Journal of Education and Educational Research
ISSN: 2957-9465 | Vol. 21, No. 2, 2026

Research on the Development and Implementation of an Integrated Five-Component Teaching Model in the Context of Hainan's International Design Island Initiative

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Abstract: The development of Hainan International Design Island requires local universities to strengthen the links between design education and regional industries, cultural communication, and public services. To address the need to integrate industry, competition, and research resources into professional courses, this study draws on constructive alignment and boundary crossing to develop an integrated five-component teaching model for design courses and clarifies the functions and interrelationships of industry demand, course teaching, disciplinary competitions, curriculum-based ideological and political education, and scientific research. Taking the Information Design course at Hainan Tropical Ocean University as an example, the study examines the incorporation of enterprise projects into teaching, the instructional transformation of research resources, education through regional culture, and the exchange of competition outcomes. Course development generated case resources and collaborative design proposals, while project-related creative works were published or accepted for publication, providing a practical reference for the reform of design courses.

Keywords: Hainan International Design Island; Design Education; Industry-education Integration; Teaching Model; Information Design.

1. Introduction

The development of Hainan International Design Island is an important component of Hainan Free Trade Port's development of modern service industries. The Master Plan for the Construction of Hainan Free Trade Port calls for the development of Hainan International Design Island and greater opening-up of professional services [1]. According to Hainan Daily, the Development Plan for Hainan International Design Island (2022-2025), issued by the Hainan Provincial Department of Industry and Information Technology, sets out development tasks in industrial collaboration, talent introduction and cultivation, "Design+" empowerment, and internationalization [2]. Against this background, design plays a role in connecting cultural resources, industry needs, and social life, while also placing new demands on the cultivation of design talent at local universities.

Design education needs to translate regional development requirements into talent-training objectives and course content. In visual communication design, tasks such as brand communication, cultural and tourism services, and digital communication involve not only the creation of visual forms but also knowledge organization, cultural interpretation, and understanding of target audiences. Course reform should therefore focus on how students identify real-world problems, integrate knowledge from different sources, and respond through design to specific social and industry needs.

Ping Yang and Haidong Qiu, focusing on the cultivation of environmental art design talent in the context of Hainan Free Trade Port, proposed implementation approaches including studio-based instruction, project-based teaching, and university-enterprise collaboration [3]. Fei Song explored a five-in-one "industry-academia-research-innovation-competition" talent-training model using environmental art design as an example [4]. Based on analyses of two information design courses, Pontis and van der Waarde proposed a student-centered, research-led approach to teaching grounded in scientific evidence [5]. These studies provide references from the perspectives of regional collaboration, integration of educational elements, and professional course teaching. Taking the Information Design course at Hainan Tropical Ocean University as an example, this study examines how industry, competition, and research resources can be organized within a course and how professional practice can be connected with values education.

2. New Requirements for Design Talent Development in the Context of Hainan International Design Island

2.1. Comprehensive Practical Competence for Real-World Problems

Hainan International Design Island covers three main application fields. They are cultural and tourism creativity, digital communication, and professional services. Design work in each field has to deal with many factors at the same time. These include cultural meanings, user needs, media conditions, and practical implementation limits. All of them require practitioners to understand knowledge from different fields and work with others. That is why combining professional knowledge with contextual analysis is a basic goal of talent training.

Students do not develop comprehensive practical competence in a short time. It takes shape step by step as they

make design decisions. These decisions cover setting task goals, deciding what information is more important, and choosing proper ways to express their ideas. Courses are the main place for students to build this ability. Enterprise projects can bring real-world situations into class, but teachers must adjust their scale and difficulty to match the set learning objectives. This means turning commercial demands into design tasks that students can finish with their current ability. Understanding how project results are used in practice is not all that students need to learn. They also need to explain the knowledge basis of their design plans, and make clear the communication logic behind their design choices. In short, effective industry-education integration requires close coordination among course content, learning activities, and real professional practice standards.

2.2. Integrating Cultural Understanding with Design Responsibility

Good regional design is more than just using local visual symbols. It must be based on real understanding of culture and proper presentation. For design education in Hainan, local culture and rich marine resources provide unique materials for this kind of exploration. When designers use traditional images, skills and real cultural experience, they have to think about what these things mean, where they can be used, and how different audiences will understand them. Without this careful thinking, cultural content in modern communication easily becomes nothing but a shallow collection of symbols, with no real depth or lasting value.

Value orientation in professional practice is an integral component of design education. Curriculum-based ideological and political education calls for the integration of value shaping, knowledge delivery and competence building [6]. The practice of sustainable design also deserves attention: as Haug notes in research on sustainable design education, this dimension should be cultivated alongside professional knowledge and practical skills [7]. For design programs at local Hainan universities, targeted course tasks can integrate cultural inheritance, public service awareness and professional ethics into daily teaching, turning abstract value requirements into specific decisions about design content and expression forms.

3. Construction of the "Industry-Teaching-Competition-Ideological and Political Education-Research" Teaching Model

3.1. Theoretical Foundations

At its core, constructive alignment establishes a coherent connection among three key components of teaching: course objectives, learning activities, and assessment tasks [8]. We draw on this principle to structure how external resources are used in design course reform, with learning objectives serving as the anchor for all resource-related educational value. External activities come from different practical backgrounds. They include enterprise assignments, disciplinary competitions, and research-oriented learning. Each of these activities must be connected with clear professional competencies and expected learning results. These clear connections keep course objectives from becoming unclear when more external activities are added to the curriculum.

Classroom learning, enterprise practice, and research activities are not the same. They have different core goals, different ways of expression, and different evaluation standards. These differences, and the learning chances they bring, are a key part of boundary crossing research [9]. For effective cooperation across these practices, all sides must have the same understanding of task requirements and result standards. Based on this shared understanding, educators turn real industry needs, mature research methods, and external feedback into learning activities suitable for students. The two theories deal with different parts of course reform, and work well together. Constructive alignment lays the foundation for internal curriculum consistency. Boundary crossing theory provides a way to build connections with external industry practice.

3.2. Components and Functional Relationships

Table 1. Functions and Course-Based Vehicles of the Five Elements

Element	Primary Function	Course-Based Vehicle
Industry	Connect industry and social needs	Enterprise projects; application contexts; industry guidance
Teaching	Organize knowledge learning and professional practice	Course modules; project tasks; instructional assessment
Competition	Introduce external requirements and opportunities for exchange	Competition briefs; focused training; outcome exchange
Ideological and Political Education	Guide professional judgment and value choices	Cultural inheritance; social responsibility; design ethics
Research	Promote knowledge updating and research training	Faculty research projects; cultural materials; analytical methods

The "Industry-Teaching-Competition-Ideological and Political Education-Research" model has five core functional parts. Each plays a different role in talent training: industry demand, course teaching, disciplinary competitions, curriculum-based ideological and political education, and scientific research. The industry part provides real problems and practical application contexts, and forms the practical foundation of the model. The research part offers supporting knowledge resources and analytical methods for deeper learning. The teaching part is the core operation carrier. It processes and changes these input resources, and organizes structured learning activities. The ideological and political education part sets the value direction for all teaching practice, keeping it focused on cultural orientation and social responsibility. The competition part expands channels for professional exchange and result assessment, and plays a

supporting role in the whole model. Table 1 shows the main course-based implementation methods for each of the five parts.

The model takes course teaching as its organizational core. Industry and research resources enter learning tasks after instructional transformation; values education runs through content understanding, design choices, and outcome presentation; and competitions provide opportunities for the exchange and evaluation of student work. The key to coordination lies in whether the different resources jointly shape students' professional judgment: industry needs define problem contexts, research materials support content understanding, value requirements influence information selection, and competition exchange introduces different evaluative perspectives. The course develops foundational competencies, while thematic projects extend practice in different directions; the two are connected through shared objectives.

3.3. Operating Mechanism of the "Industry-Teaching-Competition-Ideological and Political Education-Research" Teaching Model

Building on the division of functions described above, the "Industry-Teaching-Competition-Ideological and Political Education-Research" teaching model organizes different resources through course tasks so that each element is realized in concrete learning activities. In line with the professional requirements of the Information Design course, teaching can be organized around three stages: topic research, information organization, and visual translation. Topic research connects with real needs and clarifies target audiences and content scope; information organization identifies primary and secondary levels and logical relationships within materials to form structured content; and visual translation uses graphics, text, layout, and media formats to produce design proposals aligned with communication objectives.

Teachers organize guidance and assessment for each stage according to course objectives, apply research methods to material analysis and proposal justification, integrate cultural inheritance and responsibility for public communication into information selection, and use relevant industry and competition requirements as references for proposal revision. The organizational approach of promoting teaching through research and integrating competitions with courses can draw on related teaching research [4]. The five elements are connected through course tasks, as shown in Fig. 1.

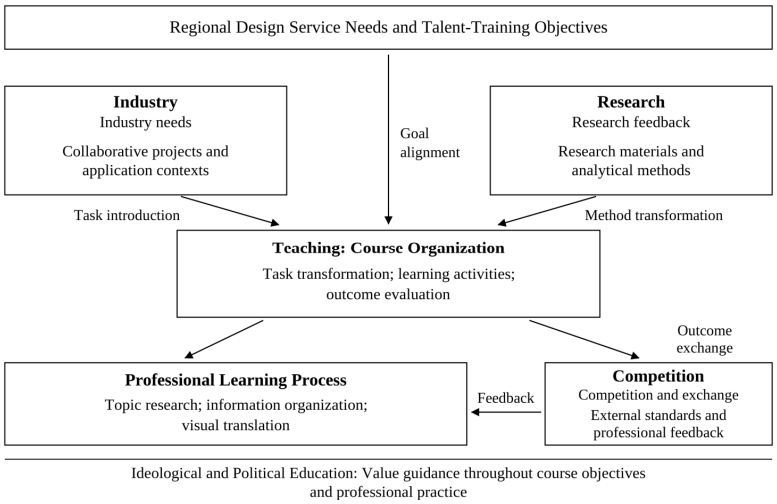


Fig 1. Structural Relationships of the "Industry-Teaching-Competition-Ideological and Political Education-Research" Teaching Model

4. Reform Practice and Outcomes in the Information Design Course

4.1. Course Positioning and Reform Priorities

The Information Design course is for students majoring in Visual Communication Design. It covers four core ability areas: information collection, structural organization, visual translation, and narrative expression. As an integrated learning framework, it builds real connections among regional cultural resources, public knowledge systems, and practical industrial applications. It is the main practical carrier for us to integrate all five educational elements into daily teaching practice. Reform work for this course mainly focuses on cultural and tourism communication, digital creativity, and related applied fields. Specific measures include putting real enterprise projects into coursework, developing local regional cultural resources for teaching use, and turning faculty research results into formal teaching content. All these targeted course development efforts bring professional learning closer to the practical design needs of Hainan's local industry.

4.2. Instructional Transformation of Industry Tasks and Research Resources

The course development team worked together with China Duty Free Group, Shenhai Shiziyu, and Hainan Hanlin Cultural and Creative New Media Communication Co. They brought three practical themes into classroom teaching: Festival IP character design, information visualization for marine science communication, and regional cultural communication. Each theme puts student learning in a different real-world application scenario. These include consumer-facing design, public science promotion, and cultural communication. Enterprise mentors lead special workshop sessions to support this process. They help students understand core industry demands and the practical limits of project implementation. With these points in mind, students work on each design task with clear awareness of its real-world application conditions.

Content research is a necessary part of visual expression

for all these design tasks. Take Festival IP design as an example. To do it well, you need to carefully coordinate cultural themes, visual presentation, and practical application scenarios. Marine science communication has a different requirement. Professional knowledge must be rearranged into information structures that ordinary audiences can understand. No matter what kind of task it is, a good design plan starts with a clear definition of core communication content and the logical connections between its different parts. Designers build the final expression form through graphic organization, hierarchical structure design, and careful planning of reading paths. That is why practical learning in this course is far more than just basic visual form training. It focuses more on comprehensive ability in information communication.

Research resources were another key support for the course. They provided basic knowledge for both teaching cases and practical training modules. These resources come from two ongoing research projects of the team. One is genealogical analysis and digital design of traditional architectural decorative patterns from northern Hainan. The other is traditional festival research and themed IP design for the China Duty Free Group Phoenix Airport Duty Free Shop. A small number of students took part in related work, such as sorting cultural materials and drawing visualization sketches. Through hands-on work on these tasks, students directly understood the connections between image classification, cultural interpretation, and design transformation. To support both in-class teaching and independent student learning, the teaching team collected and organized industry cases, local regional cultural resources, and thematic learning content on digital platforms including Zhihuishu and Rain Classroom.

4.3. Linking Regional Culture-Based Education with Competition-Based Teaching

Cultural inheritance and social responsibility are two core parts of professional practice, and they are included in the whole course. The teaching team organized field visits and exchange activities at places including the Hainan Provincial Museum of Ethnology. They also invited intangible cultural heritage inheritors to give special explanation sessions. Direct participation in these activities helped students understand the living contexts behind cultural images and craft techniques. This understanding directly supported their later visual translation work. Documenting and using traditional patterns also gave students more chances to discuss cultural meanings in professional design tasks. This includes whether the expression forms are appropriate, and how contemporary cultural communication works in practice.

For design tasks focused on marine science communication and public topics, social responsibility shows in two main areas. One is the accuracy of knowledge presentation. The other is close attention to audience understanding. How audiences receive and understand design content is affected by three things working together: information structure, visual hierarchy, and graphic language choices. Decisions about each of these need professional judgment. This judgment balances communication effectiveness and a sense of responsibility for public communication.

Basic knowledge and method training from regular coursework support all competition-oriented teaching activities. Targeted training modules connect relevant competition requirements with daily course tasks. These cover events such as the Chinese Collegiate Computing Competition and the Future Designer National College Digital Art Design Competition (NCDA). This training helps students improve their design plans step by step. Taking part in competitions and public exchange also deepens students' understanding of real professional standards. We see competition results as supplementary evidence for evaluating course practice outcomes. Formal course assessment should still be based on the whole process of students' learning and the overall quality of their finished work.

4.4. Reform Outcomes and Practical Implications

Through collaborative projects, students have finished many design proposals. Some of them have been adopted by enterprises. Student works from the course have been shown through disciplinary competitions and journal publications. Course development work has also produced industry cases and regional cultural resources. Among the project-related outcomes, information visualization works by postgraduate students associated with the project were accepted for journal publication. In Table 2, we present representative outcomes from both course practice and project-related creative work.

Table 2. Outcomes of Course Practice and Project-Related Creative Work

Category	Specific Outcome
Resource development	32 industry cases published online; 15 sets of digital materials on Hainan regional culture
Project practice	More than 140 students across three cohorts participated; 18 design proposals were completed, of which 3 were adopted by enterprises
Competition outcomes (2024)	2024 Chinese Collegiate Computing Competition, Hainan Provincial Division: 1 First Prize, 3 Second Prizes, and 3 Third Prizes
Competition outcomes (2025)	Milan Design Week China Collegiate Design Competition & Exhibition: National Third Prize and Hainan Division Second Prize; 16th Lanqiao Cup Visual Art Design Competition: Provincial First Prize and Third Prize; 2nd International Cultural Heritage Exchange Art Competition: Gold Award
Published works	"Typhoon Archive Information Visualization Design," "Chinese Herbal Medicine Information Visualization Design," and "Alzheimer's Disease Information Visualization Design" were published in the June 2024 issue of Hunan Packaging
Accepted works (postgraduate students)	"Hainan Sanyuesan Information Visualization" was accepted by Hunan Packaging; Yufei Cai and Wenbo Hu's "Atlas of Li Ornaments: Information Visualization Design of Jewelry Patterns of the Hainan Li Ethnic Group" was accepted by the journal on August 27, 2026

The course practice outcomes reflect the accumulation of teaching resources, student participation in practice, and external recognition of student work; accepted postgraduate works are listed separately as project-related creative outcomes. Industry projects provide application contexts for information organization, research materials support content analysis, curriculum-based ideological and political education guides cultural expression and professional judgment, and competition-based exchange provides opportunities for works to receive external evaluation. Through task selection and organization, teachers transform external resources into content for professional training.

The broader application of the model requires attention to the fit between collaborative tasks and teaching objectives, as well as teachers' capacity to coordinate resources. In their study of collaborative education in design disciplines at local application-oriented universities, Li Cao and Lijuan Liu discuss implementation pathways including practical guidance by industry experts, university-enterprise co-construction of resource platforms, and multi-stakeholder participation [10], providing a reference for organizing external collaboration in design courses. This study is based on a single university course and its specific conditions for collaboration; future work may compare task organization and learning performance across different courses.

5. Summary

The development of Hainan International Design Island provides regional needs and practical resources for design education at local universities. The "Industry-Teaching-Competition-Ideological and Political Education-Research" teaching model uses course teaching to organize industry, competition, values education, and research elements, establishing connections among different activities through task transformation. The practice of the Information Design course shows that enterprise projects, regional culture, and research resources can become shared content for professional learning, while competition-based exchange and the application of outcomes extend the course's external connections. Teaching reform should emphasize the professional tasks and organizational approaches on which resource integration depends, so that industry connections, knowledge learning, and values education are concretely implemented in the course.

Acknowledgments

This work was supported by the Hainan Provincial Higher Education Teaching Reform Research Projects: “Reform of a Five-in-One ‘Industry-Teaching-Competition-Ideological and Political Education-Research’ Teaching Model in the Context of Hainan International Design Island Development: A Case Study of the Information Design Course” (Hnjg2024-98);“Research and Practice on a Talent-Training Model Integrating University-Enterprise Collaboration and Industry-University-Research-Application for Design Majors in the Context of Hainan International Design Island Development” (Hnjg2023-95); and “Ocean-Digital Integration: Project-Based Teaching Reform of Fundamentals of Digital Composition Based on the OBE Concept” (Hnjg2026-117).

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