

## PROCEEDINGS ARTICLE

# Photovoice — Educational Innovation and Practice of Outcome-Based Online Design Studios

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## ABSTRACT

With the gradual popularization of online teaching, how to improve the teaching outcomes of online design studios has become a new challenge for design education in the post-epidemic era. Based on the theoretical basis of outcome-based education, this article introduces the Photovoice research method in the teaching process of online design studios, uses model making and video expression to form the teaching outcomes of this project, completes the curriculum design of each stage under the guidance of the teaching goal of improving design understanding and creative ability, and aims to provide new teaching methods and ideas for the current online design teaching.

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## 1. INTRODUCTION

Driven by the current epidemic prevention work in China, more and more design courses have adopted the conversion of offline courses to online or hybrid models. But for the design studio featuring "learning by doing", the lack of on-site teaching is undoubtedly a huge challenge to its teaching outcomes. The online design studio in this article takes the decorative material creation camp course as a case study. Different from the traditional material creation camp, this online design studio adopts the online teaching and discussion and remote cooperation of Rain Classroom + Tencent Meeting, completely subverts the traditional face-to-face teaching form in the classroom, returns more learning autonomy to the students, and transforms the course outcomes of the design studio from the construction of perception of entity to the expression of intentionality. While helping students to deeply understand the functions, properties, craftsmanship and creative potential of materials, it uses the form of video to expand the scope of selected topics from the time and artistry of the materials, in order to cultivate students' innovative ability and critical thinking ability in the

process of in-depth discussion of social and environmental issues.

## 2. ADDING VIDEO CREATION TO THE OUTCOME-BASED ONLINE DESIGN STUDIO

### 2.1. Online Design Studio

Rapid technological progress has changed the methods and models of traditional design education, gradually transforming it from face-to-face teaching in traditional classroom to online teaching or an integrated teaching model combining online and offline. The strong advantages of design education are reflected in its interactivity, interdisciplinarity, collaboration, and instrumental management as digital technology and so on. However, when the design studio encounters online teaching, there is the problem of maladjustment to some extent. The design studio relies on the teacher's words and deeds and the close cooperation between the students, has the characteristics of learning by doing, contextualizing

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problems, cultivating hands-on ability and collaboration ability, etc., and is a form of education well suited for design professionals who pay attention to creativity, collaboration and social relevance [1]. However, whether online design studios can achieve the teaching outcomes of traditional studios remains to be verified and evaluated. A survey of 43 educators in the United States and Canada revealed that a core development barrier to online design education is that the studio-based learning cannot be replicated [2]. The close relationship between teaching and learning, the vivid comment and appraisal link and simulated work scenes are effective means to ensure the teaching level of the studio. The teaching methods of online design studios at this stage are almost designed based on the teaching and learning experience of traditional studios, which fail to directly involve online teaching practices and the real characteristics of digital network learning environment [3]. Therefore, under the constraints of physical space, how to ensure the smooth progress of various teaching links in the studio in the online learning environment? What teaching methods can be used to enable online design studios to meet or exceed the teaching outcomes of traditional design studios? These are the problems that need to be solved urgently in the current online teaching.

## 2.2. Outcome-Based Teaching

"Outcome-oriented", also known as Outcomes-Based Education, is an educational model proposed in the 1980s that emphasizes learning outcomes and conducts curriculum design and teaching according to expected outcomes. Outcomes are generally translated as "结果 (result)", "成效 (effect)" or "产出 (output)", and more scholars translate it as "成果". Here, the teaching outcome is the external manifestation of achieving the training goal and is the embodiment of the students' learning "output" and ability after the course ends. The rationale and core idea of outcome-based teaching is to establish cooperative learning rather than competitive relationships among students of certain abilities. Educators should prioritize the intended outcomes of their teaching and use clear wording to describe what learners can do and then use a reverse deduction method to find the right learning experiences for achieving those outcomes [4]. Compared with the traditional training objectives, the learning outcomes are more clear, intuitive and specific in language description, so they are also more operable. Learning outcomes describe what a student can do at the end of a major or a course, not just a more general and unmeasurable desire [5]. Outcome-based teaching is the curriculum design process from identifying student learning outcomes to developing teaching

processes, which is of great help in improving students' classroom participation, cultivating students' creativity and critical thinking, and improving design ability.

## 2.3. Achieving Imagery Expression Through Video Production

The visual method, as a means of creating knowledge and conveying understanding [6], is one of the ways in which the outcomes of work are often expressed in the practice of interior design. In particular, the dynamic expression method of video breaks through the traditional two-dimensional drawing performance and can display the design scheme more intuitively and comprehensively, in order to enable the viewer to have a sense of immersion and experience in the design space and realize the poetic expression of imagery. In the early 1990s, the concept of image voice (or Photovoice) was first proposed, which was originally used to combine narrative and photography as a way to explore community issues. It also integrates images and words to express issues and needs related to history and culture. In sociological research, it is often used to explore the complexity and deep meaning of common or mundane things [7], as well as documentation, methods of tracking data, visualizing data, and knowledge creation and so on [8]. Visual image can yield strong insights into broader cultural perceptions, categories, and metaphors, and provide people with perspectives on what things are or should be [9]. Bringing the visual method as a learning and research tool into teaching enables students to share their stories and ideas through video, explain their meaning through the design of the images, and backward infer the theories and themes to be studied in the project.

In this online design studio, this article attempts to use students' learning outcomes as the basis for improving students' creative ability and achievements in the online material creation camp, and at the same time introduces the research method of Photovoice and puts more effort into creating, interpreting and expressing. It also combines video creation with original model making and combines social or environmental issues with complex and in-depth thinking with the outcomes of material research as a way of expressing the final outcomes. Students participating in this studio not only need to complete the production of videos and models in a short period of time, but also need to combine the application skills of material knowledge and actively interact with group members to exchange ideas and realize creation. The addition of the Photovoice method can help students generate unique insights into natural and social studies and create more imagery video creations that are different from traditional concrete

expression. This interdisciplinary approach to research broadens the understanding of knowledge and meaning through brand-new perspectives, which is also undoubtedly a huge challenge for teachers, students and the exploration of online studios under the state of epidemic prevention and control.

### **3. OBJECTIVE INNOVATION FOR THE OUTCOME-BASED ONLINE DESIGN STUDIO**

A key element of adopting outcome-based curriculum design is the determination of curriculum objectives. This material creation camp takes "Nature · Trace" as the creative theme. Students can choose materials independently according to the theme, combine the research on material properties with the theme of nature to make a 1:5 scale physical model as well as a video creation within 2 minutes, and use slides and videos to express the creative concept and production process in the final online outcomes report. The use of video creation, a greatly experimental teaching method, can assist students in using new media ways of expression to communicate online, and help students understand the physical properties of materials, extract the abstract characteristics of materials, especially the characteristics of time dimension, expand the scope of the research topic, and finally project the contemporary natural and social context for the static material structure. From the process of creation, students can feel the process from building a physical material structure to describing a current cognition of natural problems in language, and then combine existing knowledge to express ideas in an imagery form language.

#### **3.1. Increasing Students' Participation in the Classroom**

The addition of visual methods is an effective means to stimulate students' sensory imagination and initiative and this positive stimulation can improve students' classroom participation. Video not only breaks through the limitations of two-dimensional performance, but also adds gameplay and imagination to project creation. This sensory stimulation enables students to spontaneously enter the imagery environment created by the project, just like experiencing the time, the environment and events in an online game, forming a story-like material language. At the same time, the popularization of online teaching in the recent two years has greatly improved students' network collaboration ability.

This precondition lays the foundation for collaboration in video production that is not familiar to the students: in terms of time node planning, classification and collection of materials, online self-study of video production, material purchase and experimentation, model research and production, etc., the students not only cooperate very well, but also demonstrate the ability of project disassembly and analysis. These passive stimuli increase the initiative of students in online learning to complete the curriculum objectives through constant teacher-student interaction and negotiation.

#### **3.2. Expanding the Research Topics of Materials**

In the performance of teaching outcomes, the biggest difference between video and traditional static images is that it can show the progress of time and the changes in the process in the final presentation stage, in order to help students break through the shackles of the abstract dimension of time when thinking, expanding material selection and range of topics. In the traditional material creative studio, the construction of the solid model is more aimed at the function, performance, decoration and structural language of the material. And the introduction of video can backward infer the setting of the theme through this dynamic performance result and enable students to more boldly choose the abstract concepts of continuity, such as light, sound and water elements, which are related to the subject and are difficult to express with static things. The material language and the artistic language of abstract concepts are intertwined through video. Selecting abstract concepts that are not commonly used can help students better understand the language of design art and sort out the relationship between space and environment determined by language. The material properties are reconstructed through the time dimension, reflecting the growth and death of materials in nature. Art materials show different forms (form, state or image, bearing) at different angles and at different moments, which is a diachronic visual language in a dynamic process, echoing the concepts of "now and then" and "moment and eternity" [10] on the timeline.

#### **3.3. Integrating Into Contemporary Social and Environmental Contexts**

As a way of linking dynamic images with critical thinking, visual methods have made creative contributions to understanding the relationship between man and nature, cultural studies, and social

issues. At the same time, video is a way to conceptualize vision. When people use new ways of performance to measure learning outcomes, they will find that students' cognitive scope of things is far greater than the professional knowledge itself. The addition of images in the curriculum makes students' expressive boundaries continue to expand and the accompanying knowledge creation ability will continue to expand. Therefore, students must see the connection among images and society and the environment. Image and video production in this subject helps students to develop a comprehensive understanding and creative approach and becomes a tool for understanding society and nature, giving students the opportunity to explore the process of idea generation and their own value by applying knowledge of the material and actively participating in the learning process.

#### **4. CURRICULUM DESIGN FOR THE OUTCOME-BASED ONLINE DESIGN STUDIO**

Different from the previous teaching design method of design studios, the outcome-based online design studio course needs to first establish the final outcome or desired goal and then gradually enrich the other learning stages. This "reversely-designed" [11] curriculum design strategy is combined with Bloom's classification of educational goals. This course is set as three stages of "final outcomes — outcomes of each stage — classroom outcomes".

The first stage of curriculum design is to develop the final outcomes. According to the previous teaching experience of the design studio, teachers first need to anticipate the questions that students should hear, read, see and explore at this stage, including existing knowledge and understanding of creative scope, such as common material properties, functions and modes of construction. They should also ensure that students have basic problem awareness based on the subject of "Nature · Trace". Second, it's necessary to understand the methods, processes and strategies of students participating in research and creation in the design studio, such as the basic grasp of values and methodologies of group discussion, work assignment, material experiment, and image narrative research method and so on. At the end of the course, students can acquire the knowledge and skills to complete the transition from understanding to creation.

The second stage of curriculum design is the consideration of the outcomes of each stage. In this process, teachers need to consider the tasks that students will complete at each stage, in order to prove that students can fully understand the subject, master

the material properties and gradually complete the teaching objectives during the course. This process is the process of making connections, combining knowledge into meaningful expressions of things. It also means producing results, not just a mental behavior [12]. Students must use and transform knowledge flexibly and effectively in the context of the subject, transforming understanding into creation. And the process of understanding must be based on clear and interrelated knowledge organization. At this stage, the course sets up material experiments, problem discussions, mid-term reports and comments and Q&A parts. Through online teaching, teachers conduct guided research on students in small groups. At the same time, the students in groups keep communicating with each other and gradually confirm whether their creative ideas and methods are appropriate in each link and whether they can master the operational abilities such as materials and software performance in an orderly manner.

The third stage of curriculum design is classroom outcomes. This material creation camp displays the creative achievements of each group of students through online sharing. Students use slides to report the group's experimental process, plan of division of labor, concept source, and creation process, and demonstrate their creative understanding of natural traces through video. The final report outcomes fully demonstrate the high-quality teaching achievements of the students in a short period of time. First of all, at this stage, students need to understand the concept of the project, use network information technology to find relevant materials, and combine the selection of appropriate field scenes to clarify the theme of group creation. Next, students use a variety of online information collection, interaction and design collaboration software, overcome the barriers of remote communication, and through the division of labor and cooperation, complete a large number of research, creative transformation, material research and construction, and video creation in a short period of time. At the same time, through students' understanding and continuous exploration of video software, they break through the theme selection of the previous construction-based material creation camps and increase the understanding of abstract and uncontrollable materials such as time, sound, light, etc., with more artistic and critical humanistic care. Finally, the teaching entry points and curriculum design strategies for online design studios are formed, so that teachers can better know which strategies best provide students with the resources and information they need to achieve curriculum objectives.

## 5. IMPLEMENTATION AND EFFECT EVALUATION/ANALYSIS

The students work in groups and finally complete the model and video outcomes with themes of "I Don't Know Which Direction the Wind Blows", "Nature Erodes the Artificiality", "The Moon Comes as the Wind Comes" and "The Abandoned Light". Through interviews with students and observation of works, the author believes that introducing the teaching method of Photovoice into the outcome-based online design studio can clearly express the outcome demands of this course to students at the beginning of the course and help them clarify the curriculum objectives and use the online cooperation mode they are good at quickly completing the task assignment and implement the design plan when the course time is short and the tasks are heavy. What's more, very few courses can express the subject intuitively through effective means. Video production helps students to achieve the imagery design reproduction of practical problems, breaking through limitations of previous planar display of space and improving the expressiveness and integrity of the work.

## 6. CONCLUSION

Throughout the learning process of the online design studio, students have successfully completed their learning objectives. The creative outcomes of the video also reflect the philosophical and speculative characteristics of this course with great humanistic care. In the final presentation of the work, upgrading the original design and construction process to a process of design, construction and expression, as well as combining the structure attributes of space and materials with dynamic video generation is the embodiment of the epochal character of contemporary space design. The introduction of the Photovoice method into the outcome-based online design studio not only meets the needs of the current society, but also can become an effective experimental teaching exploration, hoping to have a certain enlightening effect on future online design teaching.

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