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# Optimization of Talent Training Path for Archival Science Major from the Perspective of School-Enterprise Cooperation

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**Abstract:** Archives serve as vital records of social development, playing crucial roles in national governance, economic development, and cultural preservation. With the rapid advancement of information technology, archival management faces urgent demands for digitalization and intelligent transformation, which imposes higher requirements on the knowledge structure and competency levels of archival science professionals. University-industry collaboration can integrate corporate practical experience with academic theoretical education, injecting fresh vitality into archival talent cultivation. This study examines current challenges in archival education through the lens of industry-academia partnerships, proposing optimization strategies including: establishing collaborative platforms and training bases, jointly developing curriculum resources and teaching modules, enhancing practical training and innovation capabilities, promoting industry-academia integration and research collaboration, and refining quality evaluation and feedback mechanisms. The aim is to build a professional archival education system aligned with societal needs through deepened industry-academia cooperation.

**Keywords:** university-industry collaboration; archival science program; talent cultivation; pathway optimization; industry-education integration

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## 1. Introduction

Archival work has been playing an increasingly vital role in safeguarding national security, preserving historical and cultural heritage, and serving social welfare. With the emergence of innovative archival management models such as digital archives and smart archives, societal demands for archival professionals have undergone profound transformations. Traditional archival education systems have long emphasized theoretical knowledge dissemination while neglecting the cultivation of emerging technologies and practical skills, resulting in graduates' limited competitiveness in the job market. It is imperative to innovate talent development models for archival disciplines to nurture high-caliber professionals aligned with contemporary needs. This study explores school-enterprise collaboration models, integrating corporate practical experience and technological expertise into archival education processes.

## **2. Talent Training Objectives for Archival Science Majors**

Archival science is an applied social science that conducts research on the nature, functions, formation patterns, management methods of archives and archival work, as well as the development and utilization of archival information resources. With the continuous advancement of social informatization, data-driven practices, and knowledge economy, the scope of archival science research has expanded beyond traditional paper-based archive management to include cutting-edge fields such as electronic document management, long-term preservation of digital archives, digital humanities, data governance, and knowledge services. The core objective of archival science lies in ensuring the complete, authentic, and long-term accessibility of social memory preservation. Through in-depth mining of archival information resources and knowledge-based organization, it provides services for government decision-making, economic development, cultural heritage preservation, and public information needs. The talent cultivation goals for archival science programs exhibit multi-level characteristics: Students should acquire solid theoretical foundations in archival science and modern management knowledge, master information technology and professional archival management skills, thereby becoming top-tier management professionals who “understand operations, data analysis, application implementation, and management practices.” Graduates should be capable of working in archival departments, information divisions, and secretarial offices across various levels of archives bureaus (libraries), Party and government agencies, military organizations, enterprises, and institutions, engaging in document management, archival administration, information resource development and services, as well as comprehensive office operations. Students must not only master core professional knowledge such as archival management, documentation science, and archival preservation technology, but also be familiar with the policies, laws, and regulations established by the Party and the state in information resource management. Additionally, they should understand the theoretical frontiers and developmental trends of archival science both domestically and internationally <sup>[1]</sup>.

## **3. Current Issues in Talent Cultivation for Archival Science Majors**

### **3.1. Outdated Curriculum System and Knowledge Updates**

The current archival science curriculum framework has failed to keep pace with technological advancements and digital transformation in the industry, exhibiting delays in both curriculum design and knowledge updates. Many universities still prioritize traditional archival practices such as document organization, preservation, and compilation, while neglecting cutting-edge topics like digital archive infrastructure development, long-term electronic document preservation, and data governance. The curriculum exhibits a “theory-heavy, practice-light” structure with insufficient practical course integration and weak connections to theoretical instruction. Content updates remain sluggish, textbook obsolescence persists, and the field struggles to incorporate emerging archival research findings and industry standards, creating a knowledge gap between academic learning and workplace demands. Some institutions also face issues like redundant course offerings and inadequate new curriculum development, resulting in a fragmented and short-sighted educational system that fails to equip students with comprehensive knowledge structures capable of addressing digital era challenges.

### **3.2. Shortcomings in Faculty Strength and Teaching Resources**

The archival science faculty faces challenges including insufficient numbers and structural imbalances. On one hand, the shortage of high-level professionals in archival science persists, with universities encountering difficulties in recruiting young faculty members who possess both academic excellence and expertise in cutting-edge information technologies, resulting in inadequate recruitment of fresh talent. On the other hand, existing faculty members face pressure to adapt their knowledge structures, as many researchers and educators remain focused on traditional archival disciplines while lacking sufficient expertise in emerging interdisciplinary fields such as big data, digital humanities, and information system development. This knowledge gap hinders their ability to effectively guide students in cross-disciplinary innovation activities. Regarding teaching resources, high-quality experimental training platforms remain scarce. Given the sensitive

and physical nature of archival management, universities often struggle to establish on-campus practice bases with authentic, extensive, and diverse archival resources. Current laboratories are predominantly limited to basic software operation drills, lacking comprehensive simulated work environments and project-based training frameworks that replicate real-world scenarios <sup>[2]</sup>.

### **3.3. Insufficient Practical Teaching and Innovation Ability Cultivation**

The practical teaching components of archival science programs have long suffered from structural deficiencies, continuity gaps, and holistic shortcomings, resulting in students' weak ability to integrate theory with practice. Practical training is often reduced to short-term graduation internships or fragmented course experiments, lacking progressive, systematic designs that cover professional cognition, skill development, and comprehensive innovation. Internship programs frequently become mere formalities, with students mostly engaged in basic archival tasks like document sorting and binding. Opportunities for hands-on involvement in core operations such as digital archiving projects, information resource development, and archival system design remain scarce, creating a significant disconnect between practical content and educational objectives. Evaluation mechanisms for practical teaching remain inadequate, predominantly relying on internship reports and institutional certifications without process-oriented assessments or feedback mechanisms to measure actual skill enhancement. These systemic weaknesses directly hinder the cultivation of students' innovative capabilities, as they rarely get opportunities to apply multidisciplinary knowledge in real-world or highly simulated project environments to identify, analyze, and solve complex archival challenges.

## **4. Talent Cultivation Path for Archival Science Majors from the Perspective of University-Enterprise Cooperation**

### **4.1. Joint Construction of Cooperation Platforms and Bases**

Higher education institutions should strengthen strategic partnerships with national comprehensive archival repositories at all levels, specialized archival management organizations, corporate archives departments of large enterprises, and digital archiving technology companies to jointly establish a three-in-one platform system comprising "on-campus simulation laboratories + off-campus practice bases + joint R&D centers." Within campuses, institutions should collaborate with enterprises to develop highly simulated "digital archival management training rooms" or "smart archive simulation platforms," integrating mainstream industry-standard management software and hardware equipment. This enables students to acquire practical skills in electronic document archiving, digital processing of archival materials, and operational management of archival systems through authentic learning environments. Externally, systematic development of high-quality off-campus talent training bases is essential to transform collaborative models from simple internship programs into comprehensive "full-process participation and deep integration." For instance, Beijing Union University has partnered with the Beijing Municipal Archives Administration to establish a "Demonstration Off-Campus Talent Cultivation Innovation Practice Base." This facility serves not only as an internship venue but also as a shared platform for curriculum development, faculty training, and research projects. Collaborative platforms should implement regular communication mechanisms, such as establishing a "Professional Development Advisory Committee" to regularly analyze industry talent demands, jointly formulate and revise talent cultivation plans, and ensure dynamic alignment between educational offerings and industrial needs. Collaborative platform development also facilitates resource sharing. Enterprises may open access to non-confidential archival data resources for schools to support teaching case development and research, while schools can provide technical consulting services and employee training programs to enterprises, thereby fostering a mutually beneficial ecosystem <sup>[3]</sup>.

### **4.2. Collaborative Development of Course Resources and Teaching Modules**

Schools and enterprises should engage in deep collaboration to jointly develop and update curriculum content, creating

course resources and teaching module systems that reflect industry frontiers and practical competencies. For emerging fields in archival digital transformation such as big data archival management, archival data security, digital humanities, and archival development, experts from enterprises and educators from schools can collaboratively design and deliver “micro-specialty” courses or workshop series, integrating the latest corporate practices, technical solutions, and real-world cases into classroom instruction. For traditional core courses like “Archival Management” and “Electronic Document Management,” regular industry-academia seminars should be organized to analyze industry standards (e.g., the “Electronic Document Archiving and Electronic Archival Management Standards”) and practical challenges. This includes revising syllabi, developing modular teaching materials, and compiling case studies to ensure curriculum relevance. For instance, real-world projects from enterprises regarding electronic invoice archiving and single-set management of government electronic documents could be transformed into teaching cases. Additionally, collaborative efforts should focus on building digital teaching resource libraries containing authentic (desensitized) business data, operational process videos, project documentation, and expert lecture recordings from industry professionals. These resources will enrich online teaching materials and support blended learning approaches as well as student self-directed learning.

### **4.3. Strengthening Practical Teaching and Innovation Ability Cultivation**

Under the framework of school-enterprise collaboration, a systematic restructuring of practical teaching systems should be implemented to deeply integrate innovation capability cultivation. The “project-based” practical teaching model can be adopted. Enterprises should introduce authentic, small-scale business projects (such as digitalization plan design for thematic archives, data analysis reports on archive utilization, or exhibition script writing) into curriculum design or internship programs. With joint guidance from corporate mentors and academic faculty, students complete the entire process from requirement analysis and solution design to implementation evaluation through team collaboration. This real-world problem-solving approach significantly enhances students’ practical skills and professional competencies. Innovative internship models should be developed, promoting apprenticeship systems or customized training programs. Collaborative efforts with enterprises to establish “order-based classes” or specialized programs can tailor training plans according to specific job requirements. Students subsequently undergo on-the-job internships while enterprises actively participate in performance evaluations and competency assessments. For instance, the “order-based” joint training seminar jointly organized by Zhengzhou Aviation Industry Management College’s Archival Science program and Zhongke Rixing (Henan) Digital Technology Co., Ltd. provided students with clear career pathways and practical opportunities. Joint efforts should be made to build “innovation and entrepreneurship practice platforms,” encouraging students to utilize collaborative bases between schools and enterprises to engage in projects such as archival cultural product development, design of archival management mini-programs, and entrepreneurial ventures in archival knowledge services. Enterprises can provide seed funding, technical guidance, and market validation channels, while schools offer theoretical instruction and incubation spaces, jointly fostering students’ innovative awareness and entrepreneurial capabilities <sup>[4]</sup>.

### **4.4. Promoting Industry-Education Integration and Scientific Research Collaboration**

Universities, enterprises, and archives can collaborate to apply for and undertake both vertical and horizontal research projects, jointly exploring cutting-edge issues in archival science such as long-term preservation technologies for digital archives, knowledge graph construction for archival data, and data governance models. Under the joint guidance of faculty and industry engineers, students participate as research assistants or project team members, receiving rigorous scientific training and gaining comprehensive understanding of technology development processes. This learning-through-research model not only yields innovative outcomes but also cultivates high-caliber interdisciplinary professionals. Jointly establishing “industry-academia-research-application” collaborative laboratories or engineering centers focuses on addressing technical challenges in the archival sector—such as optical character recognition applications in historical archives, intelligent restoration of audiovisual records, and smart monitoring systems for archive storage facilities—while advancing collaborative technology development and commercialization. These laboratories serve as training bases for

graduate students and outstanding undergraduates, exposing them to state-of-the-art technical tools and research topics. Additionally, a permanent “industry professor” or “visiting engineer” system should be implemented. Senior technical or managerial professionals from enterprises can be appointed as industry professors to deliver lectures, host cutting-edge seminars, and mentor graduation projects. Young faculty members should also be assigned to partner organizations for extended practical training programs, allowing them to accumulate industry expertise that enhances teaching quality<sup>[5]</sup>.

#### **4.5. Improve the quality assessment and feedback mechanism**

Establishing a dynamic evaluation and continuous improvement mechanism for talent cultivation quality based on school-enterprise collaboration ensures the formation of a closed-loop optimization cycle. At the entry stage, partner enterprises should participate in the development of talent training programs, clearly defining requirements for graduates’ knowledge, skills, and competencies, and translating these into measurable indicators. During implementation, adopt formative assessment through a “dual-mentor” system where university advisors and industry mentors jointly establish evaluation criteria for internships and project-based learning. Focus should extend beyond task completion to assess students’ problem-solving capabilities in complex scenarios, communication skills, teamwork abilities, and professional attitudes. Enterprise mentors’ evaluations should carry significant weight. At the exit stage, implement graduate tracking surveys and employer feedback systems. Regularly distribute questionnaires or conduct interviews with partner enterprises and employers to systematically collect feedback on graduates’ career performance, skill gaps, and knowledge needs. This feedback should be analyzed systematically to inform revisions of training objectives, curriculum optimization, and teaching methodologies. Third-party evaluations, such as industry association certifications of program quality, can be incorporated. Ultimately, establish a closed-loop quality assurance system comprising “industry needs assessment – curriculum design – teaching implementation – multi-stakeholder evaluation – continuous feedback improvement,” ensuring archival science talent development remains aligned with industry advancements.

### **5. Conclusion**

University-industry collaboration serves as an effective talent cultivation model that integrates corporate practical experience with academic theoretical instruction, infusing new vitality into archival science education. By establishing joint platforms and training bases, collaboratively developing curriculum resources and teaching modules, enhancing practical training and innovation capabilities, promoting industry-academia integration and research partnerships, and refining quality assessment and feedback mechanisms, this approach significantly improves professionals’ practical skills and innovative mindset, cultivating versatile archival talents aligned with societal needs. Universities must keep pace with contemporary developments, continuously deepen industry-academia cooperation, and build comprehensive talent development systems to provide robust support for the thriving growth of archival endeavors.

### **Disclosure statement**

The author declares no conflict of interest.

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