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Research on the Reform and Innovation of Design Education Experimental Teaching in the New Liberal Arts Context

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Abstract: *As the construction of the "new liberal arts" is in full swing, this wave of reform practice is rapidly showing its strong vitality. Focusing on the "Six Excellences and One Top-notch" Plan 2.0 and the Notice on Recommending New Liberal Arts Research and Reform Practice Projects, we will deeply study and implement socialist thought with Chinese characteristics in the new era, implement the spirit of the conference, comprehensively carry out the goal and task of building new liberal arts, and build a talent training system for liberal arts with Chinese characteristics. The progress of design education in the context of new liberal arts requires interdisciplinary cross-cutting and deep integration, and the promotion of experimental teaching is an irreplaceable important link. The existing teaching mode and experimental course construction need to be constantly combined with the times to push out the old and bring forth the new to comprehensively upgrade the existing knowledge dimension of design disciplines, focusing on new research problems, new research methods, new theoretical perspectives, etc. Clarify the breakthrough point of innovation ability in design education, seek to improve the quality of education, from knowledge production to moral education, build a sustainable ecological discipline and academic system, and cultivate design innovation talents for social development. The arrangement of design education courses should implement the experimental (practical) teaching syllabus for design education that needs to be transformed in accordance with future talent goals and continue to increase the proportion of experimental (practical) teaching hours. The compactness of existing class hours greatly affects the efficiency of results transformation brought by experimental teaching. It is expected that in the follow-up research, independent experimental teaching courses can be added between related courses to realize the teaching and linkage of multidisciplinary theoretical knowledge. And put forward 4 suggestions on the research results.*

Keywords: *New liberal arts, Experimental teaching reform, Design Education, Cultivation of innovative thinking*

1. Current Situation and Problems Faced by Design Education Experimental Teaching

1.1 Current Situation of Experimental Teaching in Design Colleges

Experimental teaching is a form of practical teaching organization and an important teaching stipulated by the curriculum plan and curriculum standards. It is also the most important part of the design teaching process and an important way to cultivate innovative talents. With the strengthening of education reform in colleges and universities, more and more design colleges are beginning to explore how to optimize professional art design majors and reform and innovate talent training models.

Design major teaching, whether in art colleges or comprehensive universities, engineering colleges, science colleges and other types of colleges and universities, a group of powerful design colleges have system support for experimental teaching. The organic combination of professional theoretical teaching and experimental teaching has become the basic mode of design education, which has been widely recognized and achieved certain teaching experimental results, including some representative results. This includes some design colleges with keen sense of smell, which have integrated it into their development plans before the construction requirements were put forward. Taking the well-known Academy of Fine Arts of Tsinghua University as an example, at the beginning of the century, it firmly grasped the new trend of combining art and science, actively explored the reasonable structure for the development of design disciplines in the 21st century, actively carried out experimental teaching, and gradually formed a teaching system with design as the main body, emphasizing the integration of art

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science, focusing on interdisciplinary interaction, in industrial design, environmental art design, urban landscape and other professional directions. Through the establishment of key laboratories, it has achieved deep integration with other disciplines and promoted each other in a comprehensive way [1].

In reality, the foundation for experimental teaching construction in liberal arts colleges is limited. There are not many that do "fine" or "excellent", while most design colleges establish experimental centers, test sites and technical studios with conditions supporting professional education systems as their main theme. They only do general auxiliary teaching and lack professional teachers and necessary ideas and goals for experimental teaching. The existence is greater than the significance of teaching. In reality, experimental teaching at the end of the teaching system has very little say. Subsequent colleges pay little attention to targeted construction, investment, management, utilization and research on this issue. It is difficult to play the true meaning of experimental teaching.

1.2 Challenges and Opportunities Brought by the Construction of New Liberal Arts

Design education experimental teaching in the wave of new liberal arts construction has both opportunities and challenges. The challenge is that under the existing design curriculum education system, the first is to gain universal recognition of the importance of experimental courses and practical teaching in colleges and universities. In the case of lagging cognition and limited conditions of colleges and universities themselves, efforts are made to find a reasonable experimental teaching mode to improve education quality and cultivate innovative talents. Secondly, whether experimental teaching can achieve mutual integration, promote professional talent training, and expand learners' knowledge level and breadth. Thirdly, it is a challenge to the knowledge reserve and teaching ability of the lecturers themselves. To achieve interdisciplinary and professional cross-integration, improve their own ideological realm and level, while mastering modern information technology and emerging technology equipment teaching, it is also a challenge and opportunity for new equipment, new conditions, new platforms and new students to adapt to, manage and guide learning in experimental teaching. Improve the new goals and requirements of new liberal arts construction and enhance the quality of higher education in China [2].

2. Experimental Teaching of Design Education in the Context of New Liberal Arts

2.1 Experimental Teaching in the New Era

How to design and teach experimental teaching of design education in the context of new liberal arts? First of all, the key goals cannot be confused. The proposal of "new liberal arts" is an upgraded thinking of the education system that has been formed by traditional liberal arts major teaching. For art and design colleges, it is basically an applied talent training method, and it is not applicable to only focus on theoretical research. With the rapid development of the design industry under the economic boost of the new era, the professional requirements of design have become more diversified. Often, single professional knowledge can no longer adapt to the development speed of the industry and the needs of the public. The gradually growing and changing material cultural needs often exceed what is taught by existing schools. It is easy to produce insufficient knowledge motivation and gradually restrict the overall development of talents.

The concept of new liberal arts reflects in a timely manner the problems that exist between social development and traditional design education in terms of education and talent demand. It solves the deficiencies in understanding ability, practical ability, innovation ability, perceptual ability, judgment ability, foresight ability, competitiveness and other aspects in terms of knowledge establishment to support students' academic, employment and entrepreneurship. It enables them to better adapt to social needs and base themselves on social development [3].

Design education needs to rely on the needs of social development, disciplines and students. It is necessary to clearly break through the "traditional simple mode" on the basis of the connotation of new education theory. The school managers must continuously optimize all aspects such as practical teaching, generation process, type mode, project setting, goal improvement, plan formulation, innovation development, knowledge dimension, value view, and design view. They should strengthen the cultivation of morality, intelligence, physique, beauty, and labor in practical teaching. Furthermore, they discover and tap into students' potential to enhance their awareness of problem-solving, design vision, and critical thinking and strengthen practicality and inevitability.

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2.2 Interdisciplinary Integration and Practical Teaching

The design attributes of design majors themselves have a very obvious necessity for the integration of knowledge from various disciplines. For example, the implementation of design must involve the integration of knowledge from different disciplines such as art, aesthetics, management, materials science, marketing, psychology, semiotics, phenomenology, network technology and engineering. With the deepening of design education and the improvement of social requirements for design talents, the dimensions of knowledge, adaptability, utilization of new technologies, mastery of design thinking and problem-solving ability are reflected in the experimental teaching level of design education. It shows more clearly the necessity of interdisciplinary integration in cultivating design talents.

In this context, on the one hand, it is necessary to redefine practical teaching, determine new goals and strategies, strengthen teachers' sense of responsibility and give full play to the value and role of experimental teaching. On the other hand, experimental teaching needs to enrich the teaching process and establish a docking awareness between schools and society. The relevant managers should form a chain between college education and relevant industry applications in society and mobilize students' learning cognition and practical enthusiasm. In addition, they focus on academics, future employment, entrepreneurship, and careers, improving students' professional ability and development motivation.

At the same time, interdisciplinary integration is a new concept put forward for the training goals and connotations of college education since the 21st century. It is a scientific and systematic understanding of the development of design education itself. It is also a characteristic manifestation of finally forming a new talent training model. School leaders gradually improve the experimental teaching stage to enhance students' cognition of related professional dimensions and expand their vision of knowledge, experience, theory, and design. They emphasize the construction of practical principles and technical skills and provide integration, cross-overlapping, fusion, and penetration of interdisciplinary knowledge. In addition, they deeply optimize the construction of disciplinary knowledge and improve the overall design level. Gradually, it generates students' unique innovation ability in design majors, ensuring students' comprehensive development in morality, intelligence, physique, beauty, and labor. Cultivate professional talents with cultural connotations to meet future social competition needs.

2.3 Design Education Teaching Methods and Practical Teaching

As a general higher education with distinct levels of running schools, the construction of experimental teaching is closely related to the importance attached by schools. The experimental teaching links, teaching conditions, teaching methods or importance formed are uneven [4].

In view of the reform and promotion of experimental teaching in design majors in general higher education institutions, it should be based on the new era, culture and discipline. Relying on the exploration of educational methods under the concept of "thinking" and "doing" in the design education system. On the one hand, it is necessary to clarify the interdisciplinary content derived from design disciplines. We need to understand the relationship between design and culture as a whole. It is necessary to use the behavior of "doing design" to extract the knowledge points of the disciplines involved and achieve understanding, enlightenment, and integration. It is making the cause of the design vivid and gradually improving the results of the design. In addition, managers enhance the value of "thinking" in the "knowledge" design practice and experimental teaching and "doing" in "action". They establish an educational design strategy that meets the solution of new problems.

On the other hand, they should clarify the relationship between theory and practical teaching in designing professional systems, technical conditions and generation shaping, sensibility and rationality, and other related causal factors. Setting experimental teaching goals for various purpose projects and focusing on students' mental development is significant. Furthermore, exploring design thinking, needs, methods, exploration, and technical implementation are necessary. We should give full play to the training process of integrating knowledge and action, establishing questioning, systematic, logical, and critical thinking, building strategies, and interacting creative design with innovation consciousness.

The "teaching" and "learning" of design are both centered on the core issue of cultivating design talents. Jumping out of this dimension range and understanding design education from a large educational perspective, educational issues also need to be designed.

Designing education types and methods with their characteristics must stick to the existing model and use a unified education model. Each teaching unit should combine its conditions to innovate and

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have a forward-looking, innovative education concept to have a foundation for development and motivation for growth. In conclusion, how to "teach" design education is a problem designers are considering.

Relying on the "teaching" of design, first of all, teachers should actively participate in teaching. Educators should have an educational concept of training professional and technical talents for the country. Focusing on cultivating designers with independent personality and innovative consciousness, knowledge dimensions and exploration abilities to cope with difficulties and solve problems are based on the concept of how to "teach" design. Secondly, it is necessary to seek adaptive countermeasures in teaching paths, methods and means. They guide students to accept, integrate autonomously, explore deeply, establish confidence, enrich forms, and interpret processes in experimental teaching, thus achieving purposeful "teaching." The applied "learning" should guide students to actively participate, seek solutions to problems, use network technology that students are good at using, combine social projects to do immersive exploration, and give full play to mental factors [5].

At the same time, the purpose and teaching method of experimental teaching are extremely important. The organic sustainable intelligence-increasing mode needs to be formed by coordinating ideological connotation, professional knowledge and practical technology. In the four-year learning process, each stage is planned, purposeful, hierarchical, technical and creative in accordance with student needs within the entire course syllabus system. Let experimental teaching radiate new teaching vitality.

3. Reform and Innovation of Experimental Teaching

Design education needs interdisciplinary cross-overlapping and deep integration. The promotion of experimental teaching is an irreplaceable important link. Teachers should pay attention to new research problems, methods, and theoretical perspectives. They are clarifying the breakthrough point of design education innovation ability and seeking to improve the quality of education. As a result, a sustainable ecological discipline and academic system will be built, and design innovation talents for social development will be cultivated.

Reform and innovation need to make efforts in the following aspects.

1) Reform needs to implement the experimental (practice) teaching syllabus for the transformation of design education positioning towards future talent goals under the conditions that meet the conditions of colleges and universities themselves. Teachers clarify experimental purposes, goals, content, requirements, and standards for internships and experiments. They take the construction of discipline theory as a concrete transformation to professional literacy. The composition of teaching for academic studies transforms into technical training for employment in design. Theoretical practice transforms into theoretical experiments. Teachers use experimental (practical) teaching to coordinate design (theoretical) teaching mode, forming teaching modules and systematic teaching positioning.

2) Change the subordinate concept of experimental teaching in the design education system from passive to active. Experimental teaching runs through the entire design education process from beginning to end. This not only meets the practical requirements of design disciplines but also follows the objective laws of design activities. What is more important is to carry out experiments through design teaching, empirically verify theoretical models, let ideas be implemented and come into close contact with social reality, verify, practice and feedback.

3) Seek innovation and practice in cultivating compound talents in design majors. The new experimental teaching mode not only allows students to understand phenomena, add practical experience and technology, help understand design and complete design products but also optimizes and introduces communication, cooperation, thinking, presentation, methods, design technology and resources especially under the coordination of interdisciplinary culture improve students' overall ability to interpret and solve design problems so that practical teaching as an important part of design education can play its greatest value.

4) Strengthen the construction of teachers' status, teacher echelon, teacher professionalism and teacher research ability in experimental teaching. On this basis it is necessary to form standards for evaluating student academic performance and measuring teacher teaching quality so that experimental teaching in design education can be standardized and sustainable.

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4. Conclusions

In summary, as a way to cultivate design talents, design education should fully promote the characteristic construction of experimental teaching regardless of the type of school. As a direction for comprehensive reform and innovation in design education, we closely follow the development trends of new-age technology majors, especially in the new liberal arts context. Guided by industrial demands, we take the needs of the market and the aesthetic needs of public consumption as prerequisites for building experimental education. The managers reform and innovate the experimental curriculum system. They should discover avenues of interdisciplinary overlap and deep integration, comprehensively improve students' human abilities and professional innovation abilities, and consider promoting design critical thinking and self-directed learning skills as a top priority in education. Maximizing students' potential is an effective way to cultivate compound innovative talents.

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