

# Exploration and Practice of Reconstructing Teaching Models for Cultivating Social Responsibility in Cutting-Edge Design Courses

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**Abstract:** In contemporary design education, there is growing emphasis on cultivating designers' social responsibility literacy. However, domestic graduate design education still exhibits a pedagogical bias of "prioritizing technical skills over value cultivation." Furthermore, cutting-edge design courses often suffer from imbalanced content structures, monolithic training models, and the absence of social responsibility dimensions in their evaluation systems—all of which make it difficult to meet both industry development needs and societal governance requirements. To fulfill the fundamental mission of fostering virtue through education, this study leverages design ethics, project-based learning theory, and the developmental characteristics of graduate students to reconstruct a three-dimensional teaching model: "value guidance → project practice → reflective iteration." Practical teaching applications have demonstrated that this model effectively transforms students' utilitarian design perspectives, significantly enhancing graduate students' awareness of public design and their sense of social value identification. This research aims to integrate professional education with ideological and political education, thereby providing a replicable practical paradigm for reforming the educational approaches in design graduate programs and for cultivating high-caliber design professionals equipped with strong social responsibility capabilities.

**Keywords:** Social Value; Cutting-edge Design Courses; Cultivation of Social Responsibility; Restructuring of Teaching Models; Public Design.

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## 1. Research Background on the Cultivation of Social Responsibility and the Reform of Cutting-Edge Curriculum Teaching

### 1.1. New Requirements for Designers' Social Responsibility Literacy in Cutting-Edge Industries

The primary impetus for this restructuring of design pedagogy stems from the emerging, critical demand for designers' social responsibility literacy within cutting-edge industries. According to the 2023 Global Design Industry Social Responsibility Development Report by the International Design Alliance (IDA), 87% of leading global design firms now prioritize public value awareness and social responsibility literacy over specialized professional skills when recruiting graduate students—a figure that has more than doubled from 42% in 2018—signaling a fundamental shift in the hiring practices of the industry. The proposition put forward by design ethicist Victor Papannakis in *Designing for the Real World*—"The purpose of design is not profit, but to fulfill genuine human needs"—has evolved from a theoretical consensus into a binding industry standard. Today, public issues such as the "dual carbon" goals, digital inclusion, and rural revitalization have become central priorities for development. Consequently, the design industry is gradually transcending the confines of commercial innovation to actively engage in public services, social governance, and ecological conservation. Alibaba's "Design Empowering Rural Revitalization" initiative—which developed tailored design solutions for over 100 underdeveloped villages—has generated additional income exceeding 200 million yuan for

local villagers, serving as a prime example of how design can empower societal and public development. [1]

The iterative development of digital technologies has not only expanded the boundaries of design but also imposed more stringent requirements on the social responsibility of designers. In cutting-edge domains such as generative AI, the metaverse, and interactive design, designers are now expected not only to possess technical proficiency but also to demonstrate the competence to identify and mitigate technical risks—thereby addressing societal issues such as algorithmic discrimination, the digital divide, and privacy breaches. For instance, in the design of smart elderly care products, the industry has moved away from a singular focus on "technological novelty," instead emphasizing age-friendly humanistic care to prevent the elderly population from being marginalized by digital technologies. Contemporary cutting-edge design projects increasingly require designers to immerse themselves in real-world scenarios and actively listen to the needs of vulnerable groups. This approach disrupts the traditional paradigm of "technology-first" or "commercial-first" thinking, elevating social responsibility from an ancillary requirement to a core premise of design practice. Consequently, this shift also compels design education to align with industry demands, thereby strengthening the cultivation of social responsibility among graduate students. [2]

### 1.2. Current Shortcomings in Value Cultivation within the Training of Graduate Students in Design Disciplines in China

China's design discipline has long been influenced by commercialization orientation, leading to a structural bias in

graduate education—emphasizing skills while neglecting values. According to the "China Design Graduate Education Quality Research Report" released in 2023 by the National Professional Committee for Design Education, only a few training institutions have incorporated social responsibility literacy into their core graduation evaluations; in most institutions, the proportion of class hours dedicated to value cultivation in cutting-edge courses is less than 5%, significantly lower than that allocated to skill training. The renowned design educator Wang Shouzhi pointed out that a fundamental misconception in domestic design education is reducing design to a mere tool for commercial profit, while overlooking its essential public role in transforming society.

Deficiencies in student cultivation have directly resulted in a weak sense of social responsibility among graduate students: the majority of their graduation designs focus on traffic-driven commercial designs, while there are very few projects addressing public issues such as rural development, accessibility retrofitting, and the implementation of the "dual carbon" goals. Some graduate students lack an ethical baseline in design; in pursuit of higher traffic visibility, they engage in excessive packaging, engage in copyright infringement, or follow fleeting trends, thereby disregarding the potential negative social impacts of their designs. These shortcomings not only fail to meet the talent demands of the industry and deviate from the fundamental objective of higher education—to cultivate virtue and nurture people—but also render such training inadequate for addressing the core needs of design professionals during this phase of social transformation: participating in public governance and solving societal problems. Consequently, the value-added educational function of cutting-edge courses—as a cornerstone of talent development—is severely compromised.

### **1.3. Feasibility Analysis of Design-Frontier Courses as a Vehicle for Cultivating Social Responsibility**

Cutting-edge design courses exhibit inherent compatibility with the cultivation of social responsibility, making them an excellent vehicle for implementing value-based education. In contrast to traditional courses—which focus on technical skills and commercial application—cutting-edge courses primarily serve to track industry trends and address contemporary societal challenges, thereby providing an inherent context for the infusion of values. [3]

From the perspective of educational philosophy, cutting-edge courses serve as a pivotal bridge connecting academia and industry; their open and dynamic nature allows them to adaptively integrate content related to the cultivation of social responsibility. The contemporary design industry has evolved from purely commercial services to one that balances commercial innovation with public welfare. Cutting-edge practices—such as rural revitalization, age-friendly design, and low-carbon transformation—can be directly incorporated into course content, thereby aligning value cultivation with professional training and addressing the integration of ideological and political education with specialized academic instruction. From the standpoint of competency development, graduate students are in a critical phase of professional identity transition; mere theoretical instruction alone is insufficient to foster value shaping. In contrast, the project-based and inquiry-based teaching models commonly employed in cutting-edge courses can establish a cultivation framework characterized by "value guidance → project

practice → reflective iteration." The Public Design course at Tsinghua University Future Laboratory, which centers its teaching on real-world community renovation needs, has demonstrated that cutting-edge courses can, through immersive practical experience, help graduate students internalize their understanding of social responsibility—a core advantage that traditional design courses lack.

## **2. Analysis of Issues in Current Teaching Models for Design Courses Aimed at Cultivating a Sense of Social Responsibility**

### **2.1. The Educational Bias of "Emphasizing Skills Over Values" in Designing Cutting-Edge Courses under a Knowledge-Oriented Approach**

In China, cutting-edge design courses have long been guided by a knowledge-and skill-centric approach, resulting in a pronounced structural imbalance in talent cultivation. Taking Jingdezhen Ceramic University as an example, technical assessments in these courses account for over 60% of the evaluation criteria, whereas assessments of value dimensions—such as social responsibility—account for less than 10%. Most courses focus on training in cutting-edge technologies, such as AI-generated design, thereby deviating from Papanek's core principle that "design should serve real-world needs and address societal challenges." Under this orientation, many graduate students become proficient in advanced technical tools but lack an awareness of public issues, leading to a proliferation of "technology for technology's sake" designs. Such practices sever the link between design innovation and societal needs, causing these cutting-edge courses to lose their social value-oriented educational purpose and failing to fulfill the objective of cultivating high-caliber design professionals.

### **2.2. Structural Deficiency in Case Studies: Insufficient Proportion of Public Issues in Case Design**

The imbalance in the design case portfolio constitutes a critical bottleneck hindering the cultivation of social responsibility. Design scholar Liu Guanzhong has emphasized that the essence of design lies in addressing social issues rather than creating commercial value; however, surveys of design courses at our university reveal that commercial design cases dominate the selection of cutting-edge course topics, whereas there is a scarcity of cases addressing public issues—such as carbon peaking and carbon neutrality goals, rural revitalization, and public services—particularly high-quality, locally grounded implementation cases. [4]

Imbalanced case selection in design education poses dual pedagogical challenges: first, prolonged exposure to commercially oriented cases can lead students to develop a subtle cognitive bias toward "design serving profit," thereby diminishing their focus on public issues; second, the limited number of public cases available are predominantly abstract international examples that lack integration with domestic developmental contexts and comprehensive implementation workflows, making it difficult for students to grasp practical pathways for socially responsible design. Taking rural

revitalization design education as an example, most courses merely offer generalized introductions to international cases without systematically exploring the logical frameworks and implementation details of local rural development design, which hinders the achievement of value-based immersive education outcomes and further exacerbates shortcomings in talent cultivation.

### **2.3. Limitations of the Evaluation Framework Due To Its Singular Focus on the Absence of a Social Responsibility Dimension.**

The current evaluation framework for cutting-edge courses remains highly homogeneous, posing a fundamental obstacle to the effective implementation of social responsibility cultivation. Most institutions continue to adhere to traditional evaluation paradigms—focusing primarily on the visual impact of student works, technical proficiency, and creative form—while completely neglecting core dimensions such as social responsibility, public value, and alignment with societal needs. This singular evaluation orientation leads students to prioritize visual and technological innovation at the expense of dedicated efforts to engage with public contexts and serve underprivileged populations. [5]

At the same time, course evaluation faces secondary issues, including a limited range of evaluators and an overemphasis on outcomes at the expense of the process. When course evaluations are conducted solely by course instructors—without the participation of key stakeholders such as non-profit organizations and service recipients—it becomes difficult to accurately assess the effectiveness of design proposals in addressing public issues. Moreover, by relying predominantly on summative evaluations that focus only on the final deliverables, such approaches overlook students' evolving understanding of social responsibility throughout the entire design process. This limitation undermines the educational suitability of cutting-edge courses and significantly hampers the effectiveness of value cultivation.

## **3. The Theoretical Foundation for Teaching Reform of Cutting-edge Design Courses Oriented Toward Social Responsibility**

### **3.1. Core Values of "Public Design" in Design Ethics**

The core theoretical foundation of this teaching reform is the public design theory within design ethics. Papadakis posits that "design is a social attitude; all design carries social impact and ethical responsibility," thereby establishing the core tenets of public design—"prioritizing the public interest, achieving full population coverage, and responding to social issues"—which distinguishes it from the capital-value-orientation of commercial design. Public design theory redefines the relationship between capability and value in the cultivation of design talent, rejects the utilitarian logic of design, and clarifies that the ultimate goal of design is to bridge social divides and enhance public well-being. The public-space renovation project for rural homestays in Shanzhu Village, Lishui, Zhejiang Province, utilized the public-design practices of a university design team to increase both the spatial utilization rate of the village and the income of local residents, thereby demonstrating the social value of public design. Simultaneously, the principle of inclusivity in

public design emphasizes attention to the differentiated needs of marginalized groups, such as the elderly and people with disabilities; this provides core guidance for the development of course modules and the creation of case resources, effectively correcting the educational bias that overemphasizes technical skills while neglecting value.

### **3.2. The Alignment Logic Between Project-Based Learning (PBL) and Value-Immersion Teaching**

The deep integration of Project-Based Learning (PBL) and value-immersive teaching provides a scientifically grounded implementation framework for fostering social responsibility. Dewey's educational philosophy—that "education is life, and education is the transformation of experience"—aligns closely with the core objectives of this reform: "cultivating talent through practice" and "imparting values through immersion." PBL is driven by real-world problems and encompasses the entire design process, while value-immersive teaching permeates every stage of student development; their combination effectively addresses the disconnect between value cultivation and professional education. From an implementation perspective, the five phases of PBL—needs assessment, research and analysis, solution iteration, and outcome implementation—allow for the precise integration of tiered value-cultivation content, ensuring that social responsibility awareness is embedded across all phases of the design process. Furthermore, PBL's emphasis on process-oriented and diversified evaluation mechanisms supports the establishment of a multi-dimensional evaluation system, thereby enabling a closed-loop operational model characterized by "value guidance → project practice → reflective iteration."

### **3.3. Laws Governing the Physical and Psychological Development of High-Level Competencies for Design Graduate Students**

Design education psychologist Simon Nicholson has pointed out that the graduate stage represents a critical phase for designers to achieve "value integration and professional identity construction"; at this stage, students are no longer content with merely acquiring skills—they increasingly aspire to explore the social value of design. A 2023 survey conducted by the Chinese Association for Design Education Research revealed that the majority of graduate students hope their curricula will address real-world societal issues and recognize designers' public social responsibilities; however, only a small number of them have participated in systematic training on designing solutions for public issues. This indicates a significant gap between the current educational offerings and the developmental needs of students. [6]

Graduate students develop higher-order cognitive abilities—including critical thinking, abstract reasoning, and problem integration—enabling them to gain a deep understanding of design ethics and complex issues in public design, thereby aligning with the cultivation logic of the three-tier educational framework. Simultaneously, students are in a transitional phase from being students to becoming professional designers; the value perceptions they acquire during this stage will shape their long-term professional orientation. According to adult constructivist learning theory, value cultivation should be grounded in immersion in

authentic scenarios rather than relying on one-way theoretical instruction.

#### **4. A Reconstructed Framework for the Three-Dimensional Teaching Model: "Value Orientation – Project Practice – Reflective Iteration"**

To address the current shortcomings in talent cultivation within cutting-edge design courses, this reform leverages three core theoretical foundations to reconstruct a three-dimensional teaching model—"value orientation, project-based practice, and reflective iteration"—thereby achieving deep integration of knowledge delivery and value cultivation, and precisely aligning with both industry talent demands and the developmental patterns of students.

The value-guidance module serves as the foundation for student development, with its core objective being the restructuring of the curriculum content system. By moving away from the traditional model of merely appending social responsibility content, this module integrates public design ethics and social responsibility theories throughout the entire curriculum cycle. It also develops specialized thematic modules addressing key public issues—such as carbon peaking and carbon neutrality, rural revitalization, and community renewal—thereby addressing the current shortcoming of insufficient coverage of public issues within the curriculum. This approach aims to fundamentally rectify the cognitive bias of "emphasizing skills while neglecting values."

The project practice module serves as the cornerstone of student development, with a focus on establishing practical platforms based on real-world scenarios. By collaborating with government agencies and non-profit organizations, the module creates mechanisms to align with actual societal needs, thereby consistently generating public design project topics. It also conducts empathy-driven research training for underprivileged groups to cultivate students' empathetic thinking and a public-oriented perspective. Furthermore, the module employs interdisciplinary team-based collaboration models, integrating multidisciplinary resources to address complex public design challenges. This approach overcomes the limitations of purely theoretical classroom instruction, transforming students' awareness of social responsibility into tangible practical capabilities.

The reflective iteration module establishes a closed-loop educational framework, focusing on the internalization and enhancement of students' professional competencies. It establishes a dedicated discussion mechanism for social responsibility across the entire design process, implements user feedback-driven iterative training programs, and integrates personal reflective journals as guiding tools. Through continuous review, optimization, and reflection, students internalize external social responsibility requirements into stable professional qualities, thereby achieving comprehensive growth—from skill acquisition to value cultivation.

#### **5. Restructure the Content Framework of Cutting-edge Design Courses**

##### **5.1. Development of the Public Issues Theme Design Module**

This reform is centered on public needs, breaking away

from a commercially driven curriculum framework. Focusing on two key national strategies—achieving the "dual carbon" goals and advancing rural revitalization—it has developed targeted thematic design modules covering specialized areas such as low-carbon retrofitting, zero-carbon transformation, rural revitalization, intangible cultural heritage design, and age-friendly facility design. These initiatives transform macro-level policy requirements into actionable, micro-level design tasks. For instance, the "dual carbon" energy consumption reduction targets are translated into design tasks involving the selection of low-carbon materials for rural packaging and the implementation of waste resource recovery designs; similarly, the requirements for building "harmonious and beautiful villages" are converted into research projects focused on optimizing rural community facilities and designing tailored services for left-behind populations.

##### **5.2. Pathways for Hierarchical Integration of Design Ethics and Social Responsibility Theories**

This reform moves away from the traditional single-session theoretical lecture model by systematically integrating theories of design ethics and designers' social responsibility throughout the entire course cycle. In the course introduction phase, thematic seminars on design ethics are conducted around public issues, utilizing authentic local project cases to help students establish an initial understanding that "design serves the public interest." During the project initiation phase, a pre-screening mechanism for design ethics is implemented; through a three-dimensional evaluation matrix—covering environmental impact, the rights of vulnerable groups, and public interest—a preliminary compliance review of design proposals is conducted to eliminate ethical deviations. In the course conclusion phase, a reflective review session on social responsibility awareness is organized, combining reflective journals with public design theory to facilitate a deeper conceptual understanding.

##### **5.3. Development of a Local Design Case Repository**

To address the issue of an over-reliance on external case studies in the curriculum coupled with insufficient local adaptability, this reform initiative has established a localized design case repository. The repository focuses on key domains—including rural revitalization, community renewal, accessibility design, and low-carbon innovation—and compiles over 100 high-quality, implementable case studies, such as Tsinghua University's "Fire Pit Project," the tactile design project from the Central Academy of Fine Arts, and low-carbon cultural and creative design initiatives in eastern Guangdong. These cases span all design disciplines, each accompanied by a comprehensive documentation encompassing the contextual requirements, design rationale, implementation outcomes, and user feedback. Additionally, a social value weighting scoring model has been developed to filter high-quality cases based on four criteria—public relevance, inclusivity, environmental sustainability, and practical effectiveness—thereby ensuring pedagogical value. The repository operates under an annual dynamic update mechanism, incorporating new local case studies from cutting-edge fields each year. These cases are tailored to diverse instructional scenarios—such as course introduction, project practice, and reflective seminars—providing core resource support for fostering value-based education.

## **6. Project Practice Module: Building a real-world scenario-based social responsibility design practice platform**

### **6.1. Multi-party Coordinated Mechanism for Aligning Actual Needs**

To bridge the gap between classroom education and societal needs, we routinely solicit real-world demands from the public in the field of public design. Over the past two years, we have accumulated a variety of requests—including rural spatial renovation, age-friendly facility upgrades, and barrier-free wayfinding design. By applying a three-dimensional screening process—evaluating maturity, suitability, and feasibility—we identify actionable projects that align with our curriculum objectives. Through multi-stakeholder collaboration, we clarify the boundaries of requirements, adhere to relevant policy standards, and establish practical implementation safeguards. This approach ensures that student design proposals are both feasible and verifiable, thereby moving beyond virtual project-based training models and achieving dual empowerment: enhancing professional competencies while creating tangible social value.

### **6.2. Empathic Design Research Training for Vulnerable Populations**

This reform moves away from superficial questionnaire-based surveys by introducing immersive empathy-driven research training. Students are encouraged to step beyond an elite design perspective and engage in experiential research within the daily living environments of underprivileged groups. Through the use of simulated elderly devices, full-process field accompaniment, in-depth interviews, and visual documentation, the program identifies the latent needs of elderly individuals, people with disabilities, and rural left-behind populations. In accessibility facility and rural livelihood design projects, this immersive experience enabled 82% of students to identify human-centered shortcomings in their original design proposals, thereby fundamentally addressing the issue of "subjective, assumption-driven design." By integrating the cultivation of social responsibility into the foundational stages of research, this training allows students to gain firsthand insight into the value of design in improving the lives of vulnerable groups, thereby fostering an empathetic approach to public design thinking. [7]

### **6.3. Organizational Model for Interdisciplinary Collaborative Projects**

Given the complexity of public design challenges, the course adopts a cross-disciplinary team-based collaboration model. Each team comprises students from multiple disciplines, including product design, materials engineering, and environmental art, who are assigned specific responsibilities for form design, needs assessment, policy alignment, and feasibility analysis of implementation, thereby mitigating the limitations inherent in a single design perspective.

## **7. Practical Case Study on Teaching Model Reform: Design of an Integrated Cleaning and Degradation Machine Based on the Circular Utilization of Orchard Residual Materials**

### **7.1. Pre-class: Preliminary Introduction to Social Responsibility Awareness**

The course breaks away from the traditional teaching logic of prioritizing skills before cognition, instead making the introduction to social responsibility the core component of the pre-class phase. By screening documentaries centered on social transformation, interpreting Papannak's theory of design ethics, and presenting preliminary survey data on graduate students' awareness of social responsibility, students gain a clear understanding of the current shortcomings in design education and their own cognitive misconceptions. At the same time, by deconstructing exemplary cases of local community renewal and rural revitalization and analyzing the balance between design aesthetics and the public interest, the course helps students develop the core understanding that "design serves society," thereby establishing a value-based foundation for subsequent practical instruction.

### **7.2. In-Class Session: Real-World Scenario Research and Solution Iteration**

This course centers on the resource recovery and circular utilization of agricultural and forestry waste in orchards as its core framework. It establishes interdisciplinary teams to engage with orchard operators and grassroots agricultural service stations, addressing key rural public needs—such as the management of orchard residue pollution and the enhancement of green production quality. Students are required to conduct field-based research and in-depth interviews with fruit growers and agricultural technicians to identify operational pain points and production constraints in orchards that cannot be adequately captured through documentary research alone. Based on feedback from frontline practitioners, students undertake multiple rounds of solution iteration, optimizing equipment configurations and production processes around two core dimensions: low-carbon material selection and waste resource recovery. Through the application of multi-criteria evaluation models, they continuously refine their designs, thereby breaking away from traditional design training paradigms that prioritize commercial product development. This approach guides students to cultivate a sense of social responsibility aligned with national strategic objectives through practical fieldwork in rural settings.

### **7.3. Post-Class: Outcome Simulation and Diversified Evaluation Feedback**

In the later stages of the course, students completed the design deliverables of an integrated orchard residue cleaning and degradation machine, along with scenario-based performance simulations, resulting in comprehensive design renderings, system proposals, and process specifications. They also conducted proposal consultations for fruit growers and grassroots agricultural technicians. A multi-stakeholder evaluation framework—comprising fruit growers, end-users, and instructors—was established to conduct comprehensive

assessments based on criteria such as requirement alignment, circular economy benefits, low-carbon compatibility, and rural inclusivity; the overall approval rate for the proposed solutions reached 86.3%. Simultaneously, a long-term feedback mechanism was implemented, whereby optimization suggestions from fruit growers—regarding field access, operation, and maintenance—were continuously

integrated into iterative refinements of the solutions. This approach broke away from the traditional "handover-and-done" closed-loop model, enabling students to gain firsthand insight into the social value of their designs in supporting the dual carbon goals and fostering green agricultural development in rural areas, thereby consolidating their capacity for social responsibility in addressing public issues.



Figure 7-1 and 7-2 Design of a Sweeping and Degrading Integrated Machine for Orchard Residue Recycling

Note: This design is a course assignment of Frontier Design by Zhong Yiting and Huang Yahui, 2025. Used with the designers' permission, under faculty supervision.

Figure 1. Design of a sweeping and degrading integrated machine for orchard residue recycling

## 8. Future Outlook

### 8.1. Digital Technology: Empowering New Pathways for Social Responsibility Design

In the future, digital technologies such as large language models, VR simulation, and blockchain can be leveraged to optimize practical scenarios for fostering social responsibility. Data analysis tools can be used to precisely identify public needs; VR technology can be employed to create immersive simulations of usage scenarios for underserved groups; and blockchain can be utilized to enable full-cycle traceability and feedback for public design projects. This will reduce the cost of trial and error in practice, broaden the scope of public design education, and achieve a deep integration of technological empowerment and value-based education.

### 8.2. Facilitating the Dual Upgrading of the Design Discipline: "Educational Cultivation + Innovation"

This curriculum reform is driving the design discipline to shift from the cultivation of isolated skills toward a dual-dimensional educational approach integrating "values + competencies," enabling design innovation to transcend the constraints of commercial traffic and instead focus on addressing societal and public challenges. By leveraging value-based guidance to empower design innovation, this initiative aligns the fundamental mission of fostering virtue through education with the innovative development of the

discipline, thereby providing sustained momentum for the high-quality development of the design discipline in the new era and for the cultivation of high-caliber, socially responsible design professionals.

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Project of Degree and Postgraduate Education Teaching Reform, Jingdezhen Ceramic University, 2024 "Teaching Reform and Practice of the Frontier Design Research Course Integrating Environmental Friendliness and Social Responsibility under the Background of Social Innovation".

## References

- [1] Yuan, H. Y., Huang, Y. Y., & Yi, Z. Z. (2025). Instructional design based on the scientific essence of cutting-edge disciplines. *Bulletin of Biology*, 60(5), 21–24.
- [2] Lin, H. H. (2025). Design and implementation of project-based teaching integrated with cutting-edge technology: A case study of "Fundamentals of Organic Chemistry" [Master's thesis, Jiangxi Normal University].
- [3] Fan, F. L. (2024). Research on the cultivation of social responsibility awareness among college students from the perspective of micro-public welfare [Master's thesis, Shanxi University of Finance and Economics].
- [4] Pan, J. (2024). Research on the cultivation of social responsibility awareness among college students in the new era [Master's thesis, Dali University].

- [5] Xue, Y. X. (2024). Research on the cultivation of social responsibility awareness among college students [Master's thesis, Harbin University of Science and Technology].
- [6] Chen, J. M., Gong, B. G., & Wang, F. L. (2023). Research on course instruction design for "Strategic Management" from academic and practical frontier perspectives. *Journal of Shaoxing University*, 43(6), 81–86.
- [7] Dong, W. W. (2022). Research on the social responsibility awareness of college students in the new era and its cultivation pathways [Master's thesis, Harbin Engineering University].