

Research on Practical Teaching Mode of Collaborative Education of Science and Education for Master of Arts based on Compound Space

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Abstract. With the continuous deepening of education reform, the training objectives of Master of Arts graduates have begun to emphasize the "integration of theory and practice". In the face of a brand-new teaching system model, in the teaching process of cultivating a master of arts, how to improve the subjective initiative of students, the timeliness and spatiality of practical teaching organization is of great practical significance. Aiming at the characteristics of master of arts that need to cultivate practical and innovative graduate talents, this paper develops a studio practice teaching model that educates people through a science and education system, constructs a compound graduate teaching space, makes the practical teaching space more open, and not only expands the practice horizontally the platform also realizes the in-depth interaction between teachers and students from the vertical. The construction ideas, characteristic content, and application strategies of this model enrich the teaching content and form of the Master of Art, and provide an effective reference mechanism for improving the current practical teaching quality of the Master of Art and Design.

Keywords: Composite Space; Collaboration of Science and Education; Master of Arts.

1. Collaborative Education of Science and Education

The "National Medium and Long-term Education Reform and Development Plan Outline (2010-2020)" pointed out that higher education should support students to participate in scientific research, strengthen practical teaching links, promote the interaction between scientific research and teaching, and integrate the cultivation of innovative talents. The integration of science and education refers to scientific research. Combine with teaching and give full play to the educating function of scientific research. Regardless of the functions of universities or the development of high-level universities, the integration of science and education is an inherent logical requirement that fully reflects the essence of higher education. The internal integration of various forms and rich content between teaching and scientific research has enabled both in essence, it becomes an indivisible organic unity. For the cultivation of postgraduates, science and education collaboration refers to collaboration in different ways, including collaboration between scientific research and school teaching, collaboration between different teachers and students within the school, collaboration between the school and design companies, industries, localities, or related departments. Efforts to transform high-quality scientific research resources and internal and external resources into education resources, and jointly assume the responsibility of collaborative education. Through this collaborative approach, the application of collaborative theory to specific design teaching practice can not only enhance the career of doing things down-to-earth. Accomplishment, enhance the value of education, can also better realize the whole process and human design education function [1].

2. Teaching of Master of Arts in Design Field

The design discipline in the context of the new era is a design activity that applies the process of strategic problem-solving to products, systems, services and experiences. The core of professional competence changes from modeling to interdisciplinary integration, closely linking technology, business, research and consumers, and jointly carrying out creative activities.

2.1 Existing Problems in the Current Art Master's Design Field Education

The first is that the classroom teaching methods and methods of professional courses are single, and students are not motivated enough in learning. In the traditional practice teaching in the field of master of arts design, teachers dominate the classroom, and students passively accept the arrangement of practical content, ignoring the subjective initiative of students. In almost all the practical links, the teacher talks to the students first and then practices. The form is single and it is difficult to stimulate the students' enthusiasm for learning.

The second is the loose organization of practice teaching and insufficient timeliness. The practice teaching links for graduate students in the field of master of art design include in-class practice, concentrated practice, and second-class practice. Because most of the courses are concentrated in the first grade of graduate students, and the practice is mainly after the second grade, so that students cannot realize the rational knowledge of the theoretical content to the perceptual knowledge of the transition from the practical project; and in the teaching of each link, there is a lack of effective project design and introduction. The teaching is connected to complete the improvement of knowledge to ability, and the effectiveness of learning is poor.

The third is the insufficient extension of practical teaching space and the insufficient depth of communication between graduate tutors and students. The extracurricular practice teaching space is limited, the venue is insufficient, and the practice space is limited, which cannot provide to meet the practical needs of most students. Moreover, the lack of connection between the first and second classrooms causes the phenomenon of disconnection between theoretical and practical teaching; in addition, due to lack of space, insufficient time for the instructor to focus on communicating with the students and insufficient continuity.

2.2 Necessity for Graduate Students in the Field of Master of Art Design to Adopt Science and Education Collaborative Education

In recent years, the enrollment scale of the Master of Arts education has been expanding, and a batch education model has to be adopted. This training method has brought about a series of problems, such as students with low eyesight and low hands, lack of practical experience, and the inability to obtain a lot of tacit knowledge from teachers.

- Science and education collaboration can promote students' design initiative and learning enthusiasm. Compared with the teaching of the ancient private school system, in the teaching of modern art master's design field, through the integration of science and education, students can present different learning styles, especially the great differences in learning situations. Most of the teacher's scientific research is an exploratory design project with no fixed answers. Therefore, students are required to maintain sufficient divergent thinking to enhance the thinking tension of learning, and at the same time, they must continue to stimulate their subjectivity in thinking and solving problems. Can mobilize students' learning initiative and enthusiasm. At the same time, the contextualized teaching of the integration of science and education, the tutor and the student are in the same teaching or scientific research situation, and promote each other to inspire each other. The inspiration of many projects is solved only through the collaboration between teachers and students. Maximize the students' willingness to learn and sense of accomplishment.
- Science and education collaboration presents the characteristics of batch and personalized training. in the field of design teaching, a more suitable way is one-to-one guidance. However, due to the large number of students enrolled for master of arts, it is difficult to achieve one-on-one guidance from tutors to students. Therefore, batch training and individuality must be cultivated. The combination of chemical guidance is exactly in line with the characteristics of the collaborative education of science and education. Through the role of the physical space of the graduate studio, the students are organized, and the tutors can more easily understand their own students, so that they can better teach in accordance with their aptitude, and at the same time, they can also influence each other, avoiding the problems of excessive rigidity and insufficient flexibility in batch teaching.

2.3 Collaborative Education of Science and Education can Combine Theory with Practice

By introducing scientific research into teaching, in the postgraduate studio space, a context of specific implementation time is provided, a teaching space with a real working environment is simulated, and the "integration of theory and practice" is implemented. Students do not follow the traditional timetable. Learning is to participate in the collaboration of science and education according to the requirements of work tasks or work links, and realize the projectization of teaching content, the professionalization of the learning process, the authenticity of learning situations, and the productization of learning results. Of course, participating in studio teaching has a relatively real working environment. Students can get corresponding rewards by completing tasks, such as participating in some horizontal projects. After completing the projects, the instructor can use the project funds to pay for certain students based on the performance of the students. Labor costs.

3. Practical Teaching Mode of Collaborative Education of Science and Education in the Field of Design of Master of Arts based on Composite Space

By strengthening the collaboration between science and education, the studio has a more important position as a space that connects the first and second classrooms. It can not only expand the knowledge in the class, but also serve as a carrier to undertake extracurricular internship and practical work.

3.1 Construction Concept

The construction of a multi-space master of arts design field science and education collaborative education model is to create a learning situation that meets the requirements of the situational learning theory. The situational learning theory refers to the result of the interaction between the constructivist theory and the anthropological theory, based on the educational psychology. The contextual learning theory formed by the learning orientation was formed as the learning theory shifted from acquiring metaphors to participating metaphors in the late 1980s. The learning view of participating metaphors believes that knowledge is fundamentally in practice. Brown and others pointed out that knowledge and activity are inseparable, and activity is not an auxiliary means of learning and cognition, but an organic part of the whole learning. Psychologically-oriented contextual learning theory derived from cognitive interest mainly focuses on the contextual content of learning activities in school contexts, that is, the creation of a practice field that simulates real activities [2]. Some researchers believe that educational psychology scholars are based on the reform of school classrooms and attach importance to the design of "practice field". However, the practice field is only a background or a means. In different practice fields, learning is still a loose individual behavior, which is rooted in its simulation or simulation. From the perspective of anthropology, Lave and Wenger pay attention to the cognition of daily practice, and deepen the situational cognition and learning theory. Sarah A. Baraboo of Indiana University described the transformation of educational psychology to the field of anthropology as a leap from the field of practice to the community of practice [3]. Therefore, it can be seen in this way that the studio teaching model can truly achieve a leap from the school's "practice field" to the "practice community". The trajectory of mature practice demonstrators provides a process of continuous development and deepening of professional capabilities in practice.

3.2 Construction Ideas

In order to better improve the quality of postgraduate teaching and expand the space for practical teaching at the same time, a composite science and education collaborative education teaching space has been constructed to expand the practice platform horizontally, and at the same time realize the in-depth interaction between teachers and students from the vertical. The compound teaching space (see Fig.1) integrates the first classroom, the second classroom (studios, workshops, creative markets) and the network teaching platform. Through the transformation and linkage of each teaching space, practice forms are increased, and the flexibility in the allocation of teaching resources. Among them,

postgraduate tutors can use the studio as a carrier to guide students to participate in competitions and carry out collaborative teaching in science and education; at the same time, the workshop mechanism also introduces the horizontal project resources of the enterprise for short-term landing training in the school; the creative market mechanism is to carry out the teaching results. The channel of transformation makes the design face the market and further improves the professional quality of the students; the network platform breaks the limitation of time and space, so that teachers and students can communicate with each other anytime and anywhere.

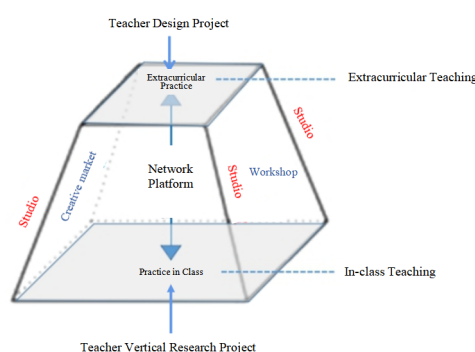


Fig 1. Construction ideas

3.3 Construction Content

The specific construction content has the following aspects:

Provide practical space in class: Through scientific and educational collaboration, the graduate studio is used as a carrier to provide a corresponding venue for graduate students' in-class practice. Various design practices can be carried out, including using the brainstorming room for design creativity, or drawing sketches and design plans. Production and hand-made models and 3D printing of grass molds. The studio has become an indispensable place for in-class practice in postgraduate courses, providing a space for display and production for the practice of master of arts students.

Broaden the extracurricular practice space: The Master of Arts emphasizes the cultivation of practical graduate talents, especially the practical teaching content and form of students. As a graduate level, it is not only about completing the in-class practice of the course, but needs to expand the space for extracurricular practice. Therefore, the studio, as a carrier connecting the first classroom and the second classroom, provides more possibilities for graduate students to expand their extracurricular practice. First of all, the scientific research of the tutor can be introduced into the studio to allow students to participate. In the process of teacher guidance, students' deficiencies and problems can be discovered and effective interaction between teachers and students can be realized. In this process, teacher projects can be transformed into teaching cases, so as to realize real science and education collaboration; secondly, the studio is the carrier, which can support the output of teachers and students, such as the practical teaching of the studio teacher team. The acceptance exhibition of the course teaching results and the creative market, through public exhibitions and market sales, promote the output and transformation of the results, and can also enhance the enthusiasm and confidence of students in learning. Furthermore, the studio can also be used as an entity to support students' innovation and entrepreneurship, including participating in various innovation and entrepreneurship competitions, as well as self-employment and incubating results in advance, such as inviting expert lectures, results roadshows, and providing business verification methods, allowing students to use the studio as a company incubator, laying a solid foundation for their successful entrepreneurship.

Expand network resource space: The collaboration of science and education and the use of scientific research expand the research space of students, which is reflected in the expansion of virtual cyberspace. At the same time, the graduate studio, as an entity, also expands the physical space. Of the two, the expansion of virtual space is particularly important. For example, the construction of a network platform for the collaborative education of science and education is embodied in a composite

network space. First, the results of the tutors and students during the learning phase are sorted and classified, and the results database is established, which includes both the study homework of all students and the results of the completed scientific research projects, which provide references for all students; second, unified purchase Various software, courses, and other training resources are used as a supplement to in-class teaching to expand the learning space of students; in addition, the award-winning works of various design competitions are organized to create a work library for everyone to share and learn. This combines science and education collaboration, The network resources constructed have provided graduate students with richer materials. At the same time, they have broadened everyone's horizons through sharing, and also provided help for everyone's study.

3.4 Model Innovation

The teaching mode of the Master of Arts studio based on the compound space is mainly based on students in the design field, with the core of mobilizing students' learning enthusiasm, and focusing on broadening students' horizons and cultivating innovation consciousness. The traditional teaching form is relatively simple, with first teaching and then practicing. And through the studio as the carrier, the first classroom, the second classroom (studio, workshop, creative market) and network teaching platform are integrated to generate a composite teaching space and build an environment that helps teachers and students to interact in depth. At the same time, the joint effect of the online teaching platform and the offline practice platform is used to strengthen the connection between the first and second classrooms in the practice teaching, making the practice teaching link more targeted, no longer distinguishing between intra-class and extra-curricular tasks, and no longer Separate the learning status of students. Furthermore, based on the innovative characteristics of the design profession, through the multi-level interaction of the studio, the habit of design innovation is emphasized, innovative genes are cultivated, and an active and effective studio classroom atmosphere is formed.

4. Summary

Combined with the problems of postgraduate teaching in the field of master of art design, especially the problems of single teaching organization, loose practice teaching organization, insufficient second classroom practice space, and difficulty in carrying out practice. Introduce the collaborative education of science and education through the field of master of arts design. With the studio as the carrier, the instructor's scientific research is integrated into the teaching, which not only expands the teaching content, but also expands the space for teaching and practice, changing the single flat teaching space in the past and creating multiple three-dimensional spaces. Teachers can not only carry out in-class practice, but also combine enterprise projects, competitions and entrepreneurship to expand the extra-curricular practice space; at the same time, they also use the studio as the core to expand the network space, so that teachers gradually have a sense of belonging, thereby making the studio space It is hierarchical and extensible, which embodies the characteristics of design professional teaching.

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