Research on Talent Cultivation of Local Product Design Professionals Based on Cooperative Education

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Abstract. The booming growth of creative industries has resulted in a substantial rise in the need for talented individuals in innovative product design. A multitude of institutions and universities possess open-product students majoring in design. Nevertheless, due to the alterations in consumer demand, traditional product design urgently needs reform due to monotonous functions and serious homogenisation. In recent years, the cultural and creative sectors have been actively seeking innovative and intelligent products since they have become a new trend in the consumer market. Moreover, universities' current talent training model for cultivating such needs still needs improvement. Drawing from the current condition of talent development in product design and integrating the pedagogical knowledge gained recently, this paper presents a novel idea of local product design professional talent cultivation founded on the principles of cooperative education.

Keywords: Cultural and creative product design major; intelligent product design; enterprise-school cooperation education.

1. Introduction

China's manufacturing industry is increasingly focusing on Industry 4.0 as its primary development direction for the next few decades. The introduction of the Made in China 2025 initiative policy has emphasized the strategic position of the application of intelligent manufacturing technologies. Innovative manufacturing technologies are adopted in many fields that cover manufacturing and information technology directions. The current release of the industrial development report at the same time stressed the need to make intelligent manufacturing the primary goal of the 2025 industrial manufacturing development, the practical implementation of the innovative research and development and production of intelligent products, while the research and development of new products and innovation should be transformed into intelligent wearable products, intelligent home design, service machine innovation and other aspects, highlighting the new direction of the future research and development of intelligent products, and according to these means to achieve the rapid optimization and upgrading of the economic structure. The rapid optimization and upgrading of the economic structure can be achieved by these means. Therefore, in terms of creative product design, the current public demand for products needs to highlight the characteristics of personalization and diversification, which also promotes the consumer market is facing continuous transformation and upgrading. For example, the use of traditional folk embroidery craft combined with advanced intelligent manufacturing means that the redesign of new products can allow the conventional craft and existing products to have the effect of regeneration. With the implementation of the "Made in China 2025" strategy, the cultural and creative industries have experienced significant growth and transformation. Numerous cultural and creative firms have redirected their focus towards research and development, as well as the design and production of artistic products, delivering innovative items with the latest advancements and needs of consumers. Local universities are rooted in the foundation of regional industries. These industrial foundations provide many job opportunities for design students in colleges and universities. Therefore, to reply to the national industrial policy strategic blueprint for growth and progress, local colleges and universities should reform the talent training mode and adopt the school-enterprise cooperation education mode to innovate the means of talent training.
2. The field of cultural and creative product design is currently a focal point in design education

Innovative and cultural product design has emerged as a new trend in China's product design industry and rapidly developing design profession. Many local undergraduate colleges and universities in China have recently opened relevant professional course content for cultural creative product design. Unlike previous tourism, in contrast to souvenir and "culture" designs, cultural creative product design emphasizes "innovation" and "culture." Any product or combination of product forms produced by creative industries has cultural content and creative design, and such products are culturally creative. Cultural and creative content and material carriers are interdependent concerning creative and cultural products. The attribute differentiating innovative and cultural products is their cultural and creative content, which sets them apart from other generic items. Cultural creativity must rely on a specific carrier to be embodied. It cannot exist independently." Meanwhile, the scope of cultural creative items encompasses a broad spectrum. The realm of cultural and creative products encompasses many areas, including traditional crafts, folk customs, 3D printing, contemporary manufacturing, apparel trends, and intangible cultural heritage. It permeates every facet of people's life. The so-called "innovation" uses appropriate ways, innovative technical means, and presentation methods to display the "culture" already existing in society through new innovative ways and technical means. Meanwhile, the design of such cultural and creative products is not simply pasting the culture on the product's surface but using this cultural connotation as an innovative means to carry out the creative design of the product and endowing the product content with the ability to reflect this cultural soul. At the same time, the development of these cultural and creative products can utilize the pertinent resources of intangible cultural assets, thereby facilitating the transmission process to incorporate intangible cultural legacy into modern daily life; promoting and integrating cultural and creative products is essential. With new creative forms. That will also play a crucial role in protecting and inheriting "intangible cultural heritage to a certain extent." [1] Some experts and scholars working in colleges and universities have some of their views on preserving and advancing the existing intangible cultural heritage and fostering talents to design such cultural and creative products. For example, "Only through the integration of intangible cultural heritage's innovation and inheritance" in the context of the current consumer demand is changing day by day, with a new perspective to interpret the local culture, and with the help of modern design means, manufacturing means, technology and art and other aspects of the combination of intangible cultural heritage inheritance and innovation" [2].

Using the enactment and execution of nationwide policies aimed at bolstering the creative and cultural sectors, as outlined in the government's leadership, the Intangible Cultural Heritage Protection Centre, museums, several other cultural institutions, colleges, and universities jointly hold creative product competitions to explore more innovative product design and talent. Meanwhile, with the organization of these activities, many institutions have also begun to study culturally innovative product design. During these cultural creative activities, novel and inventive approaches are employed [3]. Design to promote or pass on specific "cultures" is considered "multidisciplinary and inter-professional". As the market for cultural and creative industries continues to expand, universities, as training bases for design talents, must be responsible for conducting education in response to market hotspots. Therefore, in regions with rich cultural resources and the early start of cultural and creative sectors, many colleges and institutions have recently created design majors specializing in cultural and creative product design developed to meet the job market's growing demands and establish a speciality.
3. **Intelligent product design represents a novel approach within the field of cultural and creative design. Emerging trajectory of cultural and artistic design**

Traditional cultural creative product design in undergraduate education is distinguished by its simplistic structure and functionality, limited production quantities, and the incorporation of conventional handicrafts. Nevertheless, the industry's high mobility can be attributed to the items' limited lifespan, tiny user base, fluctuating costs, and intense competition among firms. China's intelligent manufacturing has sparked interest among cultural and creative firms, leading to collaborations with traditional product design professions to develop novel items. While numerous domestic institutions and colleges have introduced cultural and creative degrees, they still need a foundation in intelligent product design. They require assistance in sourcing exceptional individuals to fulfill the demands of society [4]. Enterprises develop numerous cultural and creative intelligent products through extensive investigation and collaboration across several industries. As an illustration, the Xiangxi computer was collaboratively produced by a consumer electronics design and production firm and the Xiangxi Research Institute. University research teams' research contributes to developing cultural and creative new products. The listed products are the innovative outcomes of design teams assuming the role of product design and development and using "culture" as the source and "innovation" as the driving force. Successful cases are few and far between and extremely popular in the market. That shows that the current short board of cultural and creative design education lies in cultivating intelligent product design talents.

3.1 **Professional teaching system**

In this context, the professional teaching system of product design consists of three levels: curriculum unit, curriculum organization, and curriculum system. The "curriculum unit" consists of course modules within the major. The "curriculum organization" comprises inter-professional course modules, and the "curriculum system" comprises interdisciplinary course organization. The three-tier structure of mutual intersection, deep integration and gradual improvement provides students with a clear understanding of the relationship between various professional skills, projects and tasks. This structure also helps students to apply their engineering and design knowledge in an integrated and systematic manner and to improve their ability to solve complex problems gradually.

"The course units form clusters of tasks between courses within the major, breakthrough course barriers, and allow students to integrate professional skills and knowledge into tasks in a "holistic learning" mode. Each unit course group is equipped with multiple instructors according to the training objectives and guides various stages according to the progress of the tasks." Course Organization" is mainly for courses in the same discipline and different majors within the college. It breaks through professional barriers by establishing project groups, allowing students to choose relevant courses according to their interests during their school years. Students then cooperate and communicate with other students in the project group through "Interactive Learning" to complete project-based learning." The "curriculum system" combines schools and enterprises to create interdisciplinary innovation and entrepreneurship groups that meet the characteristics of industrial design. Practical teaching based on project-based learning selects actual projects through school-enterprise cooperation and competitions [5]. This approach creates a "cycle learning" model that promotes the sustainable development of industry, teaching and research.
4. **The collaborative education model between schools and enterprises is designed to cultivate creative and intelligent product designers, leveraging the unique resources and expertise of both entities**

In comprehensive local colleges and universities, the school's rich disciplinary background resources, coupled with the local industrial resources, provide a fertile ground for school-enterprise collaborative education. This approach is not just practical but also holds immense potential in cultivating talents in innovation.

Implementing education-industry collaborative education for culturally creative, intelligent product design abilities in all-encompassing institutions and universities is a viable and feasible procedure that can be executed using a four-step process below:

**Step 1:** Adopt practical case teaching. For students majoring in product design, the practical instructional activities based on projects of local enterprises are imported based on the existing teaching system so that students can carry out creative, intelligent product design in practical operation. Through the local cultural industry resources, we carry out multidisciplinary cooperation to design and produce creative products.

**Step 2:** Build a new talent training mode construction. Based on the research results of the first step of practical case study teaching, we further try to build a win-win product design professional talent training mode suitable for developing local industries and universities. Further, it reflects the new talent cultivation idea of combining theoretical engagement in classroom instruction and extracurricular activities to develop and nurture talents while identifying appropriate course modules for experimentation.

**Step 3:** Deepen the talent cultivation transformation mechanism. Introduce the experimental course module into the teaching process regarding the school-enterprise partnership project; we will also assess the viability of the talent training transformation mechanism.

**Step 4:** Co-operate to educate people. According to the students' professional mastery characteristics, select students to form school-enterprise cooperation project teams and strengthen the students' creative product design ability through cooperative nurturing.

The goal is to implement teaching or talent training mode innovation. Thus, one can investigate and construct a paradigm appropriate for the present design curriculum. And meet the urgent needs of the job market and local colleges, universities and enterprises for professional talents. This new talent cultivation means is a crucial step in this direction, as it combines cultural creativity teaching and intelligent product design teaching, guiding students to examine the integration of cultural creativity into methods and thought processes of innovative product development. And they are combining rational thinking with perceptual thinking in education and practice. Finally, collaboration with businesses determines whether the abilities developed in this approach achieve the desired outcome.

5. **Summary**

This article examines the talent cultivation approach that combines the societal need for highly skilled individuals and emphasizes the anticipated demand for talent in the creative and intelligent products sectors. Simultaneously, by leveraging the unique attributes of local colleges and universities, it is recommended that educational institutions utilize interdisciplinary resources, establish cross-disciplinary student teams, and engage in collaborative education with businesses to foster innovation in talent development.
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