Research on Strategies for Improving the Teaching Quality of Product Graduation Design Driven by Cultural Industry

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Abstract: *Focusing on the booming development of the cultural industry, this study examines the new opportunities and challenges faced by the graduation design teaching of product design majors in applied undergraduate universities. It analyzes the problems existing in current graduation design teaching and explores how to leverage the driving force of the cultural industry to improve the quality of graduation design teaching in product design majors from multiple dimensions such as updating teaching concepts, optimizing course content, strengthening practical teaching, and constructing a diversified evaluation system. The aim is to cultivate professional talents who are more in line with the needs of the cultural industry, possess innovative abilities, and practical literacy.*

Keywords: *Cultural industry, Product design major, Graduation project, Improvement of teaching quality*

1. Background Research

Under the perspective of the cultural industry and within the practice model of industry-academia-research integration, "diversified graduation projects" have become the objective of recent teaching reforms in product design graduation projects. This study takes the recent reforms of graduation projects in product design programs at local application-oriented universities as examples to explore a "diversified" graduation project management model with distinctive local cultural industry characteristics. By analyzing issues encountered in training programs, teaching practices, the organization of graduation project exhibitions, and graduation project evaluations, the study aims to establish and improve a practice-oriented graduation project management system for product design programs that aligns with talent training schemes, educational models, and market demands.

This study explores how product design graduation projects can align with the development of local cultural industries by strengthening university-enterprise collaboration, expanding project-based practical teaching, and encouraging students to innovate actively—integrating local specialty industries with graduation design themes. On one hand, this approach can effectively drive innovation in the teaching models of product design programs; on the other hand, it helps develop a design practice teaching model suited to the local cultural environment.Upon completion of the graduation projects, an exhibition of the works is organized, focusing on showcasing students' application, innovation, and practical abilities. This deepens the content of graduation design, advances the talent cultivation model of industry-education integration, and promotes the development of practical teaching.

2. The Current Situation and Problems of Graduation Design Teaching in Product Design Major under the Background of Cultural Industry

2.1. Insufficient Interdisciplinary Integration

Design science is inherently an integration of multiple disciplines, involving psychology, physiology, ergonomics, medicine, industrial engineering, and more, reflecting an emphasis on technical factors and a heightened concern for consumer needs[1].Under the multidisciplinary background of design studies, concepts such as design psychology, design ecology, and service design are often superficially understood by students, with limited cross-disciplinary learning and inadequate application of relevant design theories and techniques. Taking the 167 students of the 2024 product design major in our school

as an example, there are 10 graduation design topics in the direction of intelligent product design, 10 in outdoor product design, 15 in cultural and creative product design, and 132 in home product design. In terms of the overall design plan, the graduation design plan has a high level of completion in appearance and styling, a good level of completion in functional implementation, and a medium level of completion in emotional design and value realization. Among them, the intelligent product design plans are mostly conceptual designs with average functional implementation, see Figure 1 for details.
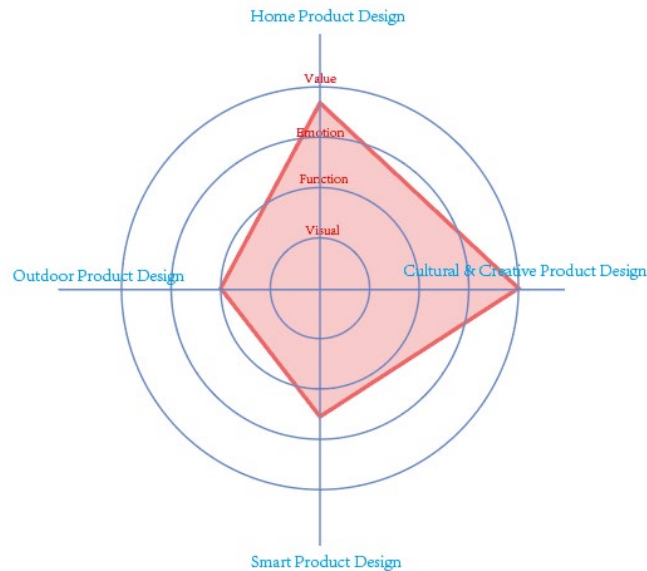

Figure 1: Expression of Graduation Design Works from the Class of 2024 in Visual, Functional, Emotional, and Value Dimensions.

2.2. Weak Connection Between New Teaching Concepts and Practical Courses

In graduation project instruction for product design majors, there is a significant disconnect between teaching philosophies and design practice. There is insufficient emphasis on applying new ideas, technologies, tools, and requirements in practical settings, as well as a lack of guidance for students to explore design inspiration and expand creative thinking from fresh perspectives. As a result, graduation projects often prioritize form over substance, making it difficult for them to stand out in the cultural industry market.

Table 1: Integration of Teaching Philosophies/Methods with Product Design Education

Teaching Philosophy / Method	Core Concept	Key Content	Main Features	Applicable Scenarios
OBE [2]	Outcome-Based	Define objectives, evaluate results	Student-centered, result-focused	Curriculum design & assessment
PBL	Problem-Driven	Learn through problem-solving	Emphasizes inquiry & hands-on practice	Interdisciplinary/practical courses
BOPPPS	Structured Teaching	Six-step instructional design (Bridge-In, Objectives, Pre-assessment, etc.)	Interactive & well-structured classes	Single-class sessions
CDIO	Engineering Practice	Conceive-Design-Implement-Operate	Full-project-cycle learning	Technical/engineering courses [3]
Industry-Academia-Research [4]	Demand-Driven	Tripartite model: Industry + Academia + Research integration	Innovation-driven, resource-optimized	Talent development & employment
Curriculum Ideology & Politics [5]	Value-Guided	Integrate ideological education with professional knowledge	Focuses on moral & political cultivation	All specialized courses

Existing graduation project curricula, when addressing cultural industry-related knowledge, tend to remain superficial, lacking systematic case studies for practical implementation. For instance, while theoretical instruction covers the extraction and transformation of cultural elements—as well as integrating regional and traditional culture into modern product design—students rarely apply these concepts in practice. Consequently, they struggle to grasp the core demands of the cultural industry, resulting in designs with indistinct cultural characteristics. To address this issue, an investigation was conducted into various interdisciplinary educational philosophies, teaching methods, and their application characteristics in product design programs in recent years,the specific data are presented in Table 1.

2.3. Weak Practical Teaching Components

Practical teaching serves as a vital bridge between product design education and the cultural industry. However, current practical components in graduation projects face multiple challenges. On one hand, limited teaching resources constrain students' ability to create diverse cultural and creative products due to inadequate campus facilities and workspace. On the other hand, superficial collaboration with enterprises results in few opportunities for students to participate in actual cultural industry projects, leaving them insufficiently prepared to understand real market demands or cultural product manufacturing processes. Consequently, students' practical skills and problem-solving abilities remain underdeveloped.The practice-oriented curriculum includes Course Design Practicum, Product Design Practice I & II, Thematic Design Practice I & II, and Graduation Project, with progressively advancing content and difficulty levels. While these practical projects undergo annual improvements and adjustments based on actual conditions, they generally lack close integration with students' actual capabilities. In the current graduation project process, faculty advisors guide students through design proposals followed by physical prototype/model production, but this workflow lacks evaluation against industry production standards and receives no market feedback.

2.4. Monotonous Evaluation System

The traditional evaluation of graduation projects primarily relies on assessments from campus faculty, student self-evaluations, feedback from industry mentors, and exhibition outcomes, while seldom incorporating market evaluation criteria, industry standards, or user feedback mechanisms from the cultural industry sector. This school-centric evaluation system fails to comprehensively and objectively assess the value of graduation projects within the cultural industry context, consequently limiting students' motivation to create outstanding works that align with market demands and development trends in the cultural industry.

3. Strategies for Enhancing Graduation Project Teaching Quality Driven by the Cultural Industry

3.1. Integrating Diverse Teaching Philosophies and Adopting New Technologies

Teachers should proactively transform their pedagogical approaches by fully recognizing the guiding role of the cultural industry in cultivating product design professionals. Innovative and interdisciplinary thinking from the cultural industry should be integrated throughout the entire graduation design teaching process. Students should be guided to pay attention to evolving trends in the cultural consumption market and encouraged to select topics based on cutting-edge industry knowledge. Through classroom discussions, case analyses, and other methods, students' sensitivity to innovation can be cultivated, enabling them to conceptualize graduation design projects from an industry-wide perspective from the outset.

In the era of artificial intelligence and big data, course content should be optimized using Generative AI (GAI) tools to strengthen the teaching of cultural industry knowledge and case studies. GAI tools can aggregate vast amounts of cultural industry-related information, covering cultural characteristics across different regions and historical periods, as well as market trends and design styles of various cultural products. When studying cultural industry knowledge, students can leverage GAI to quickly access comprehensive and diverse resources, overcoming the limitations of traditional textbooks and basic online searches. This enhances their understanding of the cultural industry's macro-environment, sub-sectors, and developmental trajectory.

One of the core aspects of the cultural industry lies in the innovative application of cultural elements.

GAI tools can analyze extensive cultural materials to help students accurately extract, interpret, and transform cultural elements, thereby providing unique creative inspiration for product design.

For exemplary product design cases in the cultural industry, GAI tools can generate highly accurate visual simulations based on case descriptions, showcasing details such as a product's appearance, functionality, and usage scenarios. Additionally, they can perform expansive analyses, simulating how different design decisions might alter a product and its market reception. This allows students to more intuitively learn from the design logic, successful strategies, and shortcomings embedded in these cases, significantly improving the effectiveness of case-based teaching.

Optimizing the Curriculum System.The graduation design curriculum framework should be restructured to incorporate theoretical courses such as Introduction to Cultural Industries and Cultural Creative Product Development, enabling students to systematically comprehend the structure of cultural industries, their operational models, and the role of product design within this ecosystem. Concurrently, practical courses like Cultural Element Extraction and Application and Digital Cultural Product Design should be introduced to enhance students' ability to innovatively integrate cultural elements into their designs.

Enhancing Case-Based Teaching.This study analyzes exemplary product design cases from both domestic and international contexts to extract successful experiences in cultural connotation, design methodology application, and market promotion. These case studies are subsequently integrated into the instructional framework of product design graduation projects to enhance pedagogical effectiveness.Currently, high-quality teaching cases primarily come from award-winning works in international design competitions, such as Germany's Red Dot Design Award, iF Design Award, and Italy's A' Design Award, as well as industry-released trend reports and product catalogs published by major companies. Based on specific teaching cases, relevant industry development trends can be summarized and subsequently applied in learning.

3.2. Enhancing Practical Teaching and Establishing a Practice Platform Aligned with the Cultural Industry

The Product Design program is equipped with a comprehensive range of specialized classrooms that fully meet the teaching requirements for various course types. In addition to the university's smart classrooms and multimedia classrooms, the program currently possesses professional teaching and practice facilities organized as "three centers and one workshop": the Product Innovation Design and R&D Center, Creative Workshop, Product Model Making Center, and Product Processing Center. The total floor area of these experimental facilities exceeds 3,000 square meters.The program is well-equipped with teaching and research instruments. The Product Innovation Design and R&D Center's computer lab is furnished with 61 graphics workstations, while the Smart Home Laboratory contains 20 graphics workstations. The Product Processing Center includes a furniture interior testing laboratory equipped with various testing instruments such as air quality detectors and paint film adhesion testers, along with numerous woodworking machines including precision panel saws, woodworking milling machines, water-wash spray booths, and fine woodworking band saws among other miniature machine tools.The Product Model Making Center is outfitted with 20 cutting machines and 3 3D printers. The Creative Workshop encompasses dedicated teaching spaces for tie-dyeing, paper-cutting, bamboo weaving, and lacquer art, with total equipment assets approaching 2 million yuan. The existing facilities and equipment adequately satisfy the program's teaching requirements.To ensure the proper maintenance of all teaching equipment, the college annually applies for special financial funds to purchase and maintain teaching facilities, thereby providing an optimal teaching environment for both faculty and students. Building upon this foundation, the program can strategically invite outstanding domestic and international professionals to conduct targeted online one-on-one teaching guidance each year.

Deepening Industry-Academia Collaboration.The program actively establishes long-term, stable cooperative relationships with cultural enterprises and cultural creative parks. Currently, the Product Design program has partnered with 17 enterprises, most of which are local furniture companies. To enrich teaching cases, it would be beneficial to appropriately expand collaborations to include intelligent product categories and other fields, while incorporating real enterprise projects as graduation design topics. This approach enables students to complete their graduation projects within authentic commercial environments.Partner enterprises assign senior designers to serve as external mentors, who collaborate with on-campus faculty to guide students. This dual mentorship helps students understand the complete workflow of cultural products—from planning and design to production and marketing—thereby enhancing their practical skills and professional competencies.Furthermore, the program organizes

activities such as visits to cultural enterprises and participation in industry exhibitions. These initiatives broaden students' perspectives and strengthen their intuitive understanding of the cultural industry.

3.3. Establishing a Multidimensional Evaluation System Aligned with Cultural Industry Requirements

The evaluation process incorporates multiple stakeholders, moving beyond the traditional model limited to assessments by instructors, students, and industry mentors within academic settings. Specifically, graduation design exhibitions are organized to openly invite cultural industry experts, marketing professionals, and end-users to participate in the evaluation process. Industry experts assess works from professional design perspectives and market adaptability; marketing specialists focus on analyzing commercial promotion potential; while end-users provide feedback regarding user experience and cultural resonance. This comprehensive integration of diverse evaluations ensures more holistic and objective assessment of graduation design projects.

The system combines dynamic evaluation with process-based assessment. In addition to evaluating final outcomes, it emphasizes students' performance throughout the design process by incorporating research analysis, conceptual development, and teamwork into the evaluation framework. Through establishing phased assessment benchmarks - including proposal presentations, preliminary reviews, mid-term evaluations, and final assessments - the system enables timely identification of challenges during the design process. This facilitates targeted guidance and recommendations, ultimately supporting students in progressively refining and perfecting their design solutions.

Based on the requirements of disciplinary development, the program established a Graduation Requirements Attainment Evaluation Committee in August 2024 to evaluate the fulfillment of graduation requirements for the 2024 graduating class. The program employs a combination of course assessment performance analysis (direct evaluation) and student self-evaluation (indirect evaluation), which together comprise three specific evaluation components: course-to-graduation-requirement alignment assessment, evaluation by the Graduation Requirements Attainment Evaluation Committee, and self-evaluation by graduating students. The comprehensive attainment value is calculated using the following formula: Comprehensive Attainment Value = Course Support Value × 0.8 + Committee Evaluation Value × 0.1 + Graduate Self-Evaluation Value × 0.1.

Based on the analysis of graduation evaluation data, the following improvement measures have been identified for future implementation:

Develop more scientific course assessment methods and grading criteria to achieve more precise alignment with graduation requirements. Particular emphasis should be placed on process-oriented evaluation by introducing diversified assessment approaches, enabling course assessment results to more objectively reflect the achievement of course learning objectives and thereby more accurately support the attainment of relevant graduation requirements.

A graduate employment tracking system is established to monitor career development, utilizing diverse survey methods for objective evaluation and ensuring full assessment of graduation outcomes and professional advancement.

This study investigates new approaches to talent development that prioritize cross-disciplinary collaboration, demonstrating their effectiveness in strengthening students' practical skills and creative capacities while ensuring relevance to societal projects. It further recommends optimizing product design education by dynamically updating course materials and systematically integrating frontier knowledge and contemporary research outcomes into instructional practices.This will help students stay informed about the most recent developments in their field and cultivate graduates who meet contemporary social and professional demands, thereby promoting the healthy development of the product design program.

4. Conclusion

Against the backdrop of the flourishing cultural industry, improving the teaching quality of graduation projects in product design education is a crucial initiative for cultivating high-quality professionals who meet the demands of this sector. Enhancing students' professional competencies has become an urgent priority.Through the implementation of multifaceted strategies—including updating pedagogical concepts, optimizing curriculum content, strengthening practical teaching, and establishing a diversified evaluation system—graduation project instruction can be better aligned with the needs of the cultural

industry. These measures will stimulate students' innovative potential, elevate their comprehensive design capabilities and practical skills, and lay a solid foundation for their smooth transition into the cultural industry upon graduation, thereby contributing to the sector's innovative development.However, in the process of improving teaching quality, continuous dynamic adjustments and ongoing optimization are essential to respond to the evolving cultural industry landscape and actual teaching conditions. This adaptive approach is necessary to achieve optimal talent cultivation outcomes.

Acknowledgements

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