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Digital Humanities Practice at Columbia University Library: A Post-print Study

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Abstract

[Purpose/Significance] This study analyzes the digital humanities practices of Columbia University Library in the United States to provide reference for Chinese libraries in developing digital humanities services.

[Method/Process] Through web-based surveys, email consultations, and textual analysis, this paper examines the library's digital humanities service objectives, staffing configurations, and service practices, and summarizes their distinguishing features.

[Results/Conclusion] Digital humanities services constitute a new growth area for library services and are currently still in an exploratory phase. Libraries engaging in digital humanities practice exploration need to establish clear positioning and development objectives, increase investment and enhance infrastructure, strengthen capacity building and create dedicated positions, and deepen engagement while developing diversified services.

Full Text

An Exploration of Digital Humanities Practice at Columbia University Library

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Abstract

[Purpose/Significance] This paper analyzes the digital humanities practice at Columbia University Library to provide reference for Chinese libraries developing digital humanities services. [Method/Process] Through web investigation, email consultation, and text analysis, this article examines the service objectives, position setup, and service practices of Columbia University Library's digital humanities initiatives, and summarizes their characteristics.

[Result/Conclusion] Digital humanities service represents a new growth area for libraries, currently still in the exploratory stage. In exploring digital humanities practice, libraries need to identify their precise positioning and clarify development objectives, expand investment and improve infrastructure, strengthen learning and establish relevant positions, and deepen connections while diversifying services.

Keywords: digital humanities; library; Columbia University; practice

1. Digital Humanities Practice at Columbia University Library

The Digital Humanities Center (DHC) is the main body implementing digital humanities services at Columbia University Library. Located in Butler Library, Columbia's largest library, the DHC is part of the Humanities and History Division (H&H) and one of three discipline-oriented digital centers at Columbia University Library [5]. Its predecessor was the Columbia University Library Electronic Text Service. As a research and teaching facility of Columbia University Library, the DHC aims to help faculty and students integrate computer-based text, bibliographic, image, and video information into their research, learning, and teaching. The DHC houses machine-readable source texts, software for text analysis and critical editing, research tools for humanities databases, IBM and Macintosh microcomputers, and optical scanning equipment for creating machine-readable texts. DHC staff provide presentations, workshops, individual consultations, and course services to deepen connections between the library and the digital humanities research community and better understand user needs.

In addition to the Digital Humanities Center, the Library's Digitalization Center and Center for Digital Research and Scholarship also carry out auxiliary work around digital humanities services. Moreover, Columbia University Library actively collaborates with other campus departments, such as the Columbia Center for New Media Teaching and Learning and Columbia University's Digital Humanities Program, to actively develop digital humanities support services.

2. Service Objectives and Position Setup

2.1 Service Objectives The Digital Humanities Center at Columbia University Library has clearly defined its work objectives, which serve as the guiding framework for its development direction and operations:

1. The DHC consolidates technology and research support to serve Columbia students, faculty, and humanities and history staff. Users can individually or in groups identify, learn, and use the latest digital resources and technologies, often in combination with resources they create themselves or acquire from other sites.
2. The DHC aims to provide at least basic support for all digital formats relevant to specific users, comprehensive support for materials collected

by history and humanities disciplines, and referrals to other libraries or campus departments for specialized tools.

3. As a space where Columbia University Library humanities and history librarians can work alongside print collections to provide digital reference and instructional services, the DHC's goal is to integrate its work closely with general public service operations in the humanities and history disciplines, serving as a comprehensive H&H reference, research, and technology center.
4. It also serves as a site for formal close cooperation and interaction between university information teams (particularly library digital initiatives, library IT offices, etc.) and other campus computer groups. The DHC acts as a first point of contact with Columbia information systems, providing venues for the demonstration, implementation, and evaluation of digital products based on the respective expertise of these groups or through referrals, with staff from these groups also able to use the workspace according to their needs [6].

2.2 Position Setup The dedicated positions for digital humanities at Columbia University Library mainly include Digital Humanities Librarian, Digital Scholarship Coordinator, Steering Committee, and Graduate Consultants [7]. Currently, the DHC's Digital Humanities Librarian is B. Scott, who serves as the Director of the Digital Humanities Center. Responsibilities primarily include fundraising, reviewing and submitting annual work plans and securing funding, researching and resolving major issues that arise during development, seeking cooperation from all parties, and assisting with daily operations, allocation, and participation in various projects. The Digital Scholarship Coordinator is A. Gil, whose main responsibilities involve coordinating and consulting services for scholars, faculty, students, and other users of the library's digital humanities center services to ensure different user needs are met.

The DHC Steering Committee currently consists of four members: B. Rockenbach, Director of Humanities and History Libraries at Columbia University Library; N. Friedland, Film Studies and Performing Arts Librarian; A. Mills, Undergraduate Services Librarian; and N. Patterson, Music and Performing Arts Librarian. Their responsibilities mainly involve organizing strategic research on center construction and reform, providing suggestions and opinions on service objectives, development plans, and work adjustments, researching DHC construction planning, and guiding and assisting in establishing the digital humanities center and evaluating practical work.

There are currently five Graduate Consultants: M. de Caro, M. Ding, R. Israel, Z. Mackin, A. Nguyen, and Ko? Rely Pi, who primarily provide professional consultation and guidance for the construction and services of the digital humanities center.

3. Digital Humanities Service Practice

3.1 Thematic Information Services A common problem encountered in digital humanities projects is researchers' limited ability to obtain usable, project-relevant information from massive information resources [8]. Therefore, libraries collecting digital humanities project-related resources and classifying, summarizing, and translating them according to humanities research and teaching needs constitutes an excellent form of digital humanities thematic service [1]. Columbia University Library aggregates and classifies digital humanities resources available in-house and online for readers to select and use. These resources are roughly divided into four categories: (1) Databases, referring to specialized or comprehensive databases providing digital humanities resources, such as British Humanities Index (BHI), Humanities International Complete, Academic OneFile, etc.; (2) Journals, referring to academic publications focusing on digital humanities, such as *Computing in the Humanities Working Papers*, *Ariadne*, *DHQ: Digital Humanities Quarterly*, etc.; (3) Books, aggregating the library's digital humanities monographs for browsing and borrowing; and (4) Extended digital humanities teaching resources, recommending extended learning resources such as online videos and special lectures. By classifying and organizing literature and information resources, Columbia University Library provides users with unique, first-hand useful resources, fully leveraging the library's position as a resource provider in digital humanities services. This approach both maximizes library strengths and improves collection utilization while enhancing user productivity and optimizing user experience.

3.2 Technology and Equipment Application Services The realization of digital humanities services requires computer technology and equipment. According to different usage purposes, Columbia University Library's Digital Humanities Center provides matching technologies and equipment:

1. **Scanning and editing texts and images:** The DHC has six dedicated high-end text scanners, four dedicated high-end image scanners (which can also work with many text projects) and one microfilm scanner, all equipped with ABBYY FineReader, Adobe Acrobat, and Adobe Photoshop to produce image files or machine-readable text. Four scanners can handle large-format items, and three image scanners can scan multiple slides and other transparent materials. In addition to scanning workstations, the DHC provides nine Windows and seven Macintosh workstations for individual projects, including Microsoft Office, Adobe Creative Suite (Photoshop, Illustrator, InDesign, Acrobat, Dreamweaver and Flash), oXygen XML editing software, and individual copies of related programs including NISUS, QuarkXpress, WordPerfect, Nota Bene, Captivate, and Camtasia [9].
2. **Digital video editing:** The DHC has begun supporting digital video work and will soon be able to expand support for audio and video clip cap-

ture. Six Macintosh workstations are equipped with digital video editing capabilities and a suite of related tools, including Final Cut Pro, iMovie, Final Draft, Soundtrack Pro, DVD Studio Pro, Avid Media Composer, and Podcast Capture [10].

3. **Reference and citation management:** To make information resource collection and use more convenient and effective, the DHC provides users with multiple software tools, including ZOTERO, MENDELEY, and ENDNOTE, along with web links to general citation resources and tools [11].
4. **Text and qualitative analysis:** Electronic resources are suitable for various research purposes, including vocabulary usage, style, intertextual influence, and through harmony, word frequency analysis and collocation, thematic coding, semantic webs, etc. These aspects of research have special requirements. To this end, the DHC provides software and consulting support for more careful analysis of texts and images. Programs provided by the DHC include WordSmith, Crawdad, NVIVO, and TAPoR [12].
5. **Personal digital archiving:** Users generate large amounts of electronic materials in various formats daily, such as word processor files, bibliographic databases, PDFs, web pages, image and media files, spreadsheets, computer programs, blogs, emails, text and voice messages, stored in various locations including personal computers, tablets, mobile phones, the internet, CDs and DVDs, external hard drives, USB drives, and other places. Since such personal digital information is easily lost and difficult to preserve, the DHC provides users with a series of methods for preserving this personal information [13].

3.3 Reference and Training Services To better promote the use of DHC technology and equipment and enhance the influence of the library's digital humanities center, the DHC, in conjunction with Columbia University Library's Research Support Group, has developed "WORKSHOPS + ONLINE TUTORIALS" for digital humanities reference and training services. WORKSHOPS are mainly held at various Columbia libraries and other campus departments, focusing primarily on the use of various digital humanities equipment, software technologies, and computer language knowledge provided by the DHC, such as Python Open Lab, Introduction to Zotero, Data Visualization with R, Introduction to the Bloomberg Terminal, and Engrave your own nameplate | Maker Space venture into milling, etc. [14]. The annual WORKSHOPS schedule is published in advance on the DHC website, allowing readers to choose participation locations and sessions according to their interests and schedules. At least one WORKSHOP is scheduled daily, typically lasting 1-2 hours. In addition to workshop-based training, the DHC also recommends relevant online courses as supplements, currently including Lynda.com Software Tutorials, Library Essentials, GIS Self-paced Online Courses, and Spatial Labs.

3.4 Digital Scholarship Program Columbia University Library has developed the Digital Scholarship Program to help Columbia faculty and students integrate advanced computer methods into their research, publications, and teaching [15]. Through this program, the DHC, in collaboration with the Columbia Center for New Media Teaching and Learning (CCNMTL), created Studio@Butler in Fall 2013. Located in Room 208b of Butler Library, this studio provides a collaborative workspace for Columbia schools to promote pedagogy and digital scholarship practice. Columbia schools can request use of the studio via email for digital humanities education or digital scholarship projects. Studio@Butler regularly provides digital humanities training courses to users, such as Mapping for Architecture, Urbanism, and the Humanities; Technologies of Dissent Lab; and Conflict Urbanism: InfraPolitics [16], to improve users' digital technology skills.

3.5 Digital Preservation and Conversion Services In most cases, digital humanities developers lack effective tools or professional knowledge to solve preservation problems for the resources they create. Columbia University Library's Preservation & Digital Conversion Division provides related services for digital humanities scholars, including: (1) Digitization and reproduction services, mainly comprising digital photography, flatbed scanning, e-books, microfilm duplication, microfilm scanning, and audio reformatting; (2) Audio and moving image acquisition and digital preservation services; (3) Collection publication and digitization services, allowing users to copy and publish Columbia University collection documents for teaching, research, and other legal rights uses; and (4) Converting collection resources into digital humanities resource formats to meet personalized needs of digital humanities scholars. Columbia University Library ensures optimized preservation of digital resources through standard applications, metadata management, and other methods, incorporating digital preservation into early project design and development plans to improve later operability.

3.6 External Support Services In addition to actively exploring digital humanities services itself, Columbia University Library also actively supports other departments on campus by providing digital humanities-related consultation, demonstrations, workshops, and courses. First, Columbia University Library's Digital Humanities Center is one of 11 team members of Columbia University's Digital Humanities Program, working with the other 10 members to form Columbia's digital humanities teaching and research system, aiming to help Columbia faculty and students integrate computer-based text, bibliographic, image, and video information into their research, learning, and teaching [17]. Second, Columbia University Library is an important member of the Columbia Center for Teaching and Learning (CTL), with two library staff members serving on the CTL Advisory Board. Digital humanities services provided by Columbia University Library to CTL mainly include [18]: (1) Teaching support, including consultation where faculty, graduate students, postdocs, and

staff can request face-to-face consultation to support their teaching and learning needs year-round; teaching observation where trained consultants can help faculty think through course objectives and observe teaching effectiveness; and evaluation support based on course design assessment tools to evaluate learning outcomes. (2) Teaching technology support, including CourseWorks for online collaboration, presentation, lecture capture, audience response, media annotation, and e-portfolio tools; EdBlogs for sharing course content and creating online communities in blog format; Mediathread for extracting video, audio, and images to support collaborative multimedia analysis; and Wikispaces for creating, linking, and modifying pages related to one or more courses. (3) Other services, mainly including blended learning curriculum system design and MOOCs.

In addition to providing these fixed digital humanities services, Columbia University Library also actively solicits user opinions and suggestions to expand service content and better meet users' technical needs. Users can also submit specific requests to the library, which will then take the lead in customizing and developing digital humanities services.

4. Feature Analysis

4.1 Clear Work Objectives OCLC research reports indicate that libraries can demonstrate their value in digital humanities research by participating in specific digital humanities projects or providing related research services according to their own culture and environment [19], with different libraries having different functional positioning. Therefore, clarifying digital humanities work objectives is crucial. Columbia University Library has clearly defined its digital humanities work objectives: (1) Ensure users have the technical, digital resources, personnel, and technical infrastructure needed to conduct digital humanities projects; (2) Provide or assist users in collecting materials needed for humanities projects, and provide specific services such as digitization, text mining, and data format conversion to help users utilize resources; (3) Maximize provision of digital humanities space to ensure user needs for research, teaching, and other work; and (4) Play a coordinating and communicating role, connecting digital experts with humanities scholars and serving as an interdisciplinary bridge. Clear strategic objectives ensure that Columbia University Library's digital humanities work can carry out strategic planning and practical exploration within this framework.

4.2 Comprehensive Technical Infrastructure Digital infrastructure is the foundational architecture for digital humanities practice. Whether for tool learning and application, project development and operation, metadata management and use, or digital preservation implementation, libraries should provide comprehensive infrastructure to facilitate researchers' use of resources and creation and promotion of projects. Columbia University Library's digital humanities infrastructure is well-developed, providing users with necessary equipment, soft-

ware, tools, and workspaces for digital humanities research. The DHC offers four categories of applied technologies according to different technical applications: (1) Text mining, providing software such as WordSmith, Crawdad, NVIVO, and TAPoR; (2) Digitization, providing high-end image scanners and microfilm scanners with professional software such as ABBYY FineReader and Adobe Acrobat; (3) Visualization and graphics, with six Macintosh workstations equipped with Final Cut Pro, iMovie, Final Draft, Soundtrack Pro, DVD Studio Pro, Avid Media Composer, and Podcast Capture; and (4) Information collection and preservation, providing a series of technologies for literature and personal information collection such as ZOTERO, MENDELEY, and ENDNOTE.

4.3 Independent Department Establishment Establishing a digital humanities center is an important measure for foreign libraries to participate in digital humanities projects [3], and Columbia University Library is no exception, becoming the optimal location for establishing a digital humanities center. The establishment of the Digital Humanities Center bridges the gap between the current state of library resources and service provision and the expectations of digital humanities researchers [21], greatly promoting the popularization of digital humanities. The Columbia University Library Digital Humanities Center has also established internal positions such as Digital Humanities Librarian, Digital Scholarship Coordinator, Steering Committee, and Graduate Consultants according to the characteristics and needs of digital humanities services, with each performing its own duties, collaborating with digital humanities researchers to carry out digital humanities projects, and acting as an incubator and accelerator for digital humanities projects.

4.4 Diverse Service Content A U.S. survey of 339 libraries shows that less than 17% of respondent libraries do not provide digital humanities project services [20]. Providing services is an important way to support digital humanities development and an effective means to maximize the value of digital humanities projects. Columbia University Library's services are roughly divided into four categories: information resource collection, navigation, and provision; technology tool provision, application, and assistance; reference consultation and advisory services; and research, learning, and practice space provision. According to different user needs, the library has built a complete digital humanities service system on the basis of existing services, broadening the scope of library services and basically meeting the needs of digital humanities researchers. In addition, Columbia University Library also actively cooperates with other university departments to provide diversified service systems according to their needs.

5. Reflections and Implications

5.1 Identify Positioning and Clarify Construction Objectives Currently, from the perspective of organizational affiliation, the supervisory institutions of university digital humanities centers are basically divided into three

categories: humanities teaching and research institutions, computer centers, and libraries, with those affiliated with libraries accounting for less than one-third of the total [22]. Libraries can play many roles in supporting digital humanities, such as resource provider, content curator, subject liaison, course instructor, consultant, and research space provider [23]. Therefore, libraries need to carefully consider what identity they should adopt to carry out digital humanities services—whether as the main constructor or as a collaborative participant—and whether it is necessary to specially establish a digital humanities center. OCLC research indicates that if user demand is substantial and the library has sufficient resources, having the library manage the digital humanities center is the optimal choice [21]. Libraries should identify their role positioning in digital humanities based on resource integration and self-assessment.

On the basis of identifying their digital humanities role positioning, libraries need to further formulate construction objectives. Actual conditions vary significantly among libraries, so construction objectives also differ, but should include the following basic elements: (1) Provide users with digital humanities teaching, research, and learning environments, and provide staff with efficient and convenient digital work environments; (2) Ensure users possess the digital skills they need; (3) Ensure users have the technology, personnel, and infrastructure needed to carry out digital humanities construction; and (4) Continuously follow up on the digital humanities field and timely revise construction strategies.

5.2 Expand Investment and Improve Infrastructure Digital humanities space construction, digital humanities librarian training, introduction of new tools and technologies, and digital humanities librarian recruitment all require financial investment, yet libraries' available funds are often stretched thin. Therefore, expanding funding channels and increasing investment is a top priority for library digital humanities work. Learning from the experience of foreign foundations and establishing a digital humanities project funding system in China is a feasible path. Funding digital humanities research projects through the National Natural Science Foundation and the National Social Science Foundation, and encouraging universities and research institutions to engage in digital humanities research, can serve as a foundation. Based on this, relevant policies should be introduced to encourage enterprises and individuals to participate in digital humanities research, promoting the marketization and industrialization of digital humanities [24].

Certain digital humanities research work requires related facilities for support, such as manuscript transcription, text mining, and data visualization. Therefore, libraries should further improve their infrastructure from the perspective of digital humanities research work, building upon existing infrastructure. Library digital humanities infrastructure should include digital humanities physical and virtual spaces, digital humanities information resources, tool hardware, and technology applications. Common technology applications include five major categories: digitization technology, text mining, visualization and graphics, pat-

tern recognition, and virtual reality/augmented reality and immersive virtual reality interaction [22].

5.3 Strengthen Learning and Establish Relevant Positions Digital humanities is a typical interdisciplinary research field requiring new types of composite librarians. In addition to requiring solid knowledge accumulation in library and information science and humanities disciplines, librarians are also required to master key technologies such as data curation, text mining, GIS, and data visualization [24]. Therefore, librarians need to continuously learn to meet the needs of digital humanities service work. Common learning methods include participating in training, online learning, international exchange, and involvement in digital humanities projects. However, due to the lack of targeted training institutions, limited online course content, high requirements for international exchange conditions, and weak relevance to libraries, participating in specific digital humanities projects is the best way to master digital humanities technologies.

In addition, recruiting digital humanities librarians is also an important way to strengthen the team. Candidates need to be proficient in technologies related to digital humanities research, especially data analysis tools, digital repository-related technologies, digital humanities-related course teaching abilities, and be able to solve intellectual property and data supervision issues in interdisciplinary cooperation [24]. According to 2016 survey data, 21% of the 339 U.S. libraries surveyed had established positions related to digital humanities [20]. Digital humanities positions should include: (1) Digital Humanities Steering Committee, mainly responsible for formulating digital humanities-related strategies and providing professional guidance; (2) Digital Humanities Content Team, responsible for related content production, providing digital content processing, copying, and exhibition services for digital humanities researchers; (3) Digital Humanities Librarians, who master digital tools, support digital humanities research, track digital humanities development trends, continuously upgrade their skills, provide digital humanities consulting services and training for researchers, and preserve digital humanities project outcomes; (4) Digital Humanities Coordinators, who coordinate work between digital humanities librarians and humanities scholars and other library staff; and (5) Digital Humanities Office, responsible for providing digital humanities training and consulting services for digital humanities researchers.

5.4 Deepen Connections and Diversify Services Since humanities research or creation is highly individual and has no fixed formula, the datasets, tool software, or platforms used in humanities research are generally niche and highly specific. In the process of “digital humanities” practice, libraries should maintain close contact with humanities scholars and fully engage in their teaching and research processes to avoid becoming disconnected from specific humanities teaching and research contexts, which would result in “digital humanities” practice having no audience [25]. Libraries should approach humanities scholar

users with an open and positive attitude and customize and develop personalized services according to their needs.

Service is the foothold of library work [26], and digital humanities work is no exception. Libraries should pay attention to the needs of digital humanities scholars and innovate on the basis of existing services to provide diversified services. Library digital humanities services should include digital humanities thematic information services, digital humanities platform/tool provision services, digital humanities application training services (such as digital humanities workshops), digital humanities data storage space services, data curation services, consulting services, project assistance services, and other specific services proposed by digital humanities scholars.

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