of design, its design focuses on concise summary. After all, these concepts or principles are not understood through words, but through practice.

IV. ANALYSIS OF ENVIRONMENTAL ART EDUCATION DESIGN UNDER DIGITAL MEDIA

A. ANALYSIS OF ACHIEVEMENT OF TEACHING OBJECTIVES

IG-GC two-level six stage knowledge construction teaching model includes four dimensions and five teaching objectives, namely, community knowledge goal, individual knowledge goal, collaborative learning ability goal, viewpoint development process goal and positive cognitive attitude goal. In order to avoid the influence of subjectivity in the process of personal coding on the experimental results, 8 pieces of knowledge (30%) were coded independently, and kappa consistency coefficient was analyzed by SPSS software. As shown in Table 2, the kappa value is 0.784, greater than 0.75, and the analysis results are basically consistent.

TABLE II
KAPPA CONSISTENCY TEST RESULTS OF TWO INDEPENDENT CODERS
SYMMETRY METRICS

	Value	Progressive standard error a	Approximation T[b]	Approximation Sig.
Consistency measure Kappa	.784	.202	2.973	.003
N in valid cases		8		

a. No null hypothesis is assumed.
b. Use the asymptotic standard error to assume the null hypothesis.

After scoring, the number of knowledge summary items and knowledge cognitive complexity of each group are shown in Figure 2.

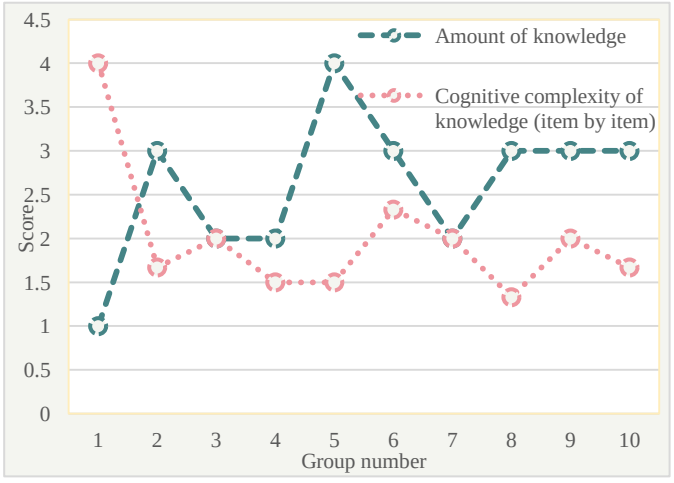

FIGURE 2. The number of knowledge summary items and the score of knowledge cognitive complexity

According to the figure, there are 26 knowledge summary items produced by ten groups, with an average of 2.60 items in one group. The largest group produces 4 items, the least group produces 1 item, the remaining three groups produce 2 items each, and the five groups (50%) produce 3 items each. The number of knowledge summary items is considerable. In addition, the average level of knowledge cognitive complexity of ten groups is 1.85, the highest group is 4.00, the lowest group is 1.33, the average value is not high, lower than the middle value of the evaluation scale. The analysis of experimental group and control group is shown in Figure 3.

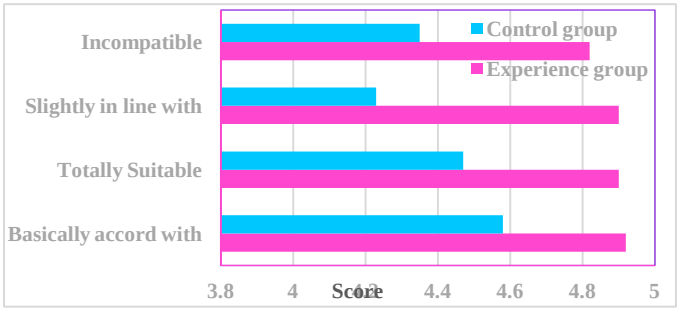

FIGURE 3. Statistical chart of average scores of teaching satisfaction in experimental class and control class

On the whole, the average scores of the two classes are between 4-5, that is, the options are generally in the "basic" and "fully consistent"; the average scores of each item in the experimental class are higher than those in the control class, the average score of each item in the experimental class is above 4.5, the average score of one question in the control class is above 4.5, and that of the three questions is below 4.5, indicating that the experimental class is higher than the control class in the overall teaching satisfaction.

B. ANALYSIS OF DIGITAL MEDIA ENVIRONMENT ART DESIGN EDUCATION

The practical part of the basic course of environmental design needs to be further deepened, and the practical teaching of digital media should be added to make it fully connect with the courses of various majors. At the same time, the theoretical basis can get rid of the boring and monotonous teaching mode. And the integration of digital media technology can improve students' mobile phone ability, and combined with environmental design related professional theory, effectively guarantee the effect of curriculum system reform. The effect of various media applied to teaching design is shown in Figure 4.

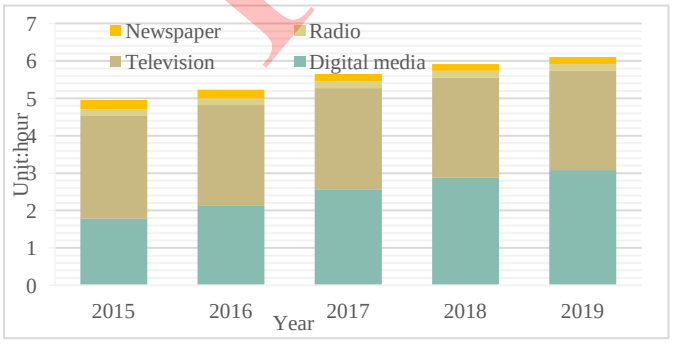

FIGURE 4. Teaching design effects of different media

In the practice teaching with relatively concentrated time, students will easily blur, confuse and even forget the theoretical knowledge they have acquired. In the form of project-based learning, students can get a clear goal at the beginning, that is, what they learn is what they use, Every aspect of learning is to enable students to solve all kinds of problems that may be encountered in real projects in the future. And teachers mainly to develop the framework of the whole project, a specific project is divided into a number of sub branches, combined with specific environmental design teaching knowledge points. Before the course is taught, every student can fully understand the overall requirements of the course project and the specific problems that need to be considered and solved. Combined with the actual problems, it analyzes and explains the knowledge points of environmental design, and integrates new media tools to arrange tasks. Only in this way can we combine theory with practice in the course of environmental design, so that students can learn the boring theoretical knowledge with their own problems, and induce students to learn actively instead of being simply crammed with knowledge points, so as to achieve the learning effect of twice the result with half the effort. When students are gradually assigned to small projects, teachers can guide students more accurately, excavate and cultivate students' personal characteristics from the micro level, so as to better guide the healthy development of students. The survey results of students' understanding of environmental art and design education and design of digital media are shown in Figure 5.

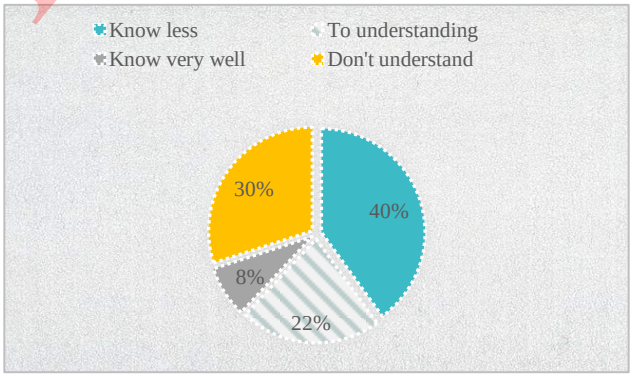

FIGURE 5. Students' understanding of the new education model

At present, under the background of digital media, we should make full use of digital media to carry out practical teaching. For example, the opening of "micro class" decomposes the boring basic theoretical knowledge into the form of "micro course" which is easier for students to read and disseminate. At the same time, the homework in the traditional course will be converted into "micro homework", so that students can complete their homework in the form of new media; in addition, a variety of environmental design selection can be set up on microblog and wechat to encourage students to publish their own homework and works, and to comment and evaluate others' homework and works. Let students participate in the evaluation process and promote it according to the deepening of the course progress, so that students can constantly revise and improve their homework and works. This can not only

stimulate students to discover the surrounding design elements, cultivate their creative inspiration and enthusiasm, but also enable teachers to more accurately understand the strengths and weaknesses of students, and in the following teaching, improve the effectiveness of theoretical class learning.

Secondly, personal creativity and innovation initiative is indispensable in environmental design, especially compared with non design major. This requires environmental design teachers to be able to discover the potential characteristics of students and create a unique practice teaching and even project practice opportunities, so as to fully develop students' creativity and innovation initiative. Thirdly, encouraging students to participate in environmental design competitions and exhibitions in an organized way can not only broaden students' horizons and make them lack of understanding, but also make clear their development direction and stimulate their subjective learning motivation.

V. CONCLUSIONS

The teaching reform of environmental art design specialty is the need of social reform and higher education. In order to meet the needs of the society for skilled talents, creating a complete and compatible teaching system is the requirement and guarantee for the construction and development of environmental art design in the new era. Based on the history of digital media era, this study combines design thinking with performance, combines digital media technology with professional knowledge communication teaching, and evaluates the new curriculum, which reflects the importance of the concept, style and implementation of digital media.

Compared with the macro professional teaching system reform, the basic environment design level of curriculum teaching is relatively low. However, if the importance of reform is ignored, the teaching contents and methods suitable for vocational education can not be adapted in time. The introduction of new teaching concept will seriously affect the coordination of the whole vocational education system and the overall development goal. This study reviews the development of environmental planning education in the digital age, and finds that the teaching of environmental planning education mainly considers interior design and landscape design and coexists with many industries. It also defines the stages of several periods.

By understanding the different concepts of environmental planning education at home and abroad and comparing their theme concepts, this study confirms that the specific category of environmental design itself is a set of needs to be refined and standardized. Through the research on the field of environmental design education, this study has a profound understanding of the origin of environmental design education, and comprehensively discusses the development and development of environmental planning education with this study. This paper makes a concrete summary of environmental education and prospects its future development.

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