Self-Portrait in a Kaleidoscope: A Qualitative Study of Chinese Humanities Scholars' Perceptions and Needs Regarding Digital Scholarship (Postprint)

Authors: Xiao Peng, Yi Chunbo

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Abstract

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Full Text

Preamble

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Self-Portrait in a Kaleidoscope: A Qualitative Study on the Digital Scholarship Cognition and Needs of Chinese Humanities Scholars

Xiao Peng[1], **Yi Chunbo**[2]
[1]School of Information Management, Sun Yat-sen University, Guangzhou 510275
[2]Faculty of Economics and Management, East China Normal University, Shanghai 200062

Abstract:
[**Purpose/Significance**] From the perspective of humanities scholars, this paper explores how they view digital humanities and how they are influenced by the wave of digital humanities. By investigating humanities scholars' cognition of and needs for digital scholarship, it lays a foundation for digital humanities services and system design. [**Method/Process**] Using qualitative research methods, this study conducts comparative research across four fields—literature, history, philosophy, and art—and performs saturation testing with interview materials to construct a qualitative mainline of "cognition-prediction-anxiety-needs and responses." [**Results/Conclusions**] The study finds that humanities scholars from different fields do not share identical cognitions of digital scholarship, yet their predictions of its impact exhibit commonalities. They generally agree that digitization will influence research materials, methods, knowledge dissemination, and research questions in the humanities. In the face of the digital wave, their concerns mainly include worries about the depth of digital scholarship research, the disciplinary subject status, and academic ethics issues in technological environments. Finally, humanities scholars have many needs regarding capacity improvement, data, technology, and research evaluation systems, with the most urgent being needs for "infrastructure" and "digital projects."

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1. Problem Statement

"Digital academic needs" refers to the various needs generated by researchers as they adapt to emerging academic environments and paradigms in the context of digital scholarship's rise [1]. Compared to the concepts of "information needs" or "information resource needs" in the traditional Library and Information Science (LIS) perspective, "digital academic needs" points to a broader scope, covering researchers' discourse needs (the need to achieve domain-specific output, gain academic recognition, and express viewpoints in digital environments), exploration needs (the need to conduct academic exploration and construct new problem consciousness in digital environments), tool needs (the need to obtain

and utilize digital academic tools), resource needs (largely corresponding to information resource needs in the traditional LIS domain), literacy needs (the need to improve one's own digital literacy), and popularization needs (the need to access and understand digital scholarship). This concept more comprehensively and completely describes the many problems researchers face during academic environmental and paradigmatic transformations.

Although "digital academic needs" is a foundational concept that can be oriented toward all domain researchers, it was initially constructed around "humanities scholars." Based on previous research, this paper attempts to return to a more critical issue: What are the digital academic needs of humanities scholars? Or rather, what digital academic needs do humanities scholars have?

Despite being a newly coined concept, the examination of humanities scholars' academic behaviors and analysis of their research processes have long been focal points in academic circles. In a previous article, the author noted that current research on humanities scholars' academic behaviors generally follows two approaches: "One starts from the 'self-portrait' of humanities scholars, while the other examines them through the lens of other disciplines—these two approaches complement each other…" [2]. The former (the so-called "self-portrait perspective") refers to texts produced or voiced by humanities scholars themselves about their own academic behaviors and research needs, representing their self-analysis and reflection on personal academic needs. Its advantage lies in analytical depth, while its disadvantage is that such expressions may suffer from the limitation of "not seeing the forest for the trees." The latter (the so-called "other disciplines perspective," which can be called the "other-portrait perspective") refers to examinations of humanities scholars' academic research behaviors by other disciplines, especially LIS. From S. Stone's tracking of humanities scholars' literature usage habits [3] to L.M. Given et al.'s recent research on humanities scholars' use of digital research tools [4], all fall into this category. Compared to humanities scholars' self-reflection, its advantage is eliminating interference from inherent disciplinary thinking inertia, allowing more objective discussion, while its disadvantage is that external researchers often lack deep understanding of humanities issues, making research conclusions less likely to resonate in humanities circles.

The author attempts to combine these two traditions, employing qualitative research methods within the LIS perspective and framework, while incorporating as many public discourses and key expressions of humanities scholars as possible to present their digital academic needs.

2. Literature Review

As mentioned above, this literature review unfolds from two perspectives: research on humanities scholars by external observers and humanities scholars' self-reflection, roughly termed the "other-portrait" perspective and the "self-portrait" perspective.

Research from the "other-portrait" perspective primarily originates from the LIS field. Since the 1980s, LIS scholars have established a research tradition on humanities scholars' information needs and information behaviors. Although these studies tracked and recorded the transformation of humanities scholars' needs, this transformation was not obvious for a long time [5]. Around 2007, the work of S. Baruchson-Arbib and J. Bronstein attracted considerable attention. Through questionnaires and in-depth interviews with Jewish studies scholars in Israel, they found conclusions such as "strong preference for books," "habit of tracking citations," and "emphasis on library catalogs" [6]. The image of humanities scholars outlined by these conclusions was not essentially different from that of the early 1990s. During this period, humanities scholars had begun using digital resources and were accustomed to information technology. The frequency of digital resource usage was increasing, and recognition of digital scholarship was gradually strengthening. For example, in the history field, digital archival collections had become the main resources for historians [7]; in the art field, e-Science projects stimulated art scholars' enthusiasm, creating urgent desire to collaborate with information science and computer researchers to break through issues like ambiguity and inconsistency in humanities data [8]; when some humanities scholars realized the value of digital resources, they persisted in fighting various types of technical and access barriers to obtain needed data [9]. However, overall, their cautious attitude and behavioral inertia toward digitization remained "visibly evident," with studies from around the world [10-13] repeatedly reaffirming similar conclusions.

From the "self-portrait" perspective, although humanities scholars expressed needs for tools and resources in digital academic environments, to some extent their discussions focused on deeper levels, including discourse needs and exploration needs in the formation process of digital humanities paradigms [14-15]. Of course, alongside these "needs," there are also many opposing voices. For example, some scholars argue that treating literature as data loses literature's inherent rich connotations, and that literature should be diametrically opposed to data [16]; others believe that under conditions of technological anonymity, positivism would erase humanistic sensitivity [17]. Since the content of the "self-portrait" belongs to the main discussion below, it will not be elaborated here.

Reviewing these two research paths reveals that they address digital academic needs at different levels. Clearly, needs investigation from the LIS perspective mainly proceeds from a practical angle, focusing on tool needs, resource needs, etc., with conclusions and recommendations that are somewhat helpful for developing digital tools and improving library and archive service strategies. Meanwhile, we also need to "step outside" the traditional LIS perspective to summarize and consider needs issues from the viewpoint of humanities scholars. For example, if libraries notice that humanities scholars have needs to construct new theoretical discourses in digital humanities, they could develop a specialized service strategy, such as regularly gathering scholars from different fields in online or offline seminars to provide a platform for theoretical viewpoints to

collide and merge. Further, although there are currently many design models and ideas for humanities databases, how do humanities scholars view these design perspectives? There are also many quantitative data studies in humanities from non-humanities fields—how do specialized humanities scholars view these quantitative works and judge their conclusions? There are currently no clear answers to these questions. It can be said that work in this field on "stepping outside" remains incomplete.

Based on this, the author has established a general research approach: starting from the perspective of humanities scholars, examining their views on digital scholarship or digital humanities, then incorporating these views into the LIS framework and context for organization, and further refining them into specific cognitions and needs to lay a foundation for digital humanities services and system design.

3. Research Design and Process

3.1 Research Design

Two main problems exist in analyzing humanities scholars' digital academic needs: How can we fully and completely reflect humanities scholars' views on digital scholarship? And how can we ensure that the summarized needs represent relatively mainstream opinions?

Current similar studies on humanities scholars generally follow this path: conducting in-depth interviews with humanities scholars, conducting qualitative analysis based on grounded theory's standard procedures, establishing frameworks, and performing theoretical saturation testing. This methodological approach itself is not problematic. Especially through saturation testing, it seems to address the richness and representativeness issues of small-sample qualitative research to some extent. However, this "confidence" is very dangerous. On the one hand, theoretical saturation in small samples and large samples may mean completely different things, with the "snowballing" method's bias crisis being a typical case [1]. Moreover, small-sample theoretical saturation bias is particularly obvious in the humanities field because we often use the term "humanities scholars" too simply and without consideration. Generally speaking, the humanities field includes at least three major disciplines: literature, history, and philosophy, sometimes also covering art—these sub-disciplines differ greatly, and even sub-sub-disciplines have obvious cognitive gaps. Consequently, an interview targeting modern literature researchers is probably difficult to represent the "literature field" situation, yet such "representation" frequently occurs. On the other hand, researchers' questioning methods, inquiry frameworks, and discourse guidance during interviews, as well as relatively subjective axial and selective coding in the analysis process, can easily lead to research results reflecting not mainstream viewpoints but rather more attractive, extreme discourses.

This study is also a small-sample and subjective research to some extent, making it difficult to completely avoid these two drawbacks. To overcome bias within

feasible limits, the author carefully designed the research process: First, the study divided survey texts and research objects into four fields (literature, history, philosophy, and art), conducting separate investigations and comparative studies in the results and conclusions. Second, to reflect mainstream discourse as much as possible, interview materials (26 interview records) were used as theoretical saturation testing materials, while all main coding materials were obtained from authoritative humanities and social science media. The combination of these two different materials can reduce errors from small-sample theoretical saturation to some extent.

3.2 Research Process

The author mainly obtained qualitative analysis materials through literature investigation and in-depth interviews. The study first combed through articles in academic media (limited to *China Social Sciences Daily* and *Guangming Daily* (Theory Edition)) and domain-authoritative journals (mainly including *Historical Research*, *Philosophical Research*, *Literary Heritage*, *Literary Review*, and *Art Studies*, extended to some CSSCI journals) about "digital humanities" or "digital scholarship" written primarily by humanities scholars. Among more than 100 obtained documents, 41 core documents were selected based on author importance and journal weight through separate reading and joint recognition. The specific disciplinary distribution is shown in Table 1 .

Based on this, 41 articles were analyzed sentence by sentence (totaling 3,415 sentences), extracting important statements involving digital scholarship viewpoints. Invalid words in important statements were deleted to extract keywords. Keywords with same or similar meanings were repeatedly screened and organized to form primary concepts. On this basis, open coding was conducted, finally integrating 48 open codes, as specifically shown in Table 2 .

Based on this, the underlying patterns of 48 open codes were explored and conceptual connections were made to further obtain 7 axial codes, including digital cognition, digital crisis, disciplinary characteristics, disciplinary influence, disciplinary impact, digital challenges, and response ideas. See the "axial stage" of "axial coding" in Table 3 .

In the selective coding stage, to create a "storyline" based on research questions and develop theory, the article modified, adjusted, and renamed the "axial coding" (name modifications reflected in the "renaming in selective stage" column). Subsequently, interview materials were used for saturation testing. By the time of writing, 61 humanities scholars had been interviewed, mainly covering six aspects: humanities scholars' main research fields and topics, daily and academic attitudes toward digital technology, digital technology application, digital scholarship cognition, digital humanities academic imagination, and other related content. Among the formed interview materials, 26 materials from literature, history, philosophy, and art scholars were selected as materials, including 7 each from literature, history, and philosophy, and 5 from art. To ensure objectivity

and representativeness, material selection followed two principles: Within the same field, no more than 3 scholars with obvious pro-digital humanities attitudes could be selected; Scholars in the same field should generally hold relatively large differences in views on the 3 axial codes. After testing, the coding work showed good saturation. Through this series of work, a qualitative storyline of "cognition-prediction-anxiety-needs and response" was finally constructed.

4. Research Results

Through qualitative approaches, Table 3 tells such a "story": (1) Against the backdrop of digital scholarship's rise and the gradual formation of digital scholarship paradigms, humanities scholars from different fields have observed and discussed the connotation and characteristics of digital scholarship, with particular attention to reflections on digital paradigm defects (this part corresponds to the coding content of "humanities scholars' cognition of digital scholarship"). (2) Regardless of whether these "defects" can be remedied, humanities scholars generally agree that digital scholarship will have profound impacts on many fields including literature, history, philosophy, and art. These impacts are not merely methodological and material but may change the essential characteristics of disciplines (corresponding to the coding content of "humanities scholars' predictions of digital scholarship's profound influence"). (3) Objectively speaking, humanities scholars acknowledge the tremendous opportunities digital scholarship will bring, but they show more "anxiety" than "excitement" about its intervention in humanities fields. This anxiety is particularly reflected in methodological incompatibility, discourse power loss, and changes in academic ethics (corresponding to the coding content of "humanities scholars' anxiety about digital scholarship intervention consequences"). (4) Although content (1) to (3) does not directly respond to the initial research question, in fact, only by understanding the background of (1) to (3) can we form a more profound understanding of humanities scholars' digital academic needs and find more thorough and in-depth solutions. From humanities scholars' subjective consciousness, their needs can currently be divided into two types: some have clear response plans, such as needs in team collaboration and methodological reform; while other needs lack clear solutions, such as constraints in digital achievement evaluation and data acquisition limitations (corresponding to the coding content of "humanities scholars' digital academic needs and responses").

The following will specifically retell this "storyline" by combining media materials and interview materials.

4.1 Humanities Scholars' Cognition of Digital Scholarship and Predictions of Its Influence: Single-Domain Perspectives

Although scholars from different fields such as history, literature, philosophy, and art hold different views throughout the "story," the main disagreements mainly lie in (1) and (2), namely humanities scholars' cognition of digital scholarship and their predictions of its profound influence. Therefore, this section

focuses on discussing viewpoint differences across disciplines on these two issues.

4.1.1 History Field The common cognition in historical materials or interviews is that digital scholarship will profoundly influence historical methods, materials, and even research objects. There is considerable disagreement about whether this influence will penetrate to the disciplinary characteristics level; overall, they believe the influence may be positive.

Most cognition of digital scholarship in the history field is acquired in the construction and utilization of digitized ancient book resources. In mainstream media or reports, historians' expressions of attitudes toward digital scholarship are often integrated with issues of ancient book digitization. For example, when discussing the impact of the "big data era" on historiography, one scholar's discussion starts from "super-large-scale ancient book databases," envisioning two characteristics of such databases: "super-large data volume, with very rich document types and content, and greater inclusiveness… can gather more and richer information together to obtain more, more comprehensive, and more accurate materials" and "more technical support… such as automatic recognition, automatic punctuation, automatic typesetting, intelligent retrieval, and intelligent analysis of ancient books, enabling conversion and output of multiple data formats, meeting various special needs proposed by literature, history, philosophy, and economics research, and better adapting to advanced needs of interdisciplinary comprehensive research" [18]. Historians sensitively grasp digital scholarship's impact on historical materials and reflect on subsequent influences. For example, the transformation of historical materials in the digital era may first change historiography's research objects: "For a long time, due to limitations of existing literature, people have always focused on social elites as the main objects of historical research, making it difficult to avoid social elites becoming the main subjects of historical activities… Big data enables convenient utilization of massive historical materials about daily, trivial lives of grassroots masses, making grassroots masses in historical activities vivid, concrete, and real" [19]; it will also influence research approaches, as Professor Jiang Yihua of Fudan University believes: "Big data will widely introduce quantitative research into various historical problem studies" [19]; and will ultimately affect the entire history discipline: "For historians, constructing large-scale historical databases and adopting quantitative research methods will inevitably promote their transformation from traditional literature interpretation research models to information data collection, data mining, database construction, and record analysis and writing models. This major transformation of research methods is significant" [20].

From interview materials, it can be found that historians' cognition of digital scholarship is often acquired in the construction and utilization of digitized ancient book resources. Although historians generally do not believe digital scholarship will change historical disciplinary characteristics, for example, Professor Xiong Jinwu of Tsinghua University focuses on the supplementary function of

quantitative research to qualitative methods: “For historiography, quantitative research can not only verify some beliefs and major propositions but also has accumulation and continuity, can supplement qualitative research, yield new discoveries, and form new theories” [21]. Similar expressions are numerous. Perhaps because of confidence that historical disciplinary connotations will not be shaken in the digital era, almost all historical materials maintain positive attitudes toward digitization, highly focusing on possible opportunities new research paradigms bring to historiography, even believing that digital scholarship paths will promote history’s return to the vision of “truth-seeking scholarship” [22].

4.1.2 Philosophy Field The common cognition in philosophy materials or interviews is that digital scholarship’s impact on philosophy is very profound. Most scholars believe digital scholarship will thoroughly transform philosophy’s disciplinary characteristics—although this viewpoint differs greatly from historians, the philosophy field also believes digital scholarship’s influence is positive.

From analyzed materials, philosophy’s belief that digital scholarship will profoundly change philosophy’s traditional disciplinary characteristics has several reasons: Subversion of worldview. For example, some scholars believe that in the big data era, “all relationships in the world can be represented by data, all activities leave data footprints, everything can be datafied, the world is a datafied world, and the essence of the world is data” [23]. Therefore, “that is to say, as long as the collected data granularity is fine enough and data can be collected from multiple dimensions, then these data are sufficient to express phenomena” [24]. This impact on the philosophical knowledge system built on traditional worldviews is enormous. Transformation of cognition and methods. “Big data profoundly criticizes traditional reductionism… Specifically, big data achieves integration of reductionism and holism through datafied holism; highlights the contextuality and locality of scientific knowledge by acknowledging complex diversity; and emphasizes that correlation of things is more important than causality of facts” [23]. It can be said that changes in measurement methods will redefine philosophy’s way of exploring the world: “Big data uses correlation to supplement traditional epistemology’s obsession with causality, uses data mining to supplement scientific knowledge production methods, uses data patterns to supplement single causal patterns, achieves datafied unity of rationalism and empiricism, and forms a brand-new big data epistemology” [23].

Nevertheless, scholars generally believe that the big data era has not denied the key foundation of philosophical research, namely causal logic. As Qi Leilei points out, “Correlation is a broader concept than causality… The view that big data empiricism eliminates causality is one-sided. On the surface, big data has no causal law, or does not ask about causal relationships, but in fact this is not the case… For example, the positive correlation between diapers and beer in commodity sales appears to big data empiricists as only a correlation. But from a broader perspective, this positive correlation actually contains a universal

causal relationship" [25]. Against this background, the philosophy field has sufficient space for action and development in the digital scholarship era.

4.1.3 Literature Field Compared to history and philosophy fields, digital humanities appeared earlier in the literature field with more in-depth application scope. The literature field's cognition of digital scholarship shows high internal heterogeneity, with relatively neutral attitudes toward digital technology—not actively welcoming, but not excessively rejecting either.

Similar to history and philosophy fields, literature articles often show "balanced" discourse expressions, discussing both digitization's advantages and possible defects, ending with positive discussions. However, there are some obvious "resistance" (not yet reaching "opposition") voices in the literature field. For example: "Quantitative analysis through precise statistical counting transforms some problems in literary research from fuzzy description to precise demonstration, enhancing the scientific nature of literary research… Literature should not be cold numbers; literature should be a poetic inner feeling… Literary research cannot be separated from researchers' sensibility toward literary language; quantitative analysis is only an auxiliary means and should cooperate with literary sensibility… Quantitative analysis has its applicable fields and cannot completely replace traditional literary research methods centered on criticism. Blindly adopting quantitative means sometimes scratches the surface and may not solve real literary history problems" [26].

Additionally, the literature field's uniqueness is reflected in: compared to traditional "literature, history, and philosophy," literature research objects and "literature" itself are undergoing deep digitization in creation, circulation, and consumption, namely the rise of "online literature" or "digital literature." Some scholars believe that "conducting digital literature research is both a theoretical response to Eastern and Western digital literature production practice over the past half-century and a realistic need to enrich and construct contemporary Chinese literary theory" [27]. Literature has natural advantages in digital humanities research, and related scholars may not discuss digital scholarship much, but they have already conducted large amounts of practical work based on clear problem consciousness and rich object materials.

4.1.4 Art Field Art development and technological progress often go hand in hand. With information technology development, digital technology has integrated into the art field and, with characteristics such as "diversified expression, efficient production, and art popularization" [28], has launched diverse digital art creations. "What digital technology brings is not only innovation in creative media and means but also new thinking to creative ideas… Today's artists are not only adopting new media in simple forms; they are experiencing unprecedented opportunities and challenges from creative concepts to creative ideas, which will become the most important creative art expression in the new era" [29]. It can be said that compared to traditional "literature, history, and philosophy," art

field scholars embrace digital scholarship most positively and thoroughly, and their viewpoints and practices are impressive.

Similar to the literature field, art research objects "art" itself has very sufficient digital practice. Against the digital background, through the application of technologies such as holographic projection and virtual environments, emerging "digital art" has emerged. "Although digital art has advantages over traditional art, it does not represent victory over traditional art; new media art and traditional art should influence each other and progress together" [28], "the two will become a fused and symbiotic state" [29], and moreover, "digital art" and "traditional art" have quite high compatibility and relatively smooth "transition," possibly because "although digital media technology can replace traditional art's artistic language within a certain range, pure digital media technologists are not digital media artists. Only through traditional art edification, possessing good aesthetic ability, and mastering digital technology can one promote art to a higher level" [28]. Correspondingly, art field scholars are also very positive about digital scholarship, emphasizing that future art research should "focus on both the macro construction and examination of theoretical systems and research approaches, and commit to micro, specific problems, conducting in-depth and meticulous research from multiple angles, and organically integrating with overseas achievements to form a unique ideological method and theoretical system" [30].

4.2 Humanities Scholars' Cognition of Digital Scholarship and Predictions of Its Influence: Synthesis

Section 4.1 explored humanities scholars' cognition of digital scholarship and predictions of its influence from single-disciplinary perspectives, presenting more "differences," while this section 致力于 expressing "commonalities." From a commonality perspective, humanities scholars' cognition of digital scholarship is mainly reflected in research materials, research methods, dissemination forms, and research questions, with many judgments being basically consistent.

4.2.1 Cognition of Research Materials Almost all humanities scholars mention and discuss changes in research materials (or "research data") in the digital era. These changes mainly have two aspects: Rapid total volume increase, such as C. Gregory's "million books challenge," which has been cited by humanities scholars more than once: "Current humanities and social science researchers in their own research fields all face processing massive amounts of literature and data, which has far exceeded the scope that traditional reading ability can handle. Therefore, humanities and social science scholars will also have to rely on computers to process relevant literature and data, namely the 'million books challenge' problem" [31]; Changing material types, as Professor Li Zhongqing believes: "Large amounts of scattered but somewhat systematic historical materials have expanded the material scope of historical research. Large-scale datafied historical data platforms also provide richer, more flexible,

and more effective research resources for the entire academic community" [32].

4.2.2 Cognition of Research Methods In this study's materials, terms like "quantitative research" or "quantitative analysis" and related terms appear with high frequency, meaning humanities scholars generally pay attention to methodological changes. The correlation thinking extended from quantitative analysis is gradually being accepted, especially causing major transformations in philosophical thinking. Its core lies in "maximizing the quantification of mathematical relationships between numerical values. An increase in one data value is very likely to cause increases in other data values, thereby seeing the correlation between variables and focusing on objective existing facts discovered through correlation relationships rather than seeking causal relationships (i.e., why they exist), which is completely different from traditional causal explanation models" [33]. However, in history, literature, and art fields, multiple scholars believe that "quantitative analysis methods do not replace traditional research methods" [26,28,34], but rather pay more attention to objective information behind data to supplement the "scientific nature" of humanities research.

4.2.3 Cognition of Knowledge Dissemination The emergence of digital media has brought about "migration of discourse power in dissemination" [35]. While making knowledge dissemination more efficient, it has also led to "the separation of media identity and educational identity, with discourse power in knowledge dissemination gradually shifting from traditional scholars to media giants, especially media institutions represented by modern communication means such as television and networks" [35].

Humanities scholars also recognize digital scholarship's major impact on humanities knowledge dissemination. Knowledge sharing, exchange, and transmission have become faster and more convenient. Humanities scholars using E-mail, WeChat, and other network platforms for academic exchange have become daily practices. Using digital technology and multimedia means for teaching makes classrooms more interactive. University of Georgia historian S. Claudio calls methods like "online interaction" and "visualization" that give new life to traditional materials "more attractive than lectures and giving him more audiences… Nowadays, books' appeal to young people is declining, while young people prefer tablets and smartphones, and digital history can provide a new way to connect history with the public in this environment. When reading books, we consume information, but when visiting digital websites, we can interact and communicate with information through searching, categorizing, and creating operations" [36].

4.2.4 Cognition of Research Questions Digital scholarship may better drive the renewal of humanities research questions. Chinese humanities scholars particularly focus on how to use the opportunity of "digital humanities" to promote the development of local Chinese philosophy and social sciences. In the history field, some scholars believe that combining cultural display with

digital technology can demonstrate cultural and economic values, such as Dunhuang Mogao Grottoes: "The innovative model of cultural industry chains with Dunhuang elements and connotations as the core and digital industry resources as the foundation has achieved creative transformation of classical cultural traditions in the contemporary era, activating their socio-economic and cultural value in the new period" [37].

4.3 Humanities Scholars' Anxiety about Digital Scholarship Intervention Consequences

Humanities scholars show quite obvious anxiety about the impact of digitalization's intervention in academic research fields. From the perspective of "empowerment theory," this anxiety is actually a manifestation of "disempowerment" and should be taken seriously by digital humanities researchers—if there is no way to reduce humanities scholars' anxiety, the advancement of digital humanities may encounter great difficulties.

4.3.1 Anxiety about In-Depth Digital Scholarship Research Although quantitative methods and data awareness are increasingly valued by humanities scholars, corresponding concerns also emerge. Professor Xiang Jie of Taiwan University believes: "To walk out a compatible path between digital technology and human thinking in the big data era, academic innovation on the basis of reflection is by no means easy… Clues mined from texts are limited, and statistical sampling inevitably has problems of insufficient comprehensiveness. At this time, scholars' own academic training becomes particularly important" [38]. The pain and difficulty of innovation are especially evident in the historiography field. The establishment of large-scale ancient book databases has simplified data access, but some scholars point out: "Historians' cognition of database construction mostly remains at the stage of permanent data preservation, with literature and data retrieval as the main purpose. The quantifiable research brought by databases and the resulting methodological transformation have not been involved, which also creates the awkward situation where some large-scale historical databases are constructed but cannot be well utilized" [20]; Although "after many years of digitalization, digital literature is still used as a 'book' for convenient query rather than as 'data' to deeply excavate its potential values. Obviously, database application is still at a relatively primary stage, far behind network technology and its conceptual transformation" [39]. Similarly, in the art field, problems like digital art "mostly stopping at concept application" [30] and similar issues are common.

4.3.2 Anxiety about Disciplinary Subject Status Impact Although the integration of digital technology and humanities has produced many new research directions and provided new space for humanities, traditional humanities' subject status is easily impacted in this process. "Big data has reconstructed the spatial form of cultural dissemination, broken the balance of the original discourse system, and created a new distribution of discourse power" [35].

One scholar's statement is quite representative: "Big data has stimulated large numbers of non-history professionals to participate in historical research and writing. They have not received basic training in historical research but have their own professional strengths, often discovering what professional historians have not discovered. Of course, this will also make historical records and interpretations more diverse, even causing various serious errors that generally should not occur. Big data enables tens of millions of social members to conveniently express their opinions on historical issues and freely comment on all history-related works and other achievements, rapidly diffusing and disseminating them, forming huge impact on real history, expert scholarship, and official scholarship" [19]. In addition to concerns about humanities' subject status, some humanities disciplines have already been impacted by the digital era, such as the art criticism field. Digital media has brought unprecedented "space" impact to art criticism: "The vast majority of art critics are still only willing to repeatedly interpret some classic art works in the traditional criticism system, and generally 'lose voice' regarding art phenomena in cyberspace… The symbiotic relationship between art criticism and art works has seriously dislocated" [40]. Some scholars believe the key reason for this phenomenon lies in the internet's "de-powering" of art, making many online works able to "become popular" without authoritative comments, which "fundamentally causes the decline of critics' power and the disillusionment of ideal self" [40].

4.3.3 Anxiety about Rights and Privacy in Emerging Environments

While emerging digital scholarship environments bring convenience for researchers' exchange and sharing, they also bring a series of ethical issues, the most important being rights protection and data privacy issues. Taking data privacy as an example, network open sharing and cross-use of data will generate privacy leakage problems. "While enjoying the convenience and speed of the big data era, people are constantly exposed to the surveillance of the 'third eye,' thus triggering a crisis of privacy protection" [19]. In addition, "Data forgery and tampering and other scientific misconduct directly threaten the normal operation of research activities. The roots of misconduct and whether misconduct can be avoided have become issues widely concerned by the academic community" [41].

4.4 Humanities Scholars' Digital Academic Needs and Responses

Although sections 4.1 to 4.3 do not directly answer the question of what digital academic needs humanities scholars have, they are indispensable to answering this question to some extent. The author emphasizes that qualitative research is a "story" because a "story" that directly hears the "ending" is meaningless; only by putting the "process" and "ending" together can the "story's" meaning and connotation be manifested. The same applies to this paper. For example, section 4.4.2 will mention humanities scholars' needs in digital capacity improvement. If libraries are directly given this answer, they might only roughly arrange corresponding capacity improvement plans or literacy training programs. But if

combined with the examination of scholars from different fields in 4.1, libraries or related institutions' designs will be more directional and targeted.

4.4.1 Digital Academic Needs with Clear Appeal Directions From this study's results, humanities scholars are very clear that to truly achieve digital scholarship transformation and establish digital scholarship research capacity, they need external help. In some aspects, humanities scholars have already proposed very clear appeals and reference solutions, most critically the call for "infrastructure" and "digital projects."

On the one hand, the term "infrastructure" is more popular in the library and information field, but humanities scholars' calls for ancient book databases or large-scale databases are actually closer to the concept of "infrastructure." Infrastructure refers to basic conditions necessary for conducting humanities research in digital environments, including all literature, data, related software tools, and information services such as analysis processing, resource organization, open access, and visualization tools [42]. To promote the transformation of humanities scholars' research paradigms in the digital era, infrastructure construction must be strengthened to provide them with technical foundations. However, "infrastructure" construction is not just a technical problem, or in many cases not a technical problem at all. "First, there must be conceptual breakthroughs… Second, there must be institutional reforms. Pure business models or complete government project establishment can hardly complete this huge cultural project… Third, there must be policy support. Large-scale ancient book database construction involves many new situations and problems. How to handle relationships between state and individual, part and whole, protection and innovation requires relevant departments to formulate corresponding policies to support and encourage the healthy development of this industry. We are in a great era that needs to produce great works and create great achievements" [18].

On the other hand, humanities scholars recognize that to truly participate in the digital humanities wave, they must emphasize "projects" that are 落地 and substantive. "Humanities scholars should broaden their horizons, make more use of new technical means to assist research, and participate more in international cooperation projects" [43], and have confidence and consciousness to "demonstrate more Chinese achievements and experiences to the world" [32]. When promoting digital project implementation, they can "take a few developed platforms as models to build innovation platforms" [44]. What humanities scholars recognize even more is that "projects" are the carriers of digital academic needs. Most importantly, humanities scholars should "shoulder their own era responsibilities, be good at using the worldwide knowledge and worldwide vision provided by the big data era, truly cross disciplinary barriers, and form multidisciplinary research teams" [19] to achieve integrated development of digital technology and social sciences.

4.4.2 Digital Academic Needs Without Clear Appeal Directions Meanwhile, humanities scholars have other digital academic needs for which they have not yet clarified specific solutions and appeal directions, specifically including:

(1) Limitations of digital thinking and capacity. Promoting humanities scholars from traditional research perspectives to composite research perspectives and deepening understanding of digital scholarship paradigms is a key challenge in digital humanities development. "Big data research methods are different from traditional observation and experimental methods in philosophy and social science research, causing philosophy and social science researchers to have difficulty adapting to this transformation of research methods for a time" [44]. Further, "past philosophy and social science research habits of conducting qualitative research, conceptual analysis, and theoretical deduction have insufficient quantitative application and are not sensitive enough to big data analysis technology" [44]. How to help humanities scholars "adapt and transform" in mentality and capacity will be an important problem that the digital humanities ecosystem needs to solve.

(2) Constraints on data acquisition and processing. In the big data era, data expansion and insufficient data utilization are important issues humanities scholars need to address. Information technology development has caused all types of information and data to accumulate at unprecedented speeds, forming trillion-level data sets. However, data utilization rates in humanities and social science fields remain very low. As Duan Weiwen, a researcher at the Institute of Philosophy, Chinese Academy of Social Sciences, said: "Big data in philosophy and social science applications suffers from insufficient data resources. How to transform various data in economics, management, and governance fields into data suitable for research still has certain difficulties, and there are no corresponding laws and regulations for data collection and use" [44]. In addition, in specific research, "clues mined from texts are limited, and statistical sampling inevitably has problems of insufficient comprehensiveness" [38]. "Due to the late start of quantitative analysis in literary research, it often has to rely on second-hand data, and sample range selection is relatively difficult, requiring extra consideration" [26].

(3) Potential conflicts between traditional academic evaluation systems and digital scholarship evaluation systems. Professor Zhong Minghua of Sun Yat-sen University believes that the greatest difficulty brought by digital scholarship is "how to align two different disciplines in research goals, research methods, and evaluation mechanisms. When applying big data in philosophy and social science fields, the technical logic pursues 'data dividend' maximization while the cultural logic emphasizes data cultural value and individual subjectivity realization. The collision and integration of these two logics need consideration. In evaluation standards, big

data technology mainly adopts measurement and calculation methods. Whether quantifiable philosophy and social sciences can completely follow this evaluation model has certain unpredictability" [44]. Obviously, while humanities scholars respond to the digital humanities wave, they also need timely updates to the research evaluation system. Especially in the historiography field, "digital history research faces troubles with peer review, promotion, and tenure issues. Who should evaluate digital history project results, how to evaluate them, and what standards scholars engaged in digital history research should follow for promotion are all questions that need consideration… Many times, historians are eager to do more experiments, and many universities have established digital centers, but the academic career development system and reward and punishment mechanisms have not made corresponding changes, which contradicts the needs of future digital history development" [36].

Conclusion

Through a qualitative research work, the author has 梳理 ed a "storyline" of interaction between humanities scholars and digital scholarship. By analyzing humanities scholars' digital scholarship viewpoints, the paper explores their digital academic needs. This research approach differs from both the "other-portrait" under the traditional LIS perspective and the "self-portrait" under the humanities tradition. Instead, it stands in a cross-domain "kaleidoscope" to rearrange, organize, and analyze multiple formed "self-portraits," thereby approximating humanities scholars' real needs.

This study finds: Humanities scholars from different fields actually have different cognitions of digital scholarship. For example, literature scholars' views on digitization have very obvious differences from those of history, philosophy, and art scholars. Sometimes, these differences are key to building targeted and applicable digital humanities services. Humanities scholars' cognitions of digital scholarship and predictions of its influence also have commonalities, namely general agreement that digitization will influence research materials, methods, knowledge dissemination, and research questions in the humanities. However, the above influences have also brought considerable concerns, including worries about digital scholarship research depth, disciplinary subject status, and academic ethics issues in technological environments. Finally, humanities scholars have many needs regarding capacity improvement, data, technology, and research evaluation systems. They themselves recognize the existence of these needs and have proposed clear solutions for some of them—although it is uncertain whether these proposals should be adopted in library or information technology practice, there is no doubt that if even these "proposals" are not understood, it will inevitably affect cross-disciplinary dialogue. For other needs, humanities scholars have not yet formed very clear solutions, and these aspects are precisely where we should focus our efforts.

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Xiao Peng: Topic selection and conceptualization, outline formulation, guidance on data collection and analysis, paper writing and revision.
Yi Chunbo: Literature organization, data collection and analysis.

Self-Portrait in the Kaleidoscope: A Qualitative Study of the Digital Scholarship Cognition and Needs of Chinese Humanities Scholars

Xiao Peng[1], Yi Chunbo[2]
[1]School of Information Management, Sun Yat-sen University, Guangzhou 510275
[2]Faculty of Economics and Management, East China Normal University, Shanghai 200062

Abstract:
[**Purpose/Significance**] From the perspective of humanities scholars, this paper discusses how humanities scholars view digital humanities and how they are influenced by the wave of digital humanities. [**Method/Process**] Using qualitative research methods, this study conducts comparative research across four fields—literature, history, philosophy, and art—and performs saturation testing with interview materials to construct a qualitative mainline of "cognition-prediction-anxiety-needs and responses." [**Results/Conclusions**] The study finds that humanities scholars from different fields have different cognitions of digital scholarship, but their predictions of its influence also have commonalities. They generally agree that digitization has influence on research materials, methods, knowledge dissemination, and research problems in humanities. Facing the digital wave, humanities scholars' concerns mainly include worries about research depth, disciplinary subject status, and academic ethics in technological environments. Finally, there are many needs in capacity improvement, data, technology, and evaluation systems, with the most urgent being "infrastructure" and "digital projects."

Keywords: humanities scholars; digital scholarship cognition; digital scholarship needs

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