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The Importance of Design Thinking for Students Majoring in Art and Design in Vocational Colleges

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Abstract: ***The cultivation of design thinking ability among students majoring in art and design in vocational colleges is related to the implementation of national innovation and development strategies and the cultivation of high-skilled talent. This study focuses on the problems of lagging educational concepts, weak cultural foundations, and insufficient artistic literacy in the cultivation of creative thinking among students majoring in art and design in vocational colleges. This study explores effective ways to enhance the design thinking ability of students majoring in art and design in vocational colleges. Research has shown that current vocational art and design education generally suffers from problems such as emphasizing skills over creativity, theory over practice, and a lack of systematic training in innovative thinking. This results in students lacking independent innovation ability and the ability to solve practical design problems, leading to insufficient employment competitiveness for graduates. This study focuses on students majoring in art and design in vocational colleges and conducts an in-depth analysis of the factors that affect the cultivation of design thinking among students majoring in art and design in vocational colleges. The research results indicate that improving the design thinking ability of art and design majors in vocational colleges requires the following steps. First, it is necessary to update educational concepts; integrate design thinking into various aspects of teaching; change the traditional exam-oriented education model; and focus on cultivating students' critical thinking, systematic thinking, and innovative thinking. Second, it is necessary to strengthen the teaching of basic courses, consolidate students' professional foundation, cultivate their aesthetic ability and artistic cultivation, and lay a solid foundation for the cultivation of design thinking. Again, innovative teaching methods, such as project-based learning, case-based teaching, and studio teaching, are needed to stimulate students' interest in learning and improve their learning enthusiasm. At the same time, practical teaching should be strengthened to increase students' opportunities to participate in practical projects, allowing them to learn and enhance their design thinking abilities through practice. In addition, it is necessary to strengthen school enterprise cooperation, establish an integrated teaching model of industry university research, provide more internship and employment opportunities for students, and cultivate their professional qualities and innovation abilities. Finally, it is necessary to create a good campus cultural atmosphere, encourage students to actively participate in innovation and entrepreneurship activities, and cultivate their innovative spirit and entrepreneurial ability.***

Keywords: Design Thinking, Art and Design, Vocational Colleges**.**

1. Introduction

With the continuous development of the social economy and improvements in people's aesthetic concepts, the design industry has played an increasingly important role in today's society. Design is not only about aesthetics but also about practicality and innovation[1-2]. Therefore, for students majoring in art and design, design thinking is particularly important. The design industry is receiving increasing attention, and the demand for design talent in the market is constantly changing. The traditional art and design education model is no longer able to meet the current market demand. Therefore, vocational colleges need to continuously innovate their educational models and focus on cultivating students' design thinking to adapt to market changes. In recent years, China's vocational education reform has been continuously deepening, and vocational colleges, as important bases for cultivating applied talent, are also constantly exploring and reforming education models[3]. Design thinking, as one of the important qualities for students majoring in art and design, has become an important direction for educational reform in terms of its cultivation methods and approaches.

The core of design thinking is innovation. By cultivating students' design thinking, their creativity can be stimulated, enabling them to propose unique and innovative solutions when facing design problems[4]. This is highly important for enhancing students' innovation ability. Design thinking is not limited to the fields of art and design; it can also promote interdisciplinary collaboration and innovation. In vocational colleges, art and design majors often intersect with other majors, such as engineering, technology, and management. Students with design thinking are better able to collaborate with students from other majors, solve problems together, and drive innovation [5]. In the job market, designers with design thinking are often more competitive. They are able to adapt quickly to market demand, propose design solutions that meet user expectations, and stand out in their work. Therefore, cultivating students' design thinking can help enhance their employment competitiveness. By studying the design thinking of students majoring in art and design in vocational colleges, we can continuously improve teaching methods and curriculum systems and promote the reform and development of design education. This will help cultivate more high-quality design talent with innovative spirit and practical ability and contribute to the prosperity and development of the design industry [6].

By delving into the cultivation methods and approaches of design thinking, students can continuously enhance their innovative abilities and comprehensive qualities, making greater contributions to the development of the design industry and social progress [7-9].

2. The Importance of Design Thinking

2.1 Design Thinking Helps Cultivate College Students' Innovative Consciousness and Ability

Design thinking is an innovative mode of thinking guided by problem solving. Its core goal is to discover and define problems, apply multidisciplinary knowledge and methods,

and generate innovative solutions through divergent and convergent thinking. Guiding students to use design thinking methods to analyze and solve problems can break through fixed thinking patterns, stimulate divergent thinking, and generate a continuous stream of novel and unique creativity. For example, in the teaching of the "Creative Design" course, teachers guide students to brainstorm, draw concept maps, create low-fidelity prototypes around the theme of the "Smart Campus" via design thinking methods, inspire students to break through their comfort zone and traditional thinking, propose novel and unique design concepts, and cultivate and exercise innovative consciousness and abilities in design practice.

2.2 Design Thinking can Improve the Comprehensive Quality of College Students in Solving Complex Problems

With the rapid development of the economy and society, the current era presents features such as globalization, informatization, and uncertainty, and people are facing increasingly complex and changing problems. Cultivating students' comprehensive ability to analyze and solve complex problems is an important goal of talent cultivation in universities. Design thinking emphasizes analyzing problems from multiple perspectives and levels and comprehensively applying interdisciplinary knowledge to seek solutions. This helps students develop multidimensional and systematic thinking and improve their ability to solve complex problems. For example, when teaching the "Intelligent Robots" course, teachers organize students to form interdisciplinary project teams, guide students to use design thinking processes, and design robots around social issues such as the elderly and disabled assistance. Team members need to have in-depth discussions; clarify the needs of target users; apply multidisciplinary knowledge such as mechanics, electronics, and computer science to design solutions; conduct trial production testing; and improve their comprehensive ability to analyze and solve complex problems through collaborative research and development.

2.3 Design Thinking Provides New Ideas and Methods for Teaching

Traditional education emphasizes technological learning and product development while neglecting the cultivation of creative thinking and value orientation. Introducing design thinking into education provides new concepts and approaches for cultivating college students. Design thinking centers around human needs, emphasizing value orientation and social responsibility. It guides students to pay attention to practical needs and consider the social value and user experience of their work during the innovation process. This helps to correct the problem of technology supremacy and neglect of humanistic care, enabling students to grow into innovative talents with patriotism and a global perspective. For example, in the "Design Thinking Workshop" course, teachers guide students to apply design thinking patterns, pay attention to socially hot issues such as environmental pollution and poverty education, and carry out innovative design. Students conduct in-depth investigations and interviews at the grassroots level, starting from human needs, brainstorming around topics such as "how to prevent and control haze" and "how to improve the reading conditions of rural children", proposing solutions, and creating product prototypes.

3. The Current Situation of Art and Design Teaching Against the Background of Design Thinking

3.1 Insufficient Integration of Design Thinking Teaching Content and Design Thinking Concepts

Most courses in universities still focus on technical learning, with teaching content covering 3D printing, laser engraving, Arduino programming, etc., emphasizing the cultivation of hands-on abilities, but not enough emphasis is placed on the cultivation of creative thinking methods. Although some courses involve innovative methods, they focus mostly on the introduction of common technologies such as TRIZ and SCAMPER and are not closely integrated with the core concepts of design thinking. For example, a certain university has established a teaching practice project called Baiguoyuan, which is equipped with various processing equipment and mainly teaches the development technology of biological network applications. However, this approach does not guide students to start from human needs and use the design thinking process for innovative design, resulting in limited improvement in students' creative thinking ability. This reflects that many teachers have insufficient understanding of the connotations and value of design thinking, equating it with general innovative technologies and ignoring its user-centered and humanistic care characteristics. The deep integration of teaching content and design needs to be strengthened.

3.2 The Teaching Evaluation System needs Further Improvement

Traditional teaching evaluation is often results oriented and based on the technical content and innovation level of the work. Teachers are the main evaluators, and students lack opportunities to participate. This single evaluation method has difficulty comprehensively examining students' performance in practice and cannot provide accurate feedback for their sustainable development. For example, in a creative program competition for a school sports meeting, judges focused mainly on the technical difficulty and visual effects of the program while neglecting to check whether the students had conducted character interviews, drawn storyboards, and whether the plan had undergone multiple iterations in the planning process, which made it difficult to fully evaluate the students' application of design thinking. The scientific basis and diversity of this teaching evaluation need to be further improved.

4. Design Thinking Teaching Strategies Against the Background of Design Thinking

4.1 Building a Teaching Content System Based on Design Thinking

Design thinking should be incorporated into talent development plans, and the proportion of class hours should be increased. Moreover, attention should be given to combining design thinking and disciplinary characteristics,

encouraging teachers to introduce professional frontiers and social needs into design thinking teaching, and developing design thinking projects with disciplinary characteristics. In setting teaching objectives, designing course content, organizing teaching activities, and providing teaching evaluation feedback, we adhere to a demand-oriented approach, strengthen humanistic care, focus on guiding creative thinking methods, and construct a design thinking training system that embodies the concept of design thinking. For example, in the "Smart Home Design" course, the teacher first guides students into the community, interviews people from different groups about their life needs, and then uses empathy maps and other methods to understand users' pain points. On this basis, students brainstorm around issues such as "how to design convenient smart home systems for the elderly", propose various creative concepts, gradually model, prototype, test, and improve, and form the final design scheme. The course content closely follows the process of design thinking, enabling students to master innovative thinking methods in practical design and systematically cultivate design thinking literacy.

4.2 Innovating the Teaching Mode of Design Thinking for College Students and Integrating Design Thinking Concepts

Traditional teaching often adopts the model of "teacher lectures+student practice", which limits students' independent exploration. To stimulate students' innovative potential, teachers should innovate teaching models that fully reflect the characteristics of design thinking. Teachers carefully design challenging innovative projects, organize students to form interdisciplinary project teams, guide students to explore the social issues behind the projects, and use the design thinking process for innovative practice. During the project implementation process, teachers hold special seminars at appropriate times to impart creative thinking skills while creating a democratic and trusting classroom atmosphere, encouraging students to speak freely and motivate each other. Teachers choose classic design cases to guide students in exploring how designers perceive user needs, define design problems, generate creative inspiration, and overcome technical bottlenecks. They guide students to experience the iterative optimization process of design thinking, improving their ability to analyze and solve problems. For example, in the course "Design Thinking and Innovation", a teacher chose a design case of "Xiaomi Band" and demonstrated the process of designers using design thinking from the aspects of design background, user research, conceptual conception, prototype production, etc. Through case analysis, students can master the essentials of design thinking and apply it to independent innovation practice. The innovative teaching mode provides solid support for cultivating students' design thinking.

5. Conclusion

This study not only analyzed the problems existing in the cultivation of design thinking among students majoring in art and design in vocational colleges but also proposed targeted improvement measures and demonstrated the feasibility and effectiveness of these measures. The practical application value of this study lies in providing theoretical guidance and practical reference for the teaching reform of art and design majors in vocational colleges, helping to improve the comprehensive quality and employment competitiveness of vocational art and design students, and providing an effective way to cultivate innovative design talent that meets the needs of social development. The research results can provide a reference for the teaching reform of art and design majors in vocational colleges, promote the optimization of the talent cultivation mode of art and design in vocational colleges, and provide strong support for cultivating high-quality innovative design talent that meets the needs of social development. This study emphasizes the combination of design thinking and innovation and entrepreneurship education, encouraging students to transform design concepts into practical products, enhancing their market competitiveness, and ultimately promoting the high-quality development of vocational art and design education, serving the national innovation-driven development strategy. Research suggests that vocational colleges should actively explore and construct a design thinking training model with their own characteristics; focus on cultivating students' interdisciplinary abilities; and cultivate students' critical thinking, problem-solving skills, and teamwork spirit, thereby comprehensively enhancing students' comprehensive design and innovation abilities.

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