Article

Exploring Pathways for Academic Libraries' Participation in Cultural Heritage Digital Dissemination: An Artistic Resource-Centered Approach

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Abstract: ***Background:*** The implementation of China's National Cultural Digitization Strategy has made the digital dissemination of cultural heritage an important approach to cultural preservation, public engagement, and cultural value communication. Academic libraries have abundant artistic resources and digital infrastructures that provide unique advantages for contributing in this process. ***Purpose:*** This study explores the foundations, challenges, and implementation pathways of academic libraries in cultural heritage digital dissemination from an artistic resource-centered perspective. ***Methods:*** Drawing upon Lasswell's 5W Communication Theory, this study employs literature analysis and typical case illustrations to examine existing practices and construct a theoretical framework for cultural heritage digital dissemination in academic libraries. ***Results:*** The findings indicate that academic libraries benefit from strengths in artistic resource accumulation, digital platform development, and interdisciplinary collaboration. However, they continue to face challenges including resource fragmentation, content discontinuity, limited dissemination channels, insufficient public participation, and inadequate evaluation mechanisms. To address these issues, a five-dimensional implementation framework is proposed, comprising artistic resource integration, digital storytelling, multi-platform dissemination, public participation enhancement, and dissemination evaluation. ***Conclusion:*** Academic libraries should gradually transform from resource management institutions into active agents of cultural communication and knowledge services. By strengthening resource integration, communication innovation, public engagement, and dissemination evaluation, they can play a more significant role in promoting the preservation, dissemination, and value creation of cultural heritage in the digital age.

Keywords: Academic libraries; cultural heritage; digital dissemination; artistic resources; digital humanities

1. Introduction

The rapid development of digital technologies, artificial intelligence (AI), and networked communication environments has profoundly transformed the preservation, utilization, and dissemination of cultural heritage. Digitization has become a crucial approach to cultural heritage preservation and utilization, shifting the realization of cultural value from the traditional "collection–preservation" model to one characterized by "digitization–dissemination–sharing." In particular, under the continuous implementation of China's National Cultural Digitization Strategy, the digital dissemination of cultural heritage has emerged as an important means of promoting the creative transformation and innovative development of traditional Chinese culture, a core policy objective in China's contemporary cultural development strategy.

In 2022, the General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the Opinions on Promoting the

Implementation of the National Cultural Digitization Strategy, which proposed building a national cultural big data system and sharing digitized cultural resources with the public. The implementation of this strategy not only provides policy support for digital heritage preservation but also places new demands on cultural institutions to participate in digital dissemination. Meanwhile, emerging technologies such as generative artificial intelligence, big data analytics, knowledge graphs, and digital humanities are increasingly integrated into the construction and dissemination of cultural resources, driving cultural heritage dissemination toward more intelligent knowledge organization, personalized services, and data-driven communication(Ju, 2026; Wu et al., 2024; General Office of the Communist Party of China Central Committee & General Office of the State Council, 2022).

Within the ecosystem of cultural heritage dissemination, libraries, archives, and museums collectively constitute what are commonly referred to as memory institutions, undertaking essential functions in cultural preservation, knowledge organization, and public education. In recent years, museums have made significant progress in digital exhibitions, virtual displays, and immersive communication, while archives have gradually developed systems for digital archival access and online services. Compared with these institutions, academic libraries possess abundant artistic resources, including art literature, art archives, visual collections, and local cultural materials. They have also accumulated substantial experience in resource development, knowledge organization, and disciplinary services. However, their role and dissemination mechanisms in the field of cultural heritage digital dissemination have not yet received sufficient scholarly attention.

In fact, academic libraries already have a substantial foundation for participating in cultural heritage dissemination. Many have consistently promoted the digitization of distinctive collections through specialized databases, digital collection projects, and digital resource platforms, enabling long-term preservation and open access to cultural resources. Furthermore, influenced by developments in digital humanities, academic libraries are gradually transforming from traditional document-management institutions into platforms for knowledge organization and cultural communication. For example, libraries affiliated with art institutions have actively digitized art-historical materials, local cultural resources, and intangible cultural heritage collections, thereby forming distinctive artistic resource systems that provide important support for cultural heritage dissemination (Wang, 2022).

Nevertheless, current practices reveal several challenges. First, cultural resource construction remains highly fragmented, and insufficient interconnectivity among different resource platforms often creates “information silos” (Yang et al., 2022). Second, resource development primarily focuses on digital preservation and display, while capabilities related to knowledge organization and cultural interpretation remain relatively weak. As a result, cultural heritage resources have not yet been effectively transformed into knowledge products accessible to the general public (Xu et al., 2023). Third, dissemination channels and service scenarios remain relatively limited, while public participation mechanisms are insufficiently developed, constraining the broader social and educational value of cultural heritage resources (Li & Long, 2024). Furthermore, with the rapid advancement of generative AI, the question of how intelligent technologies can facilitate resource aggregation, semantic association, and personalized dissemination has become an emerging issue for academic libraries (Ju, 2026).

From the perspective of existing scholarship, research on cultural heritage digital dissemination has primarily focused on digital cultural heritage construction, digital humanities platforms, cultural resource knowledge organization, and AI-enabled cultural communication. Scholars have explored issues related to resource digitization, knowledge graph construction, digital storytelling, and intelligent services (Giaccardi, 2012; Parry, 2007; Terras et al., 2013). In contrast, studies within Library and Information Science (LIS) have largely concentrated on digital resource development, knowledge services, and smart library initiatives. Research examining how academic libraries can participate in

cultural heritage digital dissemination through artistic resources remains relatively limited, particularly in the development of systematic analytical frameworks for dissemination mechanisms.

According to Lasswell's (1948) classic communication model, the communication process consists of five essential elements: Who, Says What, In Which Channel, To Whom, and With What Effect. As one of the most influential theoretical frameworks in communication studies, the 5W model provides a comprehensive structure for analyzing communication processes. Cultural heritage digital dissemination is fundamentally a process of communicating cultural information, involving complex interactions among subjects, content, channels, audiences, and outcomes. Therefore, introducing Lasswell's 5W Communication Theory into the study of cultural heritage dissemination in academic libraries can facilitate a systematic examination of their institutional roles, resource organization strategies, and dissemination mechanisms, while also contributing to the development of an analytical framework centered on artistic resources.

Against this background, this study focuses on artistic resources in academic libraries and adopts Lasswell's 5W Communication Theory as its analytical framework. From the five dimensions of communication, the study examines the practical foundations and existing challenges of academic libraries' participation in the digital dissemination of cultural heritage. Based on this analysis, corresponding implementation pathways are proposed to provide both theoretical insights and practical guidance for the development of cultural resource utilization and digital dissemination systems in academic libraries.

2. Literature Review and Theoretical Foundation

2.1 Research on the Digital Dissemination of Cultural Heritage

As digital technologies, artificial intelligence, and immersive media advance, the preservation and dissemination of cultural heritage are undergoing profound transformations. Traditional approaches to cultural heritage preservation primarily emphasized physical conservation and archival management. However, advances in digital technologies have enabled cultural heritage to enter a new stage characterized by digital preservation, networked dissemination, and intelligent utilization. In its *Charter on the Preservation of Digital Heritage* (2003), UNESCO highlighted the critical role of digital technologies as essential infrastructures for the preservation and dissemination of cultural heritage.

In recent years, Digital Dissemination of Cultural Heritage has emerged as an important research area within Digital Humanities, Heritage Studies, and Library and Information Science. Existing studies can generally be categorized into three major directions.

First, research on the digital preservation of cultural heritage has continued to expand. Harisanty et al. (2024) conducted a bibliometric analysis and found that artificial intelligence, machine learning, knowledge graphs, and digital twin technologies are becoming key approaches to cultural heritage preservation. Research priorities have gradually shifted from digital preservation to knowledge discovery and intelligent management. Luther et al. (2023) further argued that digital twin technologies enable the digital reconstruction and dynamic management of cultural heritage objects, providing innovative solutions for long-term preservation and dissemination.

Second, research on digital exhibitions and immersive dissemination has developed rapidly. Jin and Liu (2022) proposed the concept of "Fluid Space," arguing that digital media transcend the spatial and temporal limitations of traditional heritage communication, allowing cultural content to circulate freely between physical and virtual spaces and enabling the reproduction and redistribution of cultural resources. A systematic review by Theodoropoulos and Antoniou (2022) further demonstrated that virtual reality (VR), augmented reality (AR), and gamified communication have become

important forms of cultural heritage dissemination, contributing significantly to user immersion and cultural identification.

Third, studies on dissemination mechanisms have increasingly emphasized public participation and collaborative communication. Digital dissemination is no longer confined to presenting resources but increasingly focuses on cultural meaning-making and value co-creation. Jin and Liu (2022) argued that digital dissemination has become a critical pathway for reconstructing the value of cultural heritage, with its primary objective extending beyond cultural display to fostering public understanding and cultural identity. Meanwhile, Digital Humanities research highlights the role of digital technologies in establishing semantic relationships among cultural resources and in facilitating knowledge discovery and value creation (Berry, 2012; Terras et al., 2013).

Overall, existing scholarship has established a relatively comprehensive framework encompassing digital preservation, digital exhibition, and digital dissemination of cultural heritage. However, research has predominantly focused on museums, archives, and public cultural institutions. Comparatively little attention has been paid to how academic libraries can participate in the digital dissemination of cultural heritage through their distinctive artistic resources.

2.2 Research on the Digitization of Artistic Resources

Artistic resources constitute an important component of cultural heritage and include art, literature, visual collections, archival materials, artworks, and related historical and cultural records. With the continuous advancement of digitization initiatives, the digitization of artistic resources has become a significant research direction within Library and Information Science, Museum Studies, and Digital Humanities.

International scholarship has primarily focused on the digital transformation of artistic resources and the reconstruction of knowledge systems. Klinke (2020) argued that digital technologies are transforming art historical research from traditional text-centered approaches toward digitally structured knowledge systems, positioning artistic resources as central objects of knowledge production in the digital humanities. Berry (2012) similarly emphasized that the Digital Humanities not only reshape the organization of cultural resources but also fundamentally transform mechanisms of knowledge production.

At the level of resource organization, Digital Humanities research highlights the importance of knowledge graphs, semantic linking, and metadata technologies. Terras et al. (2013) suggested that digital resources should be understood not merely as information objects but also as nodes within broader knowledge networks. With the development of artificial intelligence technologies, the organization of cultural resources is gradually shifting from resource-management-oriented approaches to knowledge-oriented models that facilitate cross-resource and cross-disciplinary knowledge discovery.

At the level of resource utilization, scholarly attention has increasingly shifted from resource construction to dissemination and value transformation. Jin and Liu (2022) argued that digital technologies enable artistic resources to transcend physical boundaries, thereby facilitating cross-platform dissemination and multi-scenario utilization. Harisanty et al. (2024) further noted that AI technologies are enhancing knowledge organization and intelligent services for cultural resources, creating new opportunities for resource dissemination and reuse.

Within China, academic libraries have actively explored the digitization of artistic resources. For example, the Beijing Film Academy Library has established a database of film and cinema periodicals to digitize and develop early film-related documents. The Sichuan Conservatory of Music Library has developed specialized resource platforms tailored to artistic disciplines, while Nanjing Normal University Library has promoted the integration of artistic resources and disciplinary services through its “Art Commons” initiative.

In summary, existing research has established a solid foundation for the digitization and organization of artistic resources. Nevertheless, there has been limited attention to how these artistic resources can be transformed into content for cultural heritage dissemination and how they can facilitate cultural value transmission and public engagement.

2.3 Research on Cultural Communication in Academic Libraries

In recent years, the functions of academic libraries have gradually evolved from traditional document management institutions into knowledge service platforms and cultural communication hubs. As a result, their role in cultural dissemination has attracted increasing scholarly attention.

Research on reading promotion has highlighted the expanding cultural communication functions of academic libraries through thematic reading programs, classic literature promotion, film-based reading activities, and digital reading initiatives. Zhang and Wang (2021) argued that visual and film-based reading promotion has become an important approach to cultural communication in academic libraries, contributing to enhanced user engagement and cultural identification.

In the field of digital dissemination, the development of digital libraries has enabled academic libraries to assume broader responsibilities in digital resource integration, providing knowledge services, and cultural communication. Williams (2023) argued that digital transformation is reshaping the service boundaries of academic libraries, shifting their role from resource management centers toward hubs for knowledge dissemination and digital services. Through a scientometric analysis of digital library research, Aboelmaged et al. (2024) further identified digital resource dissemination, knowledge sharing, and user participation as key developmental directions for contemporary digital libraries.

Research on intelligent services has increasingly focused on the transformative impact of artificial intelligence and generative AI on library services. Kalota et al. (2025) suggested that artificial intelligence, generative AI, and digital platforms are accelerating the transformation of libraries from resource-oriented service institutions into integral components of future knowledge ecosystems. Similarly, Kautonen and Gasparini (2024) emphasized the need for academic libraries to continually strengthen AI-related competencies to support digital knowledge services and innovative dissemination practices.

Overall, existing studies have primarily concentrated on reading promotion, knowledge services, and campus cultural development. Comparatively little attention has been devoted to how academic libraries can leverage artistic resources to participate in the digital dissemination of cultural heritage or to how systematic dissemination mechanisms can be established within this context.

2.4 Lasswell's 5W Communication Theory and Its Applicability

Lasswell's 5W Communication Theory was proposed by the American communication scholar Harold D. Lasswell in 1948. The model conceptualizes communication as a process consisting of five fundamental elements:

Who → Says What → In Which Channel → To Whom → With What Effect

These elements correspond to the communication subject, content, channel, audience, and effect (Lasswell, 1948).

As one of the most influential classical theories in communication studies, the 5W model provides a systematic framework for analyzing communication processes. McQuail (2010) argued that although the theory originated in the era of mass communication, its analytical value remains highly relevant for understanding communication elements and dissemination mechanisms in contemporary contexts.

Consequently, the model has been widely applied in studies of digital communication, public cultural communication, and cultural heritage dissemination (Figure 1).

The digital dissemination of cultural heritage is essentially a process of communicating cultural information with the primary objective of facilitating the transformation and public sharing of cultural value through digital technologies. From the perspective of the communication process, academic libraries can be regarded as the communication subjects (*Who*), while artistic resources constitute the communication content (*Says What*). Digital libraries, social media platforms, digital exhibitions, and other online communication environments function as communication channels (*In Which Channel*). Students, researchers, and the general public represent the communication audiences (*To Whom*), whereas cultural identity formation, knowledge sharing, public participation, and cultural value dissemination constitute the communication effects (*With What Effect*).

Therefore, Lasswell's 5W Communication Theory provides a comprehensive analytical framework for examining the participation of academic libraries in the digital dissemination of cultural heritage. It facilitates a systematic understanding of the interactions among communication subjects, content, channels, audiences, and outcomes, thereby offering a theoretical foundation for constructing the dissemination mechanism proposed in this study.

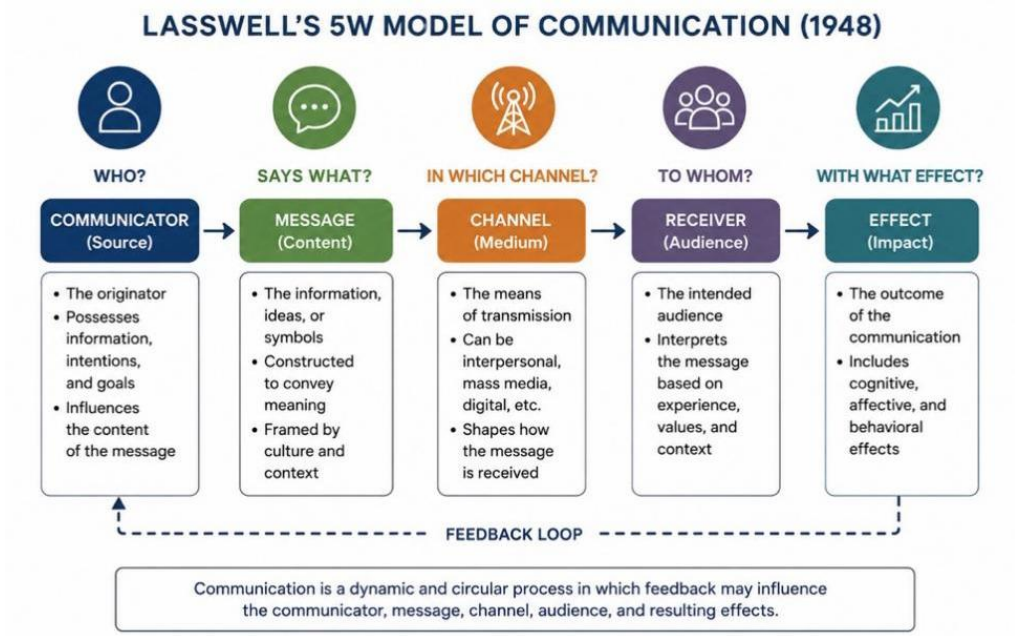


Figure 1. The Framework of Lasswell's 5W Communication Model
Note. Created by the author(s) based on Lasswell (1948).

3. Foundations and Challenges of Academic Libraries' Participation in the Digital Dissemination of Cultural Heritage

With the continuous implementation of China's National Cultural Digitization Strategy—a national initiative aimed at promoting the digitization, integration, and public sharing of cultural resources—the digital dissemination of cultural heritage has gradually become an important pathway for the activation and utilization of cultural resources. The digital dissemination of cultural heritage has gradually become an important pathway for the activation and utilization of cultural resources. As key cultural institutions integrating resource preservation, knowledge organization, cultural communication, and educational services, academic libraries are playing an increasingly significant role in the cultural heritage dissemination ecosystem. In recent years, developments in digital libraries, digital humanities, and artificial intelligence have created new opportunities for academic

libraries to disseminate cultural heritage. Nevertheless, practical challenges remain, including insufficient resource integration, fragmented dissemination content, and limited user participation. Therefore, it is necessary to examine both the existing foundations and the challenges associated with academic libraries' participation in the digital dissemination of cultural heritage.

3.1 Foundations

1) Advantages of Artistic Resources

Artistic resources constitute the primary foundation for academic libraries' participation in the digital dissemination of cultural heritage.

For decades, academic libraries have undertaken responsibilities related to the preservation of art literature, management of art archives, and development of distinctive collections. As a result, they have gradually established resource systems encompassing art books, scholarly journals, visual materials, archival records, and local cultural resources, including regional historical records, folk culture collections, and community heritage materials. With the advancement of digitization initiatives, a growing number of artistic resources have been digitally preserved and made openly accessible, providing a rich content base for the dissemination of cultural heritage.

Previous studies have suggested that the core of cultural heritage dissemination lies in the digital development and knowledge transformation of cultural resources (Harisanty et al., 2024). Digital resources serve not only as preservation tools but also as important vehicles for cultural communication. Klinke (2020) argued that, within digital environments, artistic resources have become important objects of knowledge production in the field of Digital Humanities, with their value extending beyond preservation to cultural dissemination and knowledge innovation.

From a practical perspective, projects such as the Film Periodicals Database of the Beijing Film Academy Library, the Artistic Resource Platform of the Sichuan Conservatory of Music Library, and the "Art Commons" initiative of Nanjing Normal University Library demonstrate that academic libraries have accumulated substantial artistic resources capable of supporting the dissemination of cultural heritage.

2) Advantages of Digital Platforms

After decades of digital library development, academic libraries have established relatively comprehensive digital resource service systems.

Aboelmaged et al. (2024) noted that digital libraries have evolved beyond the stage of resource digitization and entered a new phase characterized by knowledge services and digital dissemination. Most academic libraries have developed digital library platforms, institutional repositories, specialized databases, and social media communication platforms, enabling both the preservation and online dissemination of cultural resources.

At the same time, the integration of artificial intelligence, knowledge graphs, and digital twin technologies has further enhanced the functionality of digital platforms. Luther et al. (2023) argued that digital twin technologies enable dynamic visualization and interactive dissemination of cultural resources, thereby providing innovative technological support for cultural heritage communication. Harisanty et al. (2024) further emphasized that artificial intelligence is facilitating the transition of cultural heritage resources from static preservation toward intelligent management and knowledge discovery.

Consequently, digital platform development provides a critical technological foundation for academic libraries to engage in the digital dissemination of cultural heritage.

3) Advantages of Interdisciplinary Collaboration

Compared with museums and archives, one of the most distinctive strengths of academic libraries lies in their capacity for interdisciplinary collaboration within higher education environments.

Universities bring together expertise from disciplines such as art, design, history, library and information science, computer science, and digital media technology, thereby providing both intellectual and technological support for cultural heritage dissemination. The development of Digital Humanities has further accelerated interdisciplinary approaches to cultural heritage research (Berry, 2012; Terras et al., 2013).

Moreover, academic libraries are uniquely positioned to connect academic departments, research institutes, museums, and cultural organizations, thereby facilitating collaborative mechanisms for resource development, knowledge organization, and dissemination activities. Williams (2023) argued that, in the context of digital transformation, academic libraries are increasingly functioning as key nodes within broader knowledge ecosystems, creating value not only through resource management but also through knowledge collaboration and cultural communication.

Therefore, academic libraries possess unique advantages for establishing integrated ecosystems for the digital dissemination of cultural heritage.

3.2 Challenges

Despite their resource advantages and institutional potential, academic libraries still face a series of interrelated challenges in participating in the digital dissemination of cultural heritage. These challenges are not isolated problems but are closely connected across the processes of resource organization, content transformation, channel construction, user participation, and dissemination evaluation. Together, they limit the ability of academic libraries to transform artistic resources into sustainable cultural communication practices.

The first challenge lies in the fragmentation of artistic resources. At present, the development of artistic resources in academic libraries is often centered on specialized databases, thematic collections, and independently operated digital platforms. Although these initiatives have improved the preservation and accessibility of cultural resources, they frequently lack unified standards, systematic integration, and semantic connections. Art literature, visual collections, archival materials, and local cultural resources are often distributed across separate systems, resulting in pronounced “information silos.” Such fragmentation not only increases the difficulty of information retrieval but also weakens the construction of coherent cultural knowledge systems. Previous studies have identified resource fragmentation as a major obstacle to cultural heritage dissemination, as the absence of semantic relationships among resources restricts knowledge discovery and value extraction (Jin & Liu, 2022).

Closely related to resource fragmentation is the problem of content fragmentation. Many academic libraries continue to prioritize resource preservation and digital display, while paying insufficient attention to contextual interpretation, knowledge linkage, and narrative construction. As a result, cultural heritage resources are often presented as isolated catalog records, images, or documents rather than as meaningful cultural narratives. This limits users’ ability to understand the historical background, cultural significance, and symbolic value embedded in artistic resources. Tang (2024) argued that digital cultural dissemination is increasingly shifting from resource presentation toward narrative-oriented communication, with users placing greater emphasis on meaning-making and cultural experience. Therefore, resource display alone is no longer sufficient; academic libraries need to transform fragmented resources into coherent, interpretable, and engaging communication content.

A further challenge concerns the limited range of dissemination channels and service scenarios. At present, cultural heritage dissemination in academic libraries still relies heavily on official websites, digital repositories, institutional databases, and a limited number of social media accounts. However, contemporary digital communication has

increasingly moved toward multi-platform integration, including short-video platforms, immersive digital exhibitions, virtual reality applications, and metaverse-based environments. Jin and Liu (2022) noted that diversified communication channels are essential to improving dissemination effectiveness in the digital media environment. If academic libraries continue to depend mainly on traditional institutional platforms, the visibility, reach, and public influence of cultural heritage resources will remain constrained.

The limitations of dissemination channels are further reflected in insufficient user participation. Cultural heritage digital dissemination is not merely a process of information delivery but also a process of public engagement, interaction, and meaning construction. However, current dissemination practices in many academic libraries remain largely institution-centered, with users positioned primarily as passive recipients. Mechanisms for interaction, feedback, co-creation, and community participation are still underdeveloped. Kalota et al. (2025) suggested that one important direction for future library development is to enhance user participation through AI-enabled platforms and collaborative knowledge creation mechanisms. Without sustained user involvement, cultural heritage dissemination can hardly develop into a dynamic process of cultural interpretation, identity formation, and value co-creation.

Finally, academic libraries also lack comprehensive dissemination evaluation mechanisms. Existing evaluation practices tend to focus on technical and quantitative indicators such as page views, download counts, access frequency, and click-through rates. While these indicators can reflect resource visibility and usage, they are insufficient for assessing deeper dimensions such as cultural understanding, user experience, public participation, cultural identity formation, and social impact. Williams (2023) suggested that future digital library evaluation frameworks should move beyond resource utilization metrics and place greater emphasis on value creation, user experience, and societal impact. Therefore, academic libraries need to establish multidimensional evaluation systems that integrate quantitative data, user feedback, cultural impact assessment, and continuous optimization mechanisms.

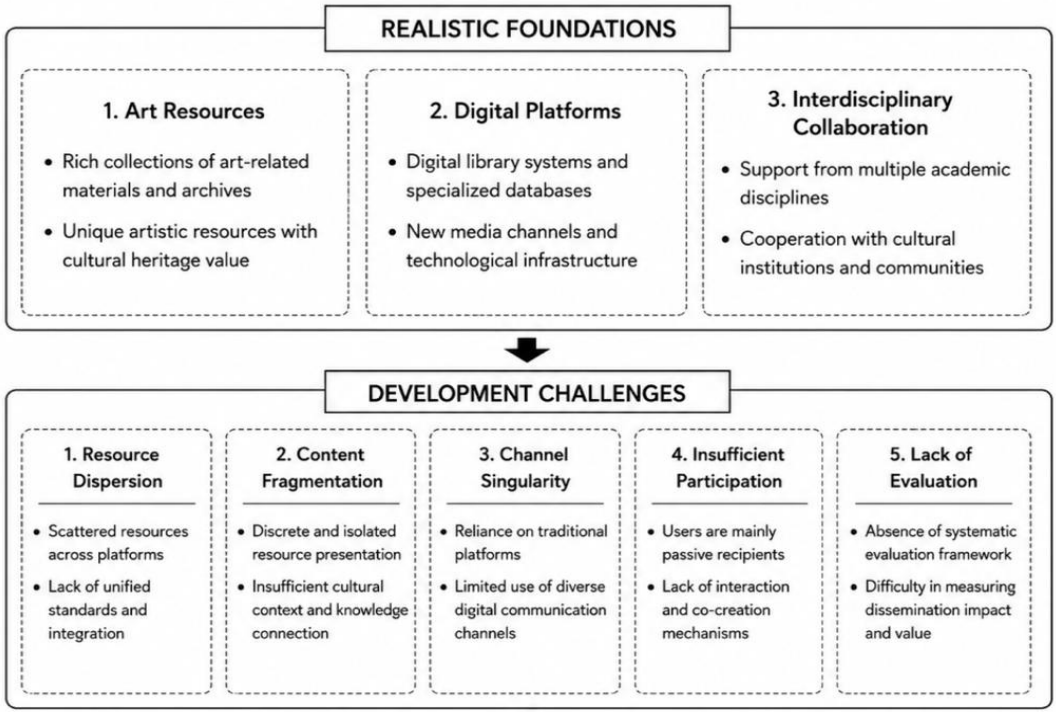


Figure 2. Situational Analysis of Academic Libraries in Cultural Heritage Digital Dissemination
Note. Created by the author(s).

In summary, the challenges faced by academic libraries in disseminating digital cultural heritage are systemic rather than single-dimensional. Resource fragmentation weakens the foundation of knowledge organization; content fragmentation limits cultural interpretation; limited dissemination channels reduce the reach of communication; insufficient user participation constrains cultural interaction; and inadequate evaluation mechanisms hinder continuous improvement. Addressing these challenges requires academic libraries to move beyond the traditional logic of resource preservation and develop an integrated dissemination model that combines resource integration, narrative construction, multi-platform communication, public participation, and multidimensional evaluation. This provides the practical basis for the implementation pathways proposed in the following section. As shown in Figure 2, the participation of academic libraries in cultural heritage digital dissemination is characterized by a coexistence of enabling foundations and practical challenges.

4. Implementation Pathways for Academic Libraries Participating in the Digital Dissemination of Cultural Heritage

Faced with challenges such as fragmented artistic resources, fragmented dissemination content, limited dissemination channels, and insufficient public participation, academic libraries need to leverage their resource advantages, digital infrastructure, and interdisciplinary strengths to establish a systematic framework for the digital dissemination of cultural heritage. The dissemination of cultural heritage is not merely a process of resource digitization; it is also a process of cultural knowledge transformation, cultural value communication, and public engagement. Based on Lasswell's 5W communication model, this study proposes an implementation framework for academic libraries' participation in the digital dissemination of cultural heritage from five dimensions: the communicator (Who), the message (Says What), the channel (In Which Channel), the audience (To Whom), and the effect (With What Effect). As illustrated in Figure 3, the five implementation pathways correspond respectively to the five dimensions of Lasswell's 5W communication model.

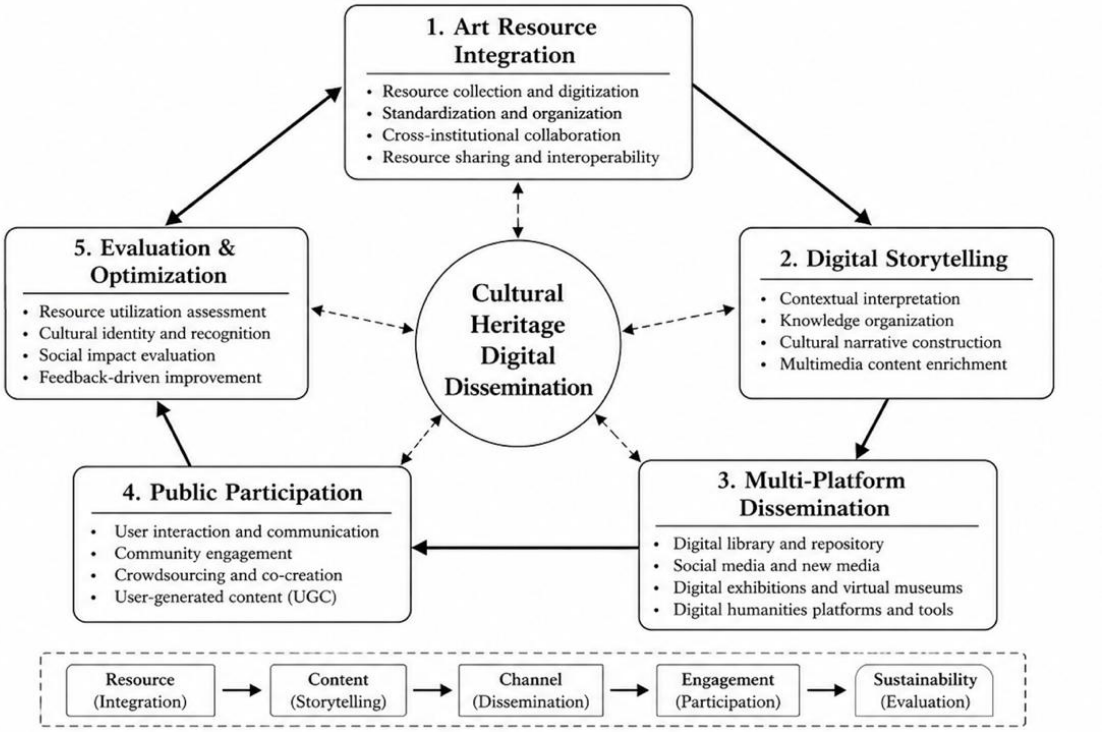


Figure 3. Path Framework for Art-Centered Cultural Heritage Digital Dissemination in Academic Libraries
Note. Created by the author(s).

4.1 Promoting the Digital Integration of Artistic Resources to Strengthen the Foundation of Cultural Heritage Dissemination

The successful dissemination of cultural heritage relies fundamentally on the accessibility, organization, and interconnectivity of cultural resources. Research in Digital Humanities consistently emphasizes that digitization is only the starting point, not the ultimate goal of cultural heritage dissemination. The historical, cultural, and educational values of cultural heritage can only be effectively communicated when dispersed digital resources are systematically organized and transformed into semantically connected knowledge networks (Berry, 2012; Terras et al., 2013).

From the perspective of resource foundations, academic libraries have long been responsible for preserving art-related literature, managing artistic archives, and developing specialized collections. Through continuous accumulation, many libraries have established extensive artistic resource systems. Particularly in art institutions and comprehensive universities, collections encompass not only art books, scholarly journals, and visual materials but also local cultural archives, intangible cultural heritage records, and institutional historical documents of significant heritage value. For example, the Film Periodicals Database developed by the Beijing Film Academy Library systematically digitizes Chinese film periodicals from the 1920s to the 1940s, providing valuable resources for film history research. Similarly, the Art Commons initiative at Nanjing Normal University Library facilitates resource sharing through integrated resource management and interdisciplinary service provision. These practices demonstrate that academic libraries have already developed substantial resource foundations for the digital dissemination of cultural heritage.

Despite these achievements, existing artistic resource systems remain highly fragmented. Different categories of resources are often distributed across specialized databases, institutional repositories, and independently developed platforms without unified standards or organizational frameworks. Additionally, there are often no semantic connections between these resources, which limits users' ability to develop a comprehensive cultural understanding. Such resource silos reduce resource utilization efficiency and constrain the overall effectiveness of cultural heritage dissemination.

In fact, cultural heritage dissemination involves not only the sharing of individual resources but also the transmission of the cultural relationships that connect them. Digital Humanities research highlights the importance of semantic organization and knowledge linkage in facilitating the reinterpretation and reuse of cultural resources (Presner, 2010). For example, when users search for illustrations of *The Romance of the Western Chamber* (*Xixiang Ji*), their interests often extend beyond the images themselves to include aspects like the dramatic texts, publication history, printing techniques, dissemination routes, and broader sociocultural contexts. If these resources are interconnected through knowledge graphs, users will gain access not merely to isolated information but to a comprehensive cultural knowledge system.

With the rapid advancement of artificial intelligence and knowledge graph technologies, cultural resource management is increasingly shifting from resource-oriented approaches toward knowledge-oriented models. AI-assisted knowledge organization, semantic retrieval, and cultural resource linkage discovery have emerged as important directions in digital cultural heritage research. Harisanty et al. (2024) argued that artificial intelligence is facilitating the transformation of cultural heritage management from digital preservation toward knowledge discovery and intelligent services. For academic libraries, the digitization of artistic resources should likewise evolve from simple digital storage toward semantic knowledge integration.

The systematic integration and knowledge-based reconstruction of artistic resources have become essential. Academic libraries should establish unified metadata standards and standardized descriptive frameworks to support the coordinated organization of artistic literature, archives, visual materials, and local cultural resources. Furthermore, knowledge graphs, Linked Data technologies, and artificial intelligence applications

should be employed to create interconnected knowledge networks and establish semantic relationships among diverse resource types. By developing a resource integration system centered on knowledge organization, academic libraries can enhance resource discovery and utilization while providing sustainable content support for the digital dissemination of cultural heritage. This approach will provide a solid foundation for subsequent digital storytelling initiatives and public engagement efforts.

4.2 Strengthening Digital Storytelling to Enhance the Depth of Cultural Heritage Communication

In the digital dissemination of cultural heritage, the message (*Says What*) serves as the crucial bridge connecting cultural resources with public understanding. Cultural heritage communication is not merely a process of information transmission; rather, it is a continuous process through which cultural meanings are produced, reconstructed, and disseminated. Consequently, beyond the accumulation of digital resources, the ability to transform dispersed cultural materials into coherent, interpretive, and engaging content has become a key determinant of dissemination effectiveness.

At present, academic libraries often prioritize resource construction over content construction in their cultural heritage initiatives. Over the past decade, many institutions have invested extensively in the development of specialized digital collections, including art literature databases, local cultural heritage repositories, intangible cultural heritage archives, and thematic digital collections. Despite these achievements, most resources remain as catalog records, image displays, and document retrieval systems. Dissemination practices are frequently resource-centered, with limited contextual interpretation, knowledge linkage, or narrative design. Although such approaches facilitate resource accessibility, they often fail to support deeper public understanding of the historical significance and cultural values embedded within heritage resources.

Heritage studies have long emphasized that heritage value is not inherently fixed but is continuously constructed through interpretation and communication. Digital dissemination environments have further shifted the focus of heritage communication from resource presentation toward meaning-making. Research on digital storytelling suggests that the integration of texts, images, audio, video, and interactive media can transform cultural resources into contextualized, coherent, and participatory narratives, thereby enhancing public understanding and cultural identification. Digital storytelling not only improves the accessibility and attractiveness of dissemination content but also facilitates the transmission of cultural knowledge and the reproduction of cultural value.

From the perspective of artistic resource dissemination, art resources possess substantial narrative potential. A traditional artwork contains not only visual information but also multiple layers of cultural knowledge, including its historical context, social environment, production techniques, aesthetic values, and dissemination history. When dissemination is limited to image presentations, users receive fragmented information. However, when artworks are connected with historical documents, biographical records, regional culture, and broader social contexts, they become components of a comprehensive cultural narrative system.

For example, illustrations of *The Romance of the Western Chamber* (*Xixiang Ji*) represent not only visual artworks but also important carriers of theatrical culture, publishing culture, urban consumption culture, and visual communication traditions. When users encounter these images, their interests often extend beyond the visual representation itself to encompass publication history, dramatic narratives, reading practices, and broader patterns of social circulation. If libraries integrate illustrations with dramatic texts, historical maps, publication records, and relevant scholarly interpretations through digital storytelling approaches, users can develop a more holistic understanding of the cultural context, thereby transforming the experience from simply “viewing images” to “reading history.”

The rapid development of Digital Humanities has provided new methodological support for cultural heritage storytelling. Technologies such as knowledge graphs, linked data, story maps, timeline visualizations, and digital exhibitions increasingly serve as important tools for narrative construction. By integrating temporal, spatial, and relational dimensions, these technologies enable the reconstruction of cultural knowledge systems and allow cultural heritage resources to move beyond traditional database retrieval models toward more intuitive, immersive, and meaningful forms of knowledge communication (Berry, 2012; Terras et al., 2013).

Meanwhile, advances in artificial intelligence have opened new possibilities for digital storytelling. Generative artificial intelligence, large language models (LLMs), and multimodal content generation technologies can support tasks such as automated text generation, knowledge association, content summarization, and personalized recommendation. These technologies facilitate the intelligent recombination and reinterpretation of cultural resources, enabling academic libraries to develop customized narratives tailored to different user groups and information needs. Recent studies suggest that AI-assisted cultural heritage services can significantly improve knowledge discovery, resource accessibility, and user engagement, thereby enhancing the effectiveness of cultural communication.

Therefore, academic libraries should gradually evolve from resource providers into cultural content producers and knowledge communicators. To achieve this, they should strengthen cultural interpretation and knowledge linkage among artistic resources, thereby establishing a three-tier dissemination framework consisting of resources–knowledge–culture. Additionally, libraries should actively adopt digital storytelling approaches to transform fragmented cultural resources into thematic, narrative-driven, and context-rich communication content. For example, libraries may develop thematic digital exhibitions focusing on traditional arts, local cultural heritage, institutional history, or intangible cultural heritage, combining images, texts, audiovisual materials, and interactive media to present cultural knowledge in a multidimensional manner. At the same time, knowledge graphs and digital story maps can be employed to create visualized narrative pathways that support immersive cultural learning experiences.

In essence, digital storytelling transforms cultural resources into content that can be understood, engaged with, and shared. For academic libraries, strengthening digital storytelling practices can significantly improve the depth and quality of cultural heritage dissemination. It also facilitates the transition from digital preservation to cultural communication, thereby contributing to the continuous revitalization and reinterpretation of cultural heritage in the digital age.

4.3 Constructing a Multi-Platform Integrated Communication Matrix to Expand Cultural Heritage Dissemination Channels

In Lasswell's 5W communication model, the channel (*In Which Channel*) serves as the critical link between communicators and audiences. With the rapid development of mobile internet technologies, social media platforms, and immersive media environments, cultural heritage dissemination has gradually evolved from traditional single-channel communication toward cross-platform, cross-scenario, and multi-terminal communication ecosystems. Jenkins (2006) argued in his theory of *Convergence Culture* that the boundaries among media platforms are increasingly blurred in digital environments, resulting in the continuous circulation and collaborative diffusion of cultural content across multiple media channels.

At present, academic libraries primarily disseminate cultural heritage resources through digital library systems, institutional repositories, and specialized databases. These platforms possess clear advantages in resource preservation, scholarly research support, and knowledge organization. However, their primary users are often researchers, faculty members, and other professional communities, which limits their broader social impact. Williams (2023) observed that digital transformation is reshaping the boundaries

of academic library services, transforming libraries from resource management centers into knowledge communication and digital service hubs. Under this transformation, cultural heritage dissemination must move beyond traditional resource-centered platforms and establish effective connections between scholarly communication and public communication.

From an international perspective, leading cultural institutions such as the British Library, the New York Public Library, and Europeana have developed integrated dissemination ecosystems composed of digital collection platforms, online exhibition platforms, social media networks, and educational service platforms. Within these ecosystems, different platforms perform complementary functions. Digital collection platforms preserve resources and provide open access; digital exhibition platforms facilitate cultural interpretation and narrative construction; social media platforms encourage public interaction and content sharing; and educational platforms support cultural learning and public engagement. Through the coordinated operation of multiple channels, cultural heritage resources are transformed from static digital objects into dynamic cultural experiences.

The evolution of media environments has also fundamentally changed public information consumption patterns. Contemporary audiences increasingly access cultural information through social networking services, short-video platforms, mobile applications, and immersive virtual environments rather than through conventional library portals alone. Consequently, cultural heritage dissemination requires not only the digitization of resources but also the adaptation of communication strategies to diverse media environments. Studies on digital cultural communication have demonstrated that multi-platform dissemination can significantly improve content visibility, user engagement, and public participation by reaching audiences through multiple access points and interactions.

For academic libraries, developing a multi-platform communication matrix should therefore be a strategic priority. Specifically, a coordinated dissemination framework integrating digital library platforms, specialized databases, digital exhibition platforms, and social media channels should be established. First, digital libraries and institutional repositories should continue to serve as the foundation for resource preservation, academic research, and knowledge organization. Second, social media platforms—including WeChat (China's largest social networking platform) and Weibo (a microblogging platform widely used in China), short-video platforms, podcasts, and online knowledge communities—should be actively employed to transform specialized cultural resources into accessible public communication content. Third, emerging technologies such as Virtual Reality (VR), Augmented Reality (AR), and Digital Twins can be utilized to create immersive exhibition environments that enhance user engagement and experiential learning. These technologies enable users to interact with cultural heritage resources in more intuitive and participatory ways, thereby strengthening cultural understanding and emotional connection.

Furthermore, interoperability among platforms is essential for maximizing dissemination effectiveness. Rather than operating as isolated communication channels, different platforms should be interconnected through shared metadata standards, integrated content strategies, and coordinated dissemination mechanisms. Such integration can facilitate resource sharing, content complementarity, and communication synergy, allowing cultural heritage information to circulate seamlessly across different media environments. Artificial intelligence technologies can further support this process by enabling personalized recommendation services, intelligent content distribution, and adaptive communication strategies tailored to diverse user groups.

From the perspective of contemporary cultural heritage communication, the establishment of a multi-platform dissemination matrix is no longer merely a technological choice but a strategic necessity. By integrating academic communication channels with public media platforms, academic libraries can significantly expand the

reach of cultural heritage resources, enhance their visibility and social influence, and promote the transformation of cultural heritage from specialized academic resources into shared public cultural assets. In doing so, academic libraries can contribute more effectively to cultural preservation, cultural education, and the broader dissemination of cultural heritage in the digital age.

4.4 Enhancing Public Participation Mechanisms to Foster Cultural Heritage Dissemination Vitality

Within Lasswell's 5W communication framework, the audience (*To Whom*) is not merely the recipient of information but also a key actor in shaping communication outcomes. With the emergence of Web 2.0 technologies and participatory culture, the role of the public in cultural communication has gradually shifted from passive consumers to active participants and co-creators of content. Heritage studies have consistently emphasized that cultural heritage value is not fixed or inherent but is continuously produced, negotiated, and reconstructed through communication and social interaction (Smith, 2006).

Giaccardi (2012) further argued that digital environments have fundamentally transformed traditional heritage communication structures by enabling the public to participate in meaning-making processes through commenting, sharing, collaborative editing, and digital content creation. Similarly, Simon's (2010) concept of the *Participatory Museum* highlights the importance of interaction mechanisms and collaborative design in cultural institutions, advocating a transition in which users move from passive audiences to active participants in cultural interpretation and communication.

Despite these theoretical developments, public participation in the digital dissemination of cultural heritage within academic libraries remains relatively limited. Most current initiatives focus primarily on resource accessibility and content presentation. Although specialized databases and digital repositories have significantly improved resource availability, user engagement is often limited to searching, browsing, and downloading materials. Opportunities for deeper interaction, collaborative interpretation, and knowledge co-creation remain insufficient. As a result, cultural heritage dissemination frequently remains at the level of information delivery rather than evolving into sustained cultural engagement and identity formation.

From the perspective of communication theory, effective cultural dissemination requires active audience involvement. Participatory communication not only increases user engagement but also enhances the social relevance and sustainability of cultural heritage initiatives. Contemporary digital communication environments encourage users to become contributors rather than consumers, enabling the emergence of collaborative knowledge ecosystems in which institutions and users jointly create cultural value.

Artistic resources are particularly well suited to participatory communication because of their inherent interpretive and interactive characteristics. Traditional opera, woodblock prints, calligraphy, folk arts, and intangible cultural heritage practices all invite multiple forms of interpretation, experience, and creative engagement. For example, users may not only view digitized woodblock prints but also participate in discussions regarding artistic styles, historical contexts, and cultural meanings. They may contribute personal interpretations, share local cultural memories, or engage in collaborative exhibition projects. Such activities enrich dissemination content while simultaneously facilitating the continuous reproduction and reinterpretation of cultural heritage values.

International cultural institutions have accumulated substantial experience in participatory cultural communication. The Library of Congress has implemented numerous crowdsourcing initiatives that invite the public to contribute to manuscript transcription, metadata enhancement, and historical document annotation. Similarly, Europeana has developed community-driven projects that encourage users to share local memories, family archives, and cultural narratives, thereby expanding public involvement in heritage preservation and dissemination. These initiatives demonstrate

that public participation can significantly enhance resource utilization, strengthen cultural identity, and increase the societal impact of cultural heritage projects.

Drawing on these experiences, academic libraries should establish open, diverse, and collaborative participation mechanisms. First, online community platforms can be developed to facilitate user interaction through comments, discussion forums, question-and-answer services, and thematic cultural dialogues. Such platforms can transform users from passive information receivers into active contributors to cultural discourse.

Second, academic libraries may adopt crowdsourcing strategies to engage users in activities such as document transcription, metadata tagging, image annotation, and knowledge enrichment. Crowdsourcing not only improves the quality and accessibility of cultural heritage resources but also strengthens users' sense of ownership and cultural responsibility.

Third, libraries should integrate online and offline engagement activities, including digital exhibitions, cultural workshops, heritage lectures, and community-based projects. These initiatives can provide immersive cultural experiences that strengthen emotional connections between users and cultural heritage resources. Emerging technologies such as VR, AR, and interactive storytelling can further enhance participation by creating experiential learning environments.

Finally, academic libraries should actively encourage User-Generated Content (UGC) and facilitate collaborative content creation. By allowing users to contribute personal narratives, creative reinterpretations, multimedia productions, and cultural commentaries, libraries can transform cultural dissemination into a dynamic process of co-creation. In this model, users evolve from resource consumers into cultural communicators and cultural producers, contributing directly to the ongoing vitality of cultural heritage dissemination.

Overall, participatory communication represents a crucial direction for the future development of cultural heritage dissemination. By establishing inclusive, interactive, and collaborative participation mechanisms, academic libraries can enhance the vitality of cultural heritage communication, strengthen public cultural engagement, and foster a more open, diverse, and sustainable cultural communication ecosystem.

4.5 Building a Multidimensional Dissemination Evaluation System to Improve Cultural Heritage Communication Effectiveness

In Lasswell's 5W communication framework, communication effect (With What Effect) represents the ultimate objective of the communication process and serves as a key indicator for evaluating the effectiveness of dissemination activities. In the context of cultural heritage digital dissemination, communication effectiveness extends beyond the mere transmission of information. More importantly, it encompasses the extent to which dissemination activities facilitate cultural understanding, knowledge acquisition, public participation, cultural identity formation, and social impact. Therefore, establishing a scientific and multidimensional evaluation system is essential for academic libraries seeking to improve the quality and sustainability of cultural heritage dissemination.

At present, the evaluation of digital dissemination activities in academic libraries remains largely dependent on quantitative usage indicators such as page views, download counts, access frequency, and website traffic. Although these indicators can reflect the visibility and accessibility of digital resources, they provide limited insight into whether users have effectively understood cultural content, developed cultural awareness, or actively engaged in dissemination. As cultural heritage dissemination increasingly shifts from resource provision toward cultural communication and public engagement, traditional evaluation approaches based solely on resource utilization are no longer sufficient to capture the broader social and cultural impacts of dissemination initiatives.

From the perspective of communication studies, effective dissemination should be evaluated not only in terms of information reach but also in terms of audience response and value creation. McQuail (2010) argued that communication effectiveness should

encompass cognitive, affective, and behavioral dimensions. Similarly, heritage communication scholars have emphasized that the ultimate goal of cultural heritage dissemination is to foster public understanding, cultural identity, and sustained participation in cultural activities. Consequently, academic libraries should establish a multidimensional dissemination evaluation framework that integrates resource utilization, user engagement, knowledge dissemination, cultural impact, and social influence.

First, resource utilization remains a fundamental dimension of dissemination evaluation. Indicators such as page views, download frequency, search queries, collection access rates, and platform visitation statistics can provide valuable information regarding the visibility and accessibility of cultural heritage resources. These indicators help libraries assess the effectiveness of resource organization and dissemination strategies while identifying areas for further optimization.

Second, user engagement should be incorporated as a key evaluation dimension. In contemporary digital environments, communication is increasingly characterized by interaction and participation. Therefore, indicators such as comments, shares, likes, participation in online activities, UGC, and community discussions can be used to measure the degree of public engagement with cultural heritage resources. High levels of interaction often indicate that dissemination activities have successfully attracted audience attention and stimulated public interest in cultural heritage.

Third, knowledge dissemination effectiveness should be evaluated. The dissemination of cultural heritage is fundamentally a process of knowledge communication and cultural learning. Academic libraries can assess learning outcomes through user surveys, knowledge assessments, behavioral analytics, and feedback mechanisms. Indicators may include users' perceived learning gains, improvements in cultural literacy, understanding of cultural heritage, and satisfaction with cultural interpretation services. Such assessments can help libraries determine whether dissemination activities effectively transform digital resources into meaningful knowledge experiences.

Fourth, cultural impact should be regarded as an important evaluation dimension. Unlike ordinary information dissemination, cultural heritage communication aims to promote cultural awareness, cultural identity, and cultural continuity. Therefore, libraries should examine whether dissemination activities enhance users' recognition of cultural heritage, strengthen cultural identity, and encourage participation in cultural preservation and transmission. Evaluation methods may include interviews, questionnaires, sentiment analysis, and longitudinal user studies designed to capture changes in users' cultural perceptions and attitudes.

Fifth, social influence should be incorporated into dissemination evaluation. Cultural heritage dissemination increasingly functions within broader social and cultural ecosystems. Accordingly, evaluation should consider indicators such as media coverage, public visibility, community participation, institutional collaboration, and social dissemination reach. These indicators can help libraries assess the broader societal value generated by dissemination activities and determine their contribution to cultural development and public cultural services.

The rapid development of artificial intelligence and data analytics technologies has further expanded the possibilities for dissemination evaluation. AI-powered analytics can automatically collect and process large volumes of user behavior data, enabling real-time monitoring of dissemination performance. Technologies such as sentiment analysis, recommendation feedback analysis, social network analysis, and user profiling can provide deeper insights into audience preferences, participation patterns, and communication effectiveness. Furthermore, intelligent analytics systems can support evidence-based decision-making by identifying dissemination bottlenecks, optimizing content strategies, and enhancing personalized communication services.

More importantly, dissemination evaluation should not be regarded as the final stage of communication but rather as a continuous feedback mechanism within the dissemination process. Evaluation results should be systematically integrated into resource development, content design, channel optimization, and user service improvement. Through a cyclical process of "evaluation–feedback–optimization–redistribution," academic libraries can establish a sustainable dissemination ecosystem characterized by continuous improvement and adaptive innovation.

In summary, the establishment of a multidimensional dissemination evaluation system is a crucial pathway to enhancing the effectiveness of cultural heritage digital dissemination. By integrating resource utilization, user engagement, knowledge dissemination, cultural impact, and social influence into a comprehensive evaluation framework, academic libraries can move beyond traditional usage-based assessment models and develop more holistic approaches to measuring dissemination outcomes. Such efforts not only improve communication effectiveness but also support the transformation of academic libraries from resource management institutions into active facilitators of cultural communication, knowledge services, and cultural value creation in the digital age.

5. Conclusion

5.1 Research Findings

In the context of the ongoing implementation of China's National Cultural Digitalization Strategy and the rapid development of digital humanities, cultural heritage dissemination was gradually shifting from a traditional resource-preservation paradigm toward a model characterized by digital communication, knowledge services, and public sharing. As important cultural institutions connecting cultural resources, academic research, and the public, academic libraries play an increasingly significant role in the digital dissemination of cultural heritage. Against this background, this study used art resources as its focal point and adopted Lasswell's 5W communication model as the analytical framework to systematically examine the foundations, challenges, and implementation pathways for academic libraries' participation in cultural heritage digital dissemination.

The findings indicated that academic libraries had substantial advantages in terms of resource foundations, digital infrastructure, and interdisciplinary collaboration. Rich collections of art literature, visual materials, archival resources, and local cultural heritage provided essential content for cultural heritage dissemination. Meanwhile, digital libraries, specialized databases, and social media platforms offered important technological support for digital communication. In addition, the interdisciplinary environment of universities created favorable conditions for resource development, knowledge organization, and communication innovation. However, academic libraries still face several challenges, including insufficient resource integration, fragmented dissemination content, limited communication channels, inadequate public participation, and the absence of comprehensive evaluation mechanisms. These issues constrain the in-depth exploration and effective dissemination of cultural heritage values.

To address these challenges, this study proposed a five-dimensional implementation framework based on Lasswell's 5W communication model. The framework includes: (1) promoting the digital integration of art resources; (2) strengthening digital storytelling for cultural heritage; (3) constructing a multi-platform integrated dissemination matrix; (4) improving public participation mechanisms; and (5) establishing a multidimensional evaluation system. These pathways correspond to the key elements of the communication process and collectively constitute a practical framework for cultural heritage digital dissemination in academic libraries. Compared with traditional library models centered on resource management and information services, this framework places greater emphasis on cultural value dissemination, public engagement, and social impact,

reflecting the transformation of academic libraries from resource-preservation institutions into active cultural communication actors.

5.2 Research Implications

From a theoretical perspective, this study integrated insights from heritage studies, digital humanities, communication studies, and library and information science to construct a research framework for cultural heritage digital dissemination in academic libraries from the perspective of art resources. In doing so, it extends the application of cultural heritage dissemination research within the library context. Furthermore, by introducing Lasswell's 5W communication model, the study systematically revealed the interactions among communicators, communication content, communication channels, audiences, and communication effects, thereby providing a new theoretical perspective on academic libraries' participation in cultural heritage dissemination.

From a practical perspective, the findings suggest that cultural heritage digital dissemination is evolving from resource digitization to knowledge-oriented services, intelligent communication, and personalized user experiences. With the advancement of emerging technologies such as AI, knowledge graphs, digital twins, VR, and generative AI, academic libraries should fully leverage their strengths in knowledge organization and digital services. Greater collaboration with museums, archives, cultural institutions, and local communities is essential to promote the in-depth development, sharing, and utilization of art resources and special collections, thereby fostering an open, diverse, and collaborative ecosystem for cultural heritage digital dissemination.

5.3 Limitations and Future Research

Nevertheless, this study had several limitations. First, it primarily relied on literature analysis and typical case illustrations and therefore lacked empirical validation from user surveys, behavioral data, or platform analytics. Second, the proposed dissemination framework remained conceptual, and its applicability and effectiveness across different types of academic libraries require further examination.

Future research could incorporate user behavior data and dissemination performance indicators to empirically evaluate the proposed framework. Moreover, emerging technologies such as generative AI, knowledge graphs, and Retrieval-Augmented Generation (RAG) should be further explored in the contexts of cultural heritage resource organization, knowledge discovery, and intelligent dissemination. Future studies should also strengthen collaboration among academic libraries, museums, archives, and local cultural institutions to develop cross-institutional, cross-platform, and cross-disciplinary ecosystems for cultural heritage dissemination. Through the continued advancement of digitization, knowledge organization, and intelligent utilization of cultural resources, academic libraries are expected to play an increasingly important role in cultural heritage preservation and dissemination in the digital age.

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