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Digital Humanities Practices and Implications in Public University Libraries in Hong Kong

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Abstract

[目的/意义] This study analyzes the distinctive features and achievements of digital humanities practices in public university libraries in Hong Kong, providing theoretical references and practical exemplars for mainland university libraries.

[方法/过程] Through website investigation, email consultation, and other channels, and employing methods such as literature research, case analysis, and comparative study, this research conducts an in-depth analysis of 205 digital humanities thematic projects and 16 digital humanities integrated platforms from public university libraries in Hong Kong.

[结果/结论] The findings indicate that public university libraries in Hong Kong have broken through the limitations of traditional service models and established a relatively mature digital humanities development system. Their practices in institutional development, resource integration, technology application, achievement dissemination, and educational integration demonstrate innovation and forward-thinking, offering valuable reference experience and clear direction for digital humanities practices in mainland university libraries.

Full Text

Digital Humanities Practices and Enlightenment in Public University Libraries in Hong Kong Special Administrative Region*

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Abstract

[Purpose/Significance] This study analyzes the distinctive features and achievements of digital humanities practices in public university libraries in

the Hong Kong Special Administrative Region (HKSAR), offering theoretical references and practical models for university libraries in mainland China. **[Method/Process]** Through website surveys, email consultations, literature research, case analysis, and comparative study, this research conducts an in-depth investigation of 205 digital humanities projects and 16 comprehensive digital humanities platforms developed by public university libraries in HKSAR. **[Result/Conclusion]** The findings reveal that public university libraries in HKSAR have transcended the limitations of traditional service models and established a mature digital humanities development framework. Their innovative and forward-looking practices—spanning institutional development, resource integration, technology application, achievement dissemination, and educational integration—provide valuable insights and clear strategic directions for digital humanities initiatives in mainland university libraries.

Keywords: digital humanities; HKSAR; university libraries; digital technology
Classification Number: G250.7

1 Introduction

Digital humanities, as one of the most innovative interdisciplinary research fields in the 21st century, has undergone dynamic evolution in its definition, closely intertwined with technological advancement. It has gradually developed from early conceptions of “computer technology applications in traditional humanities” [?] to become “a crucial driver of future library services” [?]. With the deep integration of digital technology and humanities research, digital humanities has demonstrated outstanding capacity in promoting disciplinary convergence, revolutionizing research methodologies, enhancing teaching quality, facilitating resource sharing, and driving academic innovation. Consequently, its importance in contemporary higher education and academic research has become increasingly prominent, establishing it as a vital force propelling development in humanities and social sciences and across the entire higher education system.

As a hub where Eastern and Western cultures converge and a center for international higher education, HKSAR enjoys unique geographical advantages and an open academic environment that have positioned its university libraries at the forefront of digital humanities practice. While rapidly embracing cutting-edge global concepts, these libraries emphasize the integration of local cultural characteristics, thereby forging a distinctive development path. Currently, HKSAR hosts 22 higher education institutions, among which eight public universities stand out: The University of Hong Kong, The Chinese University of Hong Kong, The Hong Kong University of Science and Technology, The Hong Kong Polytechnic University, City University of Hong Kong, Hong Kong Baptist University, Lingnan University, and The Education University of Hong Kong. The libraries of these eight universities are all members of the Joint University Librarians Advisory Committee (JULAC), playing a significant role in HKSAR’s higher education and academic research ecosystem. As early as the 1990s, The Chinese University of Hong Kong Library pioneered digital humanities-related research,

marking the beginning of digital humanities practice in HKSAR' s university libraries [?]. After years of accumulation and development, the eight public university libraries (hereinafter referred to as the “eight libraries”) have built upon their respective strengths, demonstrating scaled and systematic development characteristics in their digital humanities practices. Their research scope covers numerous digital humanities domains, from cultural heritage preservation to digital humanities curriculum development, from cutting-edge technology application to interdisciplinary research, making them exemplary models for university library digital humanities practice. In view of this, this study selects these eight libraries as research samples, employing literature research, case analysis, and comparative study to deeply examine their digital humanities development trajectories and summarize their successful experiences in institutional development, resource integration, technology application, achievement promotion, and educational integration. Through this research, we hope to provide beneficial references for mainland university libraries' digital humanities practice, facilitating a transition from “following” to “characteristic development” and forging a digital humanities practice path with Chinese distinctive features.

2 Research of Digital Humanities Practices in Public University Libraries in HKSAR

This investigation proceeded in two steps. First, we conducted surveys of the eight libraries' portal websites and specialized websites. Since digital humanities encompasses broad content and websites vary in naming conventions and content presentation—generally falling into three categories: “digital humanities,” “digital scholarship,” and “digital collections” —all three types of sites were included in the survey scope. Second, building upon the first step and combining existing research literature, we investigated from six dimensions: overall overview, institutional development, resource integration, technology application, achievement promotion, and educational integration, to comprehensively 梳理 the progress of digital humanities practices in the eight libraries.

All eight libraries actively engage in digital humanities practice, advancing their work through specialized digital humanities projects and comprehensive digital humanities platforms. Digital humanities projects are academic initiatives centered on specific cultural, historical, or social themes, employing digital technologies and methods for in-depth research and exploration. Digital humanities comprehensive platforms are integrated cyber spaces built with digital technology that store diverse digital humanities data, including texts, images, audio, and video, typically displaying these data through digital humanities projects. As of January 2025, the eight libraries have launched 205 digital humanities projects and established 16 comprehensive platforms, as detailed in .

To support digital humanities practice, six of the eight libraries have explicitly established departments dedicated to digital humanities operations and equipped them with professional technical staff. For example, The University of Hong Kong Libraries' Technical Support Services Department includes special-

ized digital scholarship librarian positions. Beyond internal departments, some university libraries have jointly established independent digital humanities research institutions with other university units, such as the “Digital Humanities Initiative” co-founded by The Hong Kong University of Science and Technology Library and the university’s Humanities Department in 2022 [?].

Overview of Digital Humanities Practices in Eight Libraries

The eight libraries attach great importance to institutional development, promoting sustainable digital humanities development through top-level design, supporting guarantees, and multi-level cooperation.

2.2.1 Emphasis on Top-Level Design

JULAC plays a coordinating and guiding role in the digital humanities practices of its member libraries. JULAC’s Digital Initiatives Committee focuses on promoting knowledge standardization and sharing in the digitization and preservation of Hong Kong’s cultural heritage. The committee provides comprehensive and professional policy guidance and operational direction for the eight libraries across multiple dimensions, including professional development, policy formulation, collection expansion, academic exchange, funding applications, reputation enhancement, and technical consultation [?].

Simultaneously, incorporating digital humanities practice into libraries’ medium- and long-term strategic planning has become a common practice among public university libraries in HKSAR, serving as a key measure to guide and drive digital humanities development. Through survey emails and library website queries, we found that seven of the eight libraries’ strategic plans include digital humanities-related content, while the remaining library did not display its strategic plan during the survey period, as shown in . Integrating digital humanities research into libraries’ strategic plans demonstrates recognition of its importance and provides solid policy support and clear development direction for in-depth exploration and innovative practice in the digital humanities field.

To ensure high-quality digital humanities practice, some libraries have also constructed multi-dimensional project evaluation systems in their strategic plans with quantified assessment indicators. For instance, Hong Kong Baptist University Library incorporates digital humanities project output and page views into its Key Performance Indicator (KPI) system in its strategic plan. This measure has yielded remarkable results: the library has developed 71 digital humanities projects and built four comprehensive platforms, ranking first among the eight libraries in both metrics and fully demonstrating its strong output capacity [?].

Digital Humanities Elements in Strategic Plans of Eight Libraries

2.2.2 Supporting Guarantee System

The eight libraries have constructed supporting guarantee systems for digital humanities practice by coordinating key elements such as funding, talent, and

tools.

(1) Funding Support. Adequate funding is the material foundation for digital humanities practice, supporting the entire project lifecycle. At the government level, the Research Grants Council established by the University Grants Committee of the Hong Kong Special Administrative Government provides additional funding for basic and applied research in Hong Kong through the General Research Fund (GRF), covering fields including engineering, biological sciences, humanities and social sciences, medicine, and information science [?]. At the library consortium level, JULAC provides operational guidance to enhance member libraries' competitiveness in obtaining funding from cultural heritage preservation projects. At the institutional level, the eight public universities in HKSAR also provide special funding support for digital humanities research. For example, The Hong Kong University of Science and Technology's "Digital Humanities Initiative" offers "Digital Humanities Seed Funding" to support researchers in hiring and training undergraduate or graduate assistants [?]. Hong Kong Baptist University also provides funding for digital humanities projects, with the library responsible for review and disbursement. The maximum funding for a single project is HKD 200,000, which can be used for staff salaries and benefits, technical resources and services, and copyright fees [?].

(2) Talent Guarantee. Professional talent teams are the core driving force of digital humanities practice. The six libraries that have established digital humanities departments have all set up multi-level professional positions, including directors of digital scholarship research at the strategic decision-making level, digital humanities assistant managers at the project management level, and digital technology directors at the technical implementation level. Additionally, all libraries emphasize strong collaboration with teaching and research institutions within their universities, establishing regular cooperation models with humanities faculties, computer science departments, museums, and art galleries to supplement interdisciplinary talent and drive digital humanities project implementation. For example, The University of Hong Kong Libraries' long-term partners include the university's University Museum and Art Gallery, the Jao Tsung-I Petite Ecole, and the university press, leveraging expert resources in art history, Chinese studies, and publishing to conduct digital humanities practice [?].

(3) Tool Support. Advanced tools provide powerful technical support for digital humanities practice, expanding research breadth and depth. The eight libraries have equipped their digital humanities practice with digital tools and corresponding learning materials. For instance, The Chinese University of Hong Kong Library's Digital Scholarship Lab is equipped with hardware (including high-definition digital displays and high-performance computers) and software (including 3D drawing tools such as AutoCAD, data processing tools like OpenRefine, and the open-source data analytics platform KNIME Analytics Platform) required for digital humanities practice [?].

2.2.3 Perfecting Multi-Level Cooperation

Multi-level cooperation models represent a highlight of the eight libraries' digital humanities practice. Each library actively engages in international, cross-regional, and cross-faculty cooperation based on its own, university, and local resources. In terms of international cooperation, Hong Kong Baptist University Library has joined centerNet, an international digital humanities research organization, to participate in global digital humanities collaboration [?]. Regarding cross-regional cooperation, The Chinese University of Hong Kong Library collaborates with external institutions such as Shanghai Library and McGill University in Canada to build multiple projects within its "Digital Scholarship Projects" platform [?]. In cross-faculty cooperation, Hong Kong Baptist University Library jointly constructs digital humanities projects with departments including History, Journalism, Translation, English, Philosophy, and Visual Arts [?]. Some digital humanities projects themselves are outcomes of multi-level cooperation. For example, City University of Hong Kong Library's "Korean Chinese Classics Index Database" involves collaboration with the university's Chinese Culture Center, Department of Chinese and Translation, Jeju National University in South Korea, and the East Asian Library at the University of California, Berkeley [?].

2.3 Resource Integration

As key institutions driving digital humanities practice, university libraries play a pivotal role in integrating multidisciplinary resources both on and off campus. Facing the interdisciplinary nature of digital humanities, the eight libraries actively promote the organic integration of various resources across dimensions including disciplinary resource integration, platform integration, and characteristic resource integration.

2.3.1 Disciplinary Resource Integration

Disciplinary resource integration constitutes an important objective of the eight libraries' digital humanities practice, achieved primarily through constructing digital humanities projects. Analyzing the 205 projects by discipline reveals that they mainly concentrate in three fields: history, culture and arts, and linguistics, with a small number involving law, politics, economics, education, and other humanities disciplines. They can thus be categorized into four types: historical databases, culture and arts databases, linguistics databases, and other humanities databases, with detailed quantities shown in . Overall, historical database construction represents the primary focus, accounting for 52% (107 projects). Notably, different university libraries demonstrate distinct disciplinary orientations in their digital humanities project development. Hong Kong Baptist University Library excels particularly in linguistics databases and other humanities databases, while The University of Hong Kong Libraries and The Chinese University of Hong Kong Library place greater emphasis on culture and arts databases.

Historical databases represent the most extensively integrated resource type in digital humanities projects. Such projects mainly include: (1) Ancient book collections, such as The Chinese University of Hong Kong Library's "Chinese Ancient Books Collection" project, which includes over 6,200 ancient books with nearly one million full-text images [?]. (2) Photograph collections, such as The University of Hong Kong Libraries' "Manchurian Plague" project, which includes 253 precious photographs related to the plague in Northeast China and Mongolia between 1910 and 1911 [?]. (3) Map materials, such as the three historical map databases published by The Hong Kong University of Science and Technology Library on its "Rare & Special eZone" platform: "Ancient Chinese Maps," "Ancient East Asian Maps," and "China Maps from Late Qing to 1949" [?]. (4) Historical figure archives, including correspondence manuscripts, official documents, personal book collections, and media reports. A typical example is The Hong Kong University of Science and Technology Library's "Correspondence between Lin Da-guang and Soong Ching-ling" project, which includes approximately 70 letters and greeting cards exchanged between Soong Ching-ling and Chinese-American political scientist Lin Da-guang between 1950 and 1980 [?].

Culture and arts databases primarily integrate literary works, art collections, and radio dramas from media companies. For example, City University of Hong Kong Library's "*Today* Literary Magazine Archive" project includes over thirty years of materials from the Misty Poetry magazine *Today*, comprising manuscripts, illustrations, reader letters, event photos, audio tapes, and newspaper clippings [?]. The library's "Digital CityU Artwork Collection" project houses thousands of digital art pieces, including calligraphy, ceramics, drawings, oil paintings, photography, prints, and sculptures [?]. The University of Hong Kong Libraries' "Commercial Radio Dramas" project includes 17 radio dramas produced by Hong Kong Commercial Broadcasting Company in the 1960s-1970s, representing the company's only surviving complete collection [?].

Linguistics databases integrate important resources in the field through developing and applying advanced digital technologies, providing convenient and efficient digital tools for language teachers and learners and promoting systematic organization and utilization of language resources. For instance, Hong Kong Baptist University Library's "Chinese-English Political Interpreting Corpus" comprises speech records and their translations by high-level political figures from Hong Kong, Beijing, Washington D.C., and London, covering government reports, press conferences, parliamentary debates, and bilateral meeting speeches. It can be used to study Chinese-English political translation and provides references for students, teachers, and political practitioners in political speech and translation production [?].

Among other humanities databases, representative projects include: The University of Hong Kong Libraries' "Database on the Drafting Process of Hong Kong's Basic Law," which includes official records of Hong Kong's Legislative Council related to the drafting process of the Basic Law of the Hong Kong

Special Administrative Region [?]; the library's "Hong Kong Government Reports Online," which provides online access to various Hong Kong government reports, including administrative reports, Legislative Council meeting records, Hong Kong Blue Books, and annual reports from government departments and special committees [?]; and The Chinese University of Hong Kong Library's "United College General Education Student Research Projects," which includes outstanding thesis award-winning projects from the university's United College from 1997 to the present [?].

2.3.2 Platform Integration

Building comprehensive digital humanities platforms represents another crucial approach to resource integration. Except for The Education University of Hong Kong Library, the other seven libraries have established specialized digital humanities platforms, totaling 16 platforms that primarily display 201 digital humanities projects (excluding four projects from The Education University of Hong Kong Library).

To efficiently integrate multidisciplinary resources, digital humanities platforms are mainly equipped with three core functions: "Project Display," "Research Support," and "Exchange & Collaboration," as detailed in . The "Project Display" function showcases digital humanities projects and is available on all 16 platforms. The "Research Support" function primarily integrates digital tools for text mining, image analysis, and data analysis, or provides spatial and technical support to facilitate digital humanities projects, available on six of the 16 platforms. The "Exchange & Collaboration" function aims to promote interdisciplinary research, break disciplinary boundaries, and facilitate cross-fertilization among different humanities disciplines by building academic exchange and collaboration communities that enable scholars, researchers, and enthusiasts to share research outcomes and conduct team collaboration, available on three of the 16 platforms.

Core Functions of Digital Humanities Platforms

As the most important core function, "Project Display" is provided by all 16 platforms through "Search" and "Browse" functionalities. Except for one inaccessible project during the survey period, the remaining 200 projects can be browsed and searched normally. Search interfaces include title search, keyword search, creator search, and category search. Approximately 89% (179 projects) support title search, and about 97% (194 projects) support keyword search. Creator search (77 projects, 38%) and category search (98 projects, 48%) have coverage rates below 50%, primarily because some projects lack a "creator" concept, some do not require "categorization," or relevant fields were not reserved during metadata design. For example, The University of Hong Kong Libraries' "Hong Kong Historical Geographic Information System" project displays GIS data extracted from traditional archives and historical district maps, not created by specific individuals like books or paintings, and thus does not include a creator search

function [?].

Additionally, some platforms support cross-project search, enabling users to accurately filter digital collections from different projects based on titles and keywords, thereby enhancing search efficiency and expanding data sources. For instance, searching the keyword “Hong Kong economy” in the search bar of The University of Hong Kong Libraries’ “Digital Repository” platform retrieves television program recordings about Hong Kong’ s economy from the “Electronic Videos” project, foreign books about Hong Kong’ s economy from the “Hankou Special Collection” project, and research reports on Hong Kong’ s industrial production from the “Hong Kong Government Reports Online” project, facilitating comprehensive understanding of the library’ s Hong Kong economy research materials [?].

Some platforms adopt a thematic resource clustering model, systematically integrating multiple projects under the same theme to enhance continuity and completeness in temporal span and content coverage. For example, Hong Kong Baptist University Library’ s “History Portal” platform integrates projects such as “Japanese Artillery Photo Album 1940-1943,” “Hong Kong’ s Fall and Hong Kong Volunteer Defence Corps,” and “Spatial History of the 1941 Hong Kong Battle” under the Hong Kong Battle research theme, applying military imagery, hand-drawn maps, and GIS to reconstruct historical narratives from multiple dimensions. The platform also integrates projects such as “Dr. Sun Yat-sen First Day Covers,” “Images of Dr. Sun Yat-sen,” and “Between History and Art: Dr. Sun Yat-sen and Zhu Dacheng” under Sun Yat-sen studies, combining philatelic history, visual culture, and personal relationship network analysis to reveal Sun Yat-sen’ s unique position in modern China’ s revolution [?]. This resource integration model, which reconstructs historical narratives from multiple dimensions and enables researchers to gain in-depth and comprehensive understanding of historical events, provides a new paradigm for digital humanities research.

2.3.3 Characteristic Resource Integration

Another distinctive feature of the eight libraries is their emphasis on digitizing and organizing characteristic resources such as local history, culture, and folk customs, highlighting regional cultural values. In terms of resource types, they cover not only common documents such as ancient books, calligraphy, paintings, maps, musical scores, and bookplates, but also scarce materials including posters, land deeds, pith paper paintings, oracle bones, and first day covers. For example, Hong Kong Baptist University Library’ s “Hong Kong Tourism Posters” project digitally preserves over 100 official tourism posters from the 1930s to 1990s in high definition, vividly presenting the evolution of Hong Kong’ s tourism promotion styles across different periods [?]. Pith paper paintings, special artworks popular among European and American merchants in Guangzhou during the late Qing dynasty that depicted Chinese social customs using Western painting techniques, are included in The Chinese University

of Hong Kong Library's "Pith Paper Paintings" project, which collects digital collections across eight themes including ships, attire, and entertainment, providing unique research resources for art, folklore, and trade history [?]. Regarding resource languages, the libraries have broken through traditional integration models dominated by Chinese and English, incorporating multilingual materials in French, German, Dutch, Portuguese, and others into digital repositories to provide three-dimensional materials for cross-cultural research, demonstrating strong cross-language integration capabilities. For instance, Hong Kong Baptist University Library's "Translation Assessment Project of *Seven Brothers*" has collected multilingual translations of different chapters of the Finnish novel *Seven Brothers* through crowdsourcing, with the section "Matti Amadou's Hunting Trip" alone including 16 language versions such as Japanese, Turkish, and Italian [?]. Additionally, in the field of dialect preservation, The Chinese University of Hong Kong Library's "20th Century Hong Kong Cantonese Recitation Collection" comprehensively presents the cultural landscape of Hong Kong Cantonese recitation through interviews, archival recordings, and recitation event clips [?].

2.4 Technology Application

Technology application fundamentally determines the research efficiency and innovation capacity of digital humanities practice. The eight libraries have constructed a technological ecosystem for digital humanities practice through systematic integration. With Optical Character Recognition (OCR), Geographic Information Systems (GIS), text mining, knowledge graph construction, and multimedia production as the core technical framework, combined with emerging technologies such as big data, machine learning, three-dimensional (3D), and virtual reality (VR), they have formed a full-process technical chain covering data collection, analysis, and presentation. Excluding one inaccessible project during the survey period, among the 204 accessible projects, the frequency of technology application, typical application scenarios, and case examples are shown in .

Technologies Applied in Digital Humanities Projects

Among the eight libraries' digital humanities practices, OCR technology is most widely used (151 projects), followed by multimedia technology (35 projects) and big data technology (32 projects). Emerging technologies such as machine learning, 3D, and VR are less commonly used and mostly remain in the exploratory stage. Historical and cultural-artistic data integration primarily employs foundational technologies like OCR, while data analysis, ancient book restoration, and digital cultural heritage preservation more frequently utilize emerging technologies.

The libraries actively explore multi-technology pathways. For example, The Chinese University of Hong Kong Library's text mining technology application significantly enhances research efficiency, representing a highlight of its digital humanities practice. The project "Author Network Research on *Annotated*

Bibliography of Classical Hong Kong Poetry and Prose Collections” uses text mining to deeply analyze the social relationship networks of 800 poetry and prose collections, while the project “Text Analysis and Visualization of Hong Kong Early Tabloid *Tin Man Toi*” validates the technical feasibility of large-scale unstructured data processing through analysis of 3,250 issues [?]. Hong Kong Baptist University Library excels at combining big data technology with other technologies to enable iterative development in presentation forms. For instance, the “Spatial History of the 1941 Hong Kong Battle” project integrates GIS spatiotemporal modeling, big data analysis, and interactive visualization, winning the “Best Data Visualization Award” at the international Digital Humanities conference DH2021 [?].

2.5 Achievement Dissemination

The eight libraries demonstrate an open and shared academic philosophy in digital humanities achievement promotion, achieving efficient dissemination through three pathways: “public access,” “mass communication,” and “academic communication.” At the public access level, 204 of the 205 digital humanities projects (99%) are accessible without barriers from outside the campus. Hong Kong Baptist University Library’s “History Portal” platform had accumulated over 1.58 million visits by January 2025 [?].

At the mass communication level, all libraries emphasize building cross-platform digital narrative matrices. For example, The Hong Kong University of Science and Technology’s “Digital Humanities Initiative” maintains official accounts on Instagram, LinkedIn, Facebook, and YouTube to publicize digital humanities practice outcomes [?]. Hong Kong Baptist University Library’s WeChat official account periodically recommends digital humanities projects [?].

At the academic communication level, the eight libraries actively participate in knowledge production cycles. For instance, Hong Kong Baptist University Library featured projects such as “Touring the Ottoman Empire: Murray’s Routes in Western Asia” and its Hong Kong Battle series at its “2024 Fall Digital Scholarship Symposium” [?]. Additionally, the libraries participate in international cooperation, including joining international digital humanities organizations and competing for international digital humanities awards, further broadening the scope and depth of achievement promotion.

2.6 Integration into Education

The eight libraries have constructed teaching service systems through resource provision, curriculum support, and teaching outcome transformation, facilitating deep integration of digital humanities practice into the educational ecosystem. At the resource provision level, all library portals provide comprehensive digital humanities learning materials, including bibliographies and software tutorials, supporting digital humanities literacy education. For example, The University of Hong Kong Libraries systematically integrates technical learning

resources in computer science, including teaching materials for tools such as Python and R, and introduces the internationally renowned open-source project Data Carpentry to provide researchers with full-process skills training through its digital humanities portal [?].

At the curriculum support level, libraries provide practical platforms for relevant courses and actively support incorporating student assignments into digital exhibitions, achieving academic presentation of teaching outcomes. The University of Hong Kong Libraries' "HKU Museum 3D Artifacts" project forms a two-way empowerment mechanism with the university's common core course "Objects of the Past: Archaeology for Beginners," using Agisoft Metashape photogrammetry software to generate 3D data of museum artifacts and convert them into manipulable digital models [?]. The Hong Kong University of Science and Technology's "Digital Humanities Initiative" project "Using VR to Tell Stories—Visual Preservation of Kowloon City Heritage" integrates with three courses: "Art and Digital Culture," "Digital Humanities," and "Photography," incorporating project practice as part of course assignments, with two librarians collaborating with a humanities faculty member to provide technical support and practical guidance [?].

At the teaching outcome transformation level, libraries are committed to organically combining digital humanities practice with educational activities to develop curricula and teaching materials. Hong Kong Baptist University Library's "Chinese History Teaching and 3D Artifacts" project not only produces 3D artifact models but also develops relevant history teaching materials aligned with the Chinese history curriculum, offering history courses to over 30 primary and secondary schools [?].

This development path of integrating digital humanities practice into education not only transforms collection resources into teaching assets but also feeds back into academic innovation, forming two-way empowerment and marking the transformation of university libraries from traditional teaching supporters to co-designers of digital humanities education.

3 Enlightenment on Digital Humanities Practices in Mainland University Libraries

The fruitful achievements and advanced experiences accumulated through digital humanities practices in HKSAR's public university libraries offer valuable references for mainland university libraries.

3.1 Strengthen Top-Level Design and Improve Institutional Guarantees

Strengthening top-level design and improving institutional guarantees provides clear directional guidance and sustainable development momentum for digital humanities practice, avoiding issues such as redundant construction and resource

fragmentation while ensuring efficient and orderly progress. Mainland university libraries can advance in three aspects:

(1) Construct a Collaborative Institutional Framework. Regional digital humanities research alliances for university libraries can be established, or specialized digital humanities committees can be set up under existing regional library alliances to coordinate policy formulation, resource sharing, standards and norms, academic cooperation, and achievement promotion. Simultaneously, libraries should develop digital humanities strategic plans aligned with their own characteristics, incorporating metrics such as project quantity, resource utilization rates, and interdisciplinary cooperation outcomes into performance evaluation systems to promote high-quality project implementation through quantified indicators.

(2) Improve Supporting Guarantee Systems. Mainland universities should increase funding for digital humanities research, optimize funding channels, and establish digital humanities “special funds” when conditions permit to support basic research and technology development, while encouraging libraries to expand funding sources through social donations and corporate partnerships. Talent reserves should be strengthened by promoting the establishment of “digital humanities librarian” positions to recruit interdisciplinary talents with both subject backgrounds and technical capabilities. Cross-disciplinary team cooperation mechanisms should be established, such as jointly building digital humanities laboratories with computer science faculties, humanities faculties, and data science centers to create a “library-led, multi-disciplinary collaborative” research ecosystem.

(3) Deepen Multi-Level Cooperation Networks. At the inter-university level, regular cooperation mechanisms can be established through joint project applications and co-constructed databases to achieve complementary advantages. At the regional level, relying on national strategies such as the coordinated development of the Beijing-Tianjin-Hebei region, the Guangdong-Hong Kong-Macao Greater Bay Area, and the Yangtze River Delta integration, regional digital humanities alliances can be established to promote joint construction and sharing of characteristic cultural resources. At the international level, libraries should actively join international digital humanities organizations such as centerNet and the Alliance of Digital Humanities Organizations (ADHO), participate in international cooperation projects, promote digital humanities achievement dissemination, and enhance international influence.

3.2 Deepen Resource Integration and Highlight Local Characteristics

Deepening resource integration and highlighting local characteristics helps produce digital humanities achievements with unique academic and social value, aligning with the distinctive features of individual libraries, universities, and regions while demonstrating the irreplaceability of digital humanities practice. Mainland university libraries can focus on three aspects:

(1) Promote Cross-Disciplinary Resource Integration. Comprehensive digital humanities platforms can be built to integrate multi-disciplinary resources both on and off campus, such as historical documents, geographic data, art archives, and technical materials, while providing digital humanities research tool support. Libraries should strengthen their pivotal position in interdisciplinary research by actively linking research units and experts from different disciplines to explore possibilities for cross-disciplinary cooperation.

(2) Excavate Regional Cultural Resources. Libraries should build differentiated digital humanities brands based on local cultural advantages. For example, university libraries in historically significant cities like Beijing and Xi'an can prioritize ancient capital cultural heritage digitization projects; libraries in ethnic minority regions can establish ethnic language literature databases to promote endangered language preservation and research.

(3) Strengthen In-Depth Development of Historical and Artistic Resources. While preserving ancient books, systematic digitization of non-book materials (such as posters, brochures, metal and stone inscriptions, and bamboo slips) should be enhanced, with multi-language metadata indexing technologies introduced to support cross-cultural research. Emphasis should be placed on developing unique special collections to create digital humanities brands and form a distinctive library character in the digital humanities research field.

3.3 Innovate Technology Application and Enhance Research Efficiency

Innovating technology application and enhancing research efficiency can strengthen the capacity to efficiently process, analyze, and present complex humanities data, break through the limitations of traditional research methods, empower interdisciplinary research and academic innovation, and drive digital humanities practice toward precision and intelligence. Mainland university libraries can explore three aspects:

(1) Consolidate Foundational Technology Applications. Foundational technologies serve as the cornerstone of digital humanities research and play a decisive role in enhancing basic data processing capabilities, thus warranting prioritized promotion and popularization. In text processing scenarios, OCR and multi-language text processing technologies can conduct batch digitization of massive amounts of ancient books, archives, and manuscripts, greatly improving text data collection efficiency and providing solid data support for subsequent research. GIS technology empowers digital humanities research in the spatial dimension, enabling not only spatial visualization of historical events to present abstract historical information intuitively on maps but also simulating urban changes to help researchers deeply understand urban development trajectories. Additionally, knowledge graph and linked data technologies can construct personal relationship networks and event logic chains to uncover potential associations between data, making research more systematic and in-depth.

(2) Introduce Emerging Frontier Technologies. This is key to driving paradigm innovation and expanding disciplinary boundaries in digital humanities research. For example, AI generation and content enhancement technologies can be used for damaged document restoration, historical scene virtual reconstruction, and multimodal data analysis; metaverse technologies can create virtual archaeological sites and immersive cultural exhibitions; blockchain and digital asset certification technologies can protect digital resource copyrights, trace academic achievements, and confirm collaborative research rights.

(3) To achieve efficient technology application, reasonable technology pathway selection and technology application risk assessment must be conducted, and personnel allocation must be optimized. In digital humanities research, academic problem orientation should be maintained to avoid “technology for technology”’s sake.” Dedicated technical librarians (such as digital humanities librarians) with multi-disciplinary backgrounds, particularly in computer science and humanities education, should be appointed, and interdisciplinary advisory teams should be established.

3.4 Expand Achievement Dissemination and Enhance Social Influence

Expanding achievement dissemination and enhancing social influence can promote the transformation of digital humanities research outcomes into culturally perceptible products for society, break academic barriers, promote public participation, enhance cultural identity, and strengthen libraries’ cultural value and academic status as cultural communication hubs. Mainland university libraries can focus on three aspects:

(1) Build Open Sharing Platforms. Digital humanities research outcomes should be opened to society through knowledge-sharing agreements. One-stop access platforms should be built to provide convenient search and download services, facilitating public access and use, and achieving widespread dissemination of achievements.

(2) Deepen International Academic Exchange. Librarians should be encouraged to present research outcomes at domestic and international digital humanities conferences through keynote speeches and achievement displays to share research experiences and innovative results, enhancing academic influence. Meanwhile, through international cooperation projects, collaborations with internationally renowned universities and research institutions should be conducted to attract high-quality international resources and elevate university libraries’ international discourse power in digital humanities.

(3) Conduct Popular Science Communication. New media technologies can be used to produce diverse popular science works, such as vivid graphics and interesting short videos, to present digital humanities construction outcomes to the public in accessible ways. Interactive popular science activities can be conducted through new media platforms such as WeChat official accounts and Bilibili to enhance user engagement and stickiness.

3.5 Integrate into Education System and Cultivate Digital Humanities Literacy

The deep advancement of digital humanities practice relies on support from professional talent and empowerment from the education system. As the core driving force of digital humanities development, incorporating digital humanities literacy cultivation into the education system can not only supply compound talents with both technical thinking and humanistic literacy for related practices but also enhance the sustainability of research innovation through disciplinary integration mechanisms. Mainland university libraries should actively integrate into the national “New Liberal Arts” construction strategy, leveraging digital humanities’ natural advantages in disciplinary convergence and research innovation to cultivate compound talents with global vision, innovative capacity, and humanistic literacy. This not only meets talent demands in the digital era but also provides strong support for New Liberal Arts construction. Mainland university libraries can achieve breakthroughs in three aspects:

(1) Optimize Curriculum System Design. Libraries with mature conditions can independently or collaboratively offer digital humanities courses with faculties. Digital humanities research methodologies and tool teaching can be embedded into library information literacy courses, establishing specialized digital humanities literacy teaching modules to systematically teach technologies such as text mining, image recognition, knowledge graphs, and geographic information analysis. Additionally, cross-faculty and cross-disciplinary digital humanities teaching platforms should be built to break disciplinary barriers and offer interdisciplinary general education courses such as “Digital History” and “Computational Literature,” enabling students to master digital humanities skills through multi-knowledge collisions.

(2) Strengthen Research Service Support. Digital humanities project incubation platforms should be built to provide full-process services from project planning and data collection to achievement publication, supporting teachers and students in conducting digital humanities research. Professional librarians should provide subject services such as reference consultation, literature retrieval, and data analysis for projects—for example, helping teachers and students select authoritative digital resource databases during data collection and providing professional software usage guidance during data analysis to ensure smooth project progress.

(3) Enhance Resource Open Sharing. Construction of databases such as digital humanities learning resource repositories should be strengthened to extensively integrate high-quality MOOC resources, open-source code, and typical case collections both domestically and internationally. On one hand, students can independently learn digital humanities courses and conduct related practices by referring to excellent cases. On the other hand, teachers can obtain cutting-edge teaching materials to enrich course content. Database construction can effectively reduce teaching costs, expand the dissemination scope of

digital humanities knowledge, and powerfully promote digital humanities literacy cultivation.

4 Conclusion

Through strategic top-level design leadership, deep integration of cross-disciplinary resources, innovative application of frontier technologies, open sharing of achievement dissemination, and deep integration into the education system, public university libraries in HKSAR have produced numerous digital humanities achievements with significant academic and social value, providing valuable experience for mainland university libraries' digital humanities development. As university libraries bearing the dual mission of cultural inheritance and academic innovation, they can, based on the "Hong Kong experience," transform it into local strategies and actively explore digital humanities research paths with their own and local characteristics to achieve leapfrog development in digital humanities practice.

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Author Contributions

Song Yawei: Proposed the research topic and framework, wrote, revised, and finalized the manuscript.

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Note: Figure translations are in progress. See original paper for figures.

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