

Organizational Coordination Mechanisms and Resource Integration Strategies for Interdisciplinary Talent Training in Universities

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Abstract: Cultivating interdisciplinary talents is a pivotal initiative to address technological convergence and industrial transformation. It breaks down disciplinary silos and nurtures innovative individuals with diverse competencies. However, universities currently face multiple challenges in interdisciplinary talent development, which constrain both the quality and scale of such programs. Drawing on the core needs of universities for interdisciplinary talent cultivation, this paper analyzes shortcomings in existing organizational coordination and resource integration frameworks. It constructs an organizational coordination mechanism from three dimensions: system development, institutional setup, and process optimization, and proposes resource integration strategies covering four key areas: faculty deployment, curriculum design, platform construction, and fund allocation. This study aims to provide practical references for universities to advance interdisciplinary talent development and enhance the alignment between talent training outcomes and real-world demands.

Keywords: Universities; Interdisciplinary talent development; Organizational coordination mechanism; Resource integration

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1. Introduction

For decades, disciplinary fragmentation and compartmentalized management models in universities have hindered effective organizational coordination for interdisciplinary training. Concurrent deficiencies in resource integration, such as scattered faculty resources, disconnected curriculum structures, and inadequate sharing of teaching platforms, have further compounded these challenges. Amid the drive toward high-quality development in higher education, establishing efficient organizational coordination mechanisms and formulating scientific resource integration strategies have become critical to helping universities overcome bottlenecks in interdisciplinary talent training and innovate their educational models. Against this backdrop, this paper conducts a systematic exploration of organizational coordination pathways and resource integration approaches for interdisciplinary talent development, offering actionable support for university practice.

2. Core requirements for organizational coordination and resource integration in university interdisciplinary talent development

2.1. Core requirements for organizational coordination

Interdisciplinary talent cultivation involves multiple colleges, academic programs, and functional departments, imposing multifaceted demands on organizational coordination. From a decision-making perspective, a unified decision-making mechanism must be established to clearly define program goals, development plans, and implementation pathways, preventing fragmented efforts and directional discrepancies among departments. In terms of execution, efficient collaboration across colleges and departments is essential to dismantle disciplinary barriers and ensure the effective implementation of interdisciplinary training programs. From a supervision standpoint, a dynamic monitoring and evaluation mechanism should be constructed to track program progress and quality, enabling timely strategic adjustments. Additionally, clarifying the roles, responsibilities, and authority of all participating entities is critical to avoiding low collaboration efficiency or responsibility shirking due to ambiguous accountability.

2.2. Core requirements for resource integration

Interdisciplinary talent development relies on the in-depth integration of multidisciplinary resources, necessitating targeted resource integration efforts. For faculty resources, it is imperative to break down college-based ownership constraints, integrating teachers from diverse disciplines into interdisciplinary teaching teams to provide students with comprehensive guidance. In curriculum development, core knowledge and skills from different disciplines should be integrated to build a cohesive interdisciplinary curriculum system, eliminating content redundancy or fragmentation. Regarding platform resources, hardware facilities such as laboratories, research centers, and practice bases need to be consolidated to support interdisciplinary learning and research. For financial resources, funding sources must be coordinated to meet the needs of interdisciplinary training, including curriculum development, faculty development, and platform maintenance, avoiding inefficient use of scattered funds.

3. Current shortcomings in organizational coordination and resource integration for interdisciplinary talent development

3.1. Rigid organizational coordination mechanisms and low collaboration efficiency

Existing organizational coordination frameworks fail to meet the demands of interdisciplinary training. Structurally, most universities adopt a compartmentalized management model centered on colleges, lacking specialized oversight bodies for interdisciplinary programs. As a result, coordination relies primarily on ad-hoc communication, lacking systematicity and stability. Decision-making for interdisciplinary initiatives requires cross-departmental participation but lacks standardized processes, often leading to disagreements and delayed decisions. In practice, inter-college interest barriers further hinder progress: some colleges are reluctant to participate in interdisciplinary programs due to concerns about resource diversion and potential impacts on institutional rankings, resulting in suboptimal collaborative outcomes.

3.2. Insufficient resource integration and inefficient allocation

Fragmented resource integration constrains the quality of interdisciplinary training. For faculty integration, teacher evaluation and promotion systems remain college-centric, with limited weight assigned to interdisciplinary teaching and research achievements. This reduces teachers' motivation to engage in interdisciplinary work, impeding cross-college faculty mobility and collaboration. In curriculum integration, course development and management are dominated by individual colleges, leading to a lack of systematic planning for interdisciplinary courses. Poor connectivity between course contents and the "formalization" of some interdisciplinary offerings prevents in-depth knowledge integration. For platform resources, most laboratories and practice bases are owned by specific colleges, with underdeveloped sharing mechanisms. Interdisciplinary students face cumbersome approval processes to access these facilities, and high access thresholds for

advanced platforms further limit their utility for interdisciplinary training.

3.3. Lack of support mechanisms and challenges to sustained implementation

The absence of supporting mechanisms hinders the long-term viability of interdisciplinary training. Institutionally, there is a lack of specialized policies governing interdisciplinary programs, such as standards for establishing interdisciplinary majors, management guidelines for interdisciplinary teachers, and detailed training protocols for interdisciplinary students, leaving practical implementation without clear guidance. Incentivizing participation is another gap: teachers receive insufficient recognition for the additional effort invested in interdisciplinary teaching, and colleges see little return on resources allocated to such programs, dampening enthusiasm. Additionally, the lack of professional service teams means administrative tasks (e.g., curriculum alignment, credit recognition, student management) are often handled by part-time faculty or college staff, leading to inefficiencies and potential oversights.

4. Construction of an organizational coordination mechanism for interdisciplinary talent development

4.1. Establish a multi-level decision-making and coordination framework

A three-tiered decision-making and coordination system, “University - Interdisciplinary Center - College,” should be established to achieve holistic management and hierarchical implementation. At the university level, an interdisciplinary talent development leadership team, led by senior administrators and comprising heads of academic affairs, human resources, research, and colleges, will formulate overall strategies, policies, and resource allocation plans. An interdisciplinary talent development center will serve as a permanent coordination body, responsible for daily operations such as program validation, inter-college collaboration facilitation, and progress tracking. At the college level, interdisciplinary working groups will implement university and center initiatives, organize faculty participation in interdisciplinary teaching, and coordinate curriculum delivery and student management.

4.2. Improve collaborative execution and supervision evaluation mechanisms

Collaborative execution processes should be optimized by clarifying the roles and boundaries of each entity. Detailed guidelines for cross-departmental collaboration will specify that the Academic Affairs Office handles interdisciplinary program registration and credit recognition, the Human Resources Office oversees teacher evaluation and incentives, the Research Office manages shared research platforms, and colleges lead curriculum development and teaching implementation, ensuring a clear division of labor and orderly collaboration. A project responsibility system will be established, assigning dedicated leaders to each interdisciplinary program to coordinate faculty, curriculum, and platform resources, avoiding fragmented management. A dynamic monitoring and evaluation mechanism, featuring specialized indicators (e.g., program rationality, curriculum integration, faculty collaboration effectiveness, student satisfaction), will be implemented through joint assessments by the interdisciplinary center and third-party institutions. Evaluation results will serve as key criteria for resource allocation and college performance reviews, driving continuous program improvement.

4.3. Refine authority, responsibility, and interest balancing mechanisms

Clearly defining the authority, responsibilities, and interest distribution of all stakeholders is essential to motivating collaboration. A formal list of powers and responsibilities will clarify the roles of the university, center, and colleges in setting program goals, developing curricula, allocating resources, and determining achievement ownership, eliminating overlaps or gaps. An interest-balancing mechanism will be introduced: interdisciplinary teaching hours and student mentorship outcomes will be weighted more heavily in teacher evaluations; colleges with outstanding interdisciplinary performance will receive additional resource support; and interdisciplinary teaching and research achievements will be

jointly owned by participating colleges, preventing disputes that could undermine collaborative enthusiasm (**Table 1**).

Table 1. Simplified table of organizational coordination mechanisms for interdisciplinary talent development

Mechanism construction dimensions	Core objectives	Specific measures
Multi-Level Decision-Making and Coordination	Holistic management and hierarchical implementation	University: Establish a leadership team to develop strategies and policies; Center: Set up a permanent coordination body for daily operations; College: Form working groups to implement initiatives and coordinate management
Collaborative Execution and Supervision Evaluation	Clarify accountability and dynamic oversight	Optimize collaboration processes and define departmental roles; Implement a project responsibility system for resource coordination; Develop a dynamic evaluation mechanism with third-party participation
Authority, Responsibility, and Interest Balancing	Clarify roles and motivate engagement	Formalize a list of powers and responsibilities; Enhance evaluation incentives and targeted resource allocation; Standardize shared ownership of interdisciplinary achievements

5. Resource integration strategies for interdisciplinary talent development

5.1. Build interdisciplinary teaching teams

To break down inter-college faculty barriers and optimize resource integration, a cross-college faculty recruitment and mobility mechanism will be established. Teachers will be allowed to teach interdisciplinary courses across college boundaries, with the Human Resources Office providing policy support for faculty appointments and promotions to prevent institutional restrictions on mobility. Structured interdisciplinary teaching teams will be formed based on program needs, with clear roles for leaders and members to collaborate on curriculum development, teaching delivery, and student guidance. An enhanced incentive system will recognize interdisciplinary contributions, including curriculum development, teaching, and mentorship, in faculty workload calculations, with priority consideration for promotions and awards.

5.2. Develop an interdisciplinary curriculum system

Systematic curriculum planning is critical to achieving in-depth multidisciplinary integration. An interdisciplinary curriculum development committee, consisting of experts and teacher representatives from diverse disciplines, will formulate program plans and validate curriculum designs to ensure scientific rigor and integration. A “Foundation + Core + Module” curriculum structure will be adopted: foundational courses will focus on interdisciplinary general knowledge and critical thinking; core courses will integrate key theories and methods from multiple disciplines; and modular electives will be tailored to student interests and career goals, avoiding fragmented learning. An interdisciplinary curriculum sharing platform will be established to eliminate inter-college enrollment restrictions, allowing students from all majors to access cross-disciplinary courses.

5.3. Construct shared support platforms

Comprehensive planning of platform resources will enhance sharing efficiency and utility. An interdisciplinary shared platform system will integrate university-level resources, including laboratories, research centers, libraries, and practice bases, managed by a dedicated interdisciplinary platform administration center to eliminate college-based access barriers. An open sharing mechanism will be implemented, featuring published access schedules, prioritized access for interdisciplinary programs, and streamlined approval processes through an online reservation system. Professional technical support will be provided for advanced equipment to ensure safe and effective use by interdisciplinary students.

5.4. Establish a centralized fund management model

Coordinating funding sources is essential to achieving efficient resource utilization. A dedicated interdisciplinary talent development fund will be established, with centralized allocation from university finances to support curriculum development, faculty training, platform maintenance, and student scholarships, avoiding inefficient use of scattered college funds. A centralized fund allocation mechanism will be developed by the interdisciplinary center, prioritizing support for programs with clear goals and feasible plans. A dynamic fund adjustment system will allow for real-time reallocation based on program progress and performance, ensuring alignment between funding use and training needs.

6. Conclusion

Interdisciplinary talent development in universities is a complex, systematic endeavor whose success hinges on efficient organizational coordination mechanisms and scientific resource integration strategies. Current challenges, including fragmented collaboration and insufficient resource integration, can be addressed through the establishment of multi-level decision-making bodies, improved collaborative execution and evaluation systems, and integrated management of faculty, curriculum, platforms, and funds. Moving forward, as interdisciplinary practice deepens, universities must continuously refine their coordination and integration models, tailoring approaches to their unique positioning and strengths. By doing so, they can provide robust support for cultivating compound innovative talents capable of meeting the demands of an evolving society.

Disclosure statement

The author declares no conflict of interest.

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