WHAT WE TEACH WHEN WE TEACH DH

DIGITAL HUMANITIES IN THE CLASSROOM

BRIAN CROXALL AND DIANE K. JAKACKI, EDITORS

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Digital Humanities Pedagogy in China

LIK HANG TSUI, BENJUN ZHU, AND JING CHEN

In some parts of the world, the digital humanities (DH) are already a "semi-normal thing," as Ted Underwood puts it.[1] But that sense of normal is by no means universal, and there are whole regions around the world that are still considering how best to assess and incorporate DH into their institutions, research agendas, and curricula. How, then, do academics in settings that are latecomers to the DH scene teach it, especially when the supporting institutional structures are not yet in place? In this essay we examine this question in terms of DH pedagogy within the Chinese higher education system. We analyze where the teaching of DH is institutionally located in the Chinese academy (and where it is not) and how DH practitioners there teach it in liminal and informal spaces. As we explain, in many ways the Chinese academy is structured differently from academic infrastructures in other parts of the world, and in some ways it is more conservative in adopting the kinds of curricular innovation that DH pedagogy offers. In some ways, instructors in China are following the same path that others took several years or a decade ago in developing a DH pedagogy that works for students in Chinese universities. DH academics start out in liminal and informal spaces to carve out the institutional flexibility that allows them to build the capacity for teaching DH, the "next big thing" for Chinese academia.

As a latecomer to the field, China's DH community is comparatively less developed than the conventional international centers of gravity for DH; this is compounded by the geographic scope of the country's academic environment. However, collectively the ecosystem of Chinese universities possesses huge potential and is committed to cultivating support for a burgeoning interest in DH endeavors. It is a country with 3,012 higher education institutions (as of 2021), with more than 800 of these providing graduate-level teaching. Its rich cultural tradition also provides a strong intellectual backdrop for developing DH scholarship and learning, as well as tremendous amounts of humanities material for digitization and digital

research. But the challenge remains: How to apply the interest in DH scholarship and the expanse of subject matter available for methodological research to the classroom? To analyze the context and debates about teaching DH in China, we draw from our experience and feedback we received from teaching it in various formats in China since 2015, as well as in building the country's DH communities and their capacities for institutional development. We also combine the multiple perspectives we possess through our different roles as research librarian (Zhu), art school professor (Chen), and visiting scholar in mainland China based in Hong Kong (Tsui). While we recognize that our observations are mainly about manifestations of the local, we expect that our arguments reflect critical local conditions in the global DH landscape and might therefore inform reflections on DH pedagogy more broadly beyond the usual Western and Anglophone understandings and imaginings of DH.

Although DH is a paradigm originally foreign to China, the country's DH pedagogy did not emerge out of a vacuum. There is an interesting intersection between DH and China's earlier attempts to modernize its pedagogy at the tertiary level, including efforts to introduce information and communication technologies (ICTs) into the training of teachers since the 1990s, especially the state-led initiatives to promote "e-education" (*dian jiao*) and to "informatize" (*xin xi hua*) education and learning.[2] These early official policies fostered the information literacy (*xinxi suyang*) and digital literacy in China that were necessary preconditions for DH pedagogy to evolve. Although the Chinese government has stressed the importance of ICTs and more recently of artificial intelligence in education, the teaching that specifically focuses on the convergence of ICTs and the humanities is restricted to professional education in specific disciplines, such as library and information science (LIS). For the majority of Chinese universities, the teaching of ICTs within the field of educational technology is often skills based.[3]

While China is a latecomer to DH pedagogy, we fully recognize that the DH developments in the Greater China region had fairly early foundations. Some of us have already argued elsewhere that the region's interest in and support for DH date back to the 1970s and have a largely forgotten "prehistory" of their own. These foundations are a critical determining factor for the path that Chinese DH is currently taking.[4] By 2018, the digital humanities paradigm was finally hailed as one of the ten hot topics of the year in Chinese academia.[5] The institutionalization of DH scholarship is also under way, with at least fifteen universities in mainland China having set up DH centers and labs (as of late 2022) and more currently in the planning phase.[6] That said, even with the various DH research initiatives that have already existed for more than a decade, DH pedagogy itself is quite new to China. Because of the unique features of humanities data in Chinese, especially for texts, and also due to the context in which DH was discussed and developed in Chinese academia, the path that Chinese DH has taken is a rather tortuous one. Both the classical and modern Chinese language present unique technical challenges in digitizing, organizing,

and mining Chinese texts—for instance, in the optical character recognition of the thousands of Chinese characters for digital texts as well as in word segmentation (since there are no spaces to mark word boundaries in Chinese texts).

In the rest of this essay, we will focus on mainland China as we dissect how DH is spreading throughout the country through various pedagogical initiatives.[7] In the first of the following two sections, we analyze this issue by exploring how national educational policies and institutional configurations shape the spaces for DH pedagogy within Chinese higher education. In the second section we focus on the ways DH learning took place within such informal spaces between 2015 and 2020, especially in the form of ad hoc collaborative workshops, academic conferences, and online exchanges on social media within the DH community. Bearing in mind the fact that DH pedagogy in China is almost entirely done through informal teaching, we argue that this is what it still takes for DH teaching to catch hold within an academic environment that does not have the institutional design to support it. Fully recognizing that DH pedagogy in the country is not being developed without challenges or disagreements, when we examine the pedagogical approaches we also pay attention to the contestations and debates about DH learning that take place within China.

Finding the Space for DH Pedagogy in the Chinese Academy

Understanding where DH pedagogy takes place in Chinese institutions requires a basic conception of the academic structure there. This involves the debate in the country on whether DH should develop as an institutionalized discipline recognized by the official education system or as an interdisciplinary field with only unofficial status. The roles of teaching DH in academic disciplines, in general education (*tongshi jiaoyu,* "liberal arts"), and in interdisciplinary initiatives, respectively, are geared toward starkly different purposes as defined in China's national education system. The bigger institutional picture here is that state policies toward university education in China are largely arranged according to disciplinary categories. In 2017, the authorities promulgated the "Plan for Promoting the Construction of First-Class Universities and First-Rate Disciplines." This implies that the major universities in China are asked to adopt strategic plans to strengthen their academic disciplines, in order to transform themselves into world-class, research-intensive universities. The ministerial authorities also stipulate the list of disciplines: there are thirteen "categories of disciplines," 110 "first-order disciplines," and many more "second-order disciplines" grouped under the first-order disciplines.[8] An example of a category of disciplines is history. Under it there are three first-order disciplines: archaeology, Chinese history, and world history.[9] And under world history there are five further subcategories that are second-order disciplines. These constitute an authorized list of disciplines that Chinese universities could grant degrees in if they have gained approval from the ministerial authorities for a certain discipline. As a result of this rigid

hierarchical structure, when universities determine the teaching and learning objectives of their degree programs and courses, they need to strictly base them on these disciplinary configurations. Under this national plan and its predecessors, resource allocation under the higher education system in mainland China is therefore heavily drawn to disciplines, and the distribution of resources including jobs, grants, and teaching programs all orbits around the existing disciplines, especially for the disciplines and departments in institutions that are seen to possess "first-class" potential. With those, the universities could compete for more resources allocated to them. New DH centers are being set up, as we have mentioned, but changes to existing institutions are often much more difficult. DH is also so multidisciplinary that it does not really fit in any of the system's existing thirteen categories of disciplines. Chinese faculty job openings that explicitly mention an interest in DH expertise have not yet appeared publicly, at least up to 2020.[10] The only fundamental change that we have seen is the renaming of Nanjing University's Department of Library Science as the Department of Library Science and Digital Humanities, which is one of the four departments under the School of Information Management there. Due to the overall structural configuration and the slowness to adapt to changes in academic fields under China's centralized and hierarchical system outlined here, decision makers in universities do not have much incentive to plan, design, and teach new courses that do not fit neatly into any of the "first-order disciplines."

For some scholars in China, that practitioners from various academic backgrounds could engage in DH initiatives and teach it to those who are interested is a positive development. However, within the institutional realities that we have outlined, cross- or interdisciplinary collaboration in teaching, though widely recognized to be the essence of the DH, could actually put scholars and their departments in a liminal situation if they are to administer new DH courses. After all, the content of such courses often spans several disciplines at least. The norm for Chinese university students is to choose their majors once they begin university study and to take almost all courses from that discipline. Thus, resources often need to be allocated to courses that have a clear disciplinary identity, except for the small number of relatively established institutions whose decision makers take DH to be a "tactical term" (in Matthew G. Kirschenbaum's words) for innovating university teaching.[11] These decision makers expect DH to be the "next big thing" for the humanities in China and hope to be part of it. The only example of a new DH curriculum created from scratch is at Renmin University of China's School of Information Resource Management. They launched a DH honors minor program for undergraduates in 2019, a master's program in DH in fall 2020, and announced a PhD program in 2022.

To be sure, institutional structures in academe are often difficult to reshape, both in China and beyond. It could easily take years and piles of paperwork to justify the establishment of a new discipline in China's national education system.[12] The argument that we would like to present here about DH pedagogy is that even though DH has already taken hold internationally, for countries that are catching up

such as China, what it takes for DH pedagogy to take off is still the informal teaching initiatives of individual faculty members based on their intellectual agendas. This partially explains why DH courses are still very rare in China and have only been offered at a handful of Chinese universities among the thousands of institutions there.

This informal teaching also takes place along the disciplinary structures that have already existed for a long time, instead of in interdisciplinary spaces that DH research often aspires to foster. Ideas about "interdisciplining" the digital humanities (and the humanities more broadly) are certainly meaningful, but when put in specific institutional contexts such as those we have experienced in China, pushing the disciplinarity of the digital humanities could actually be more important for creating the DH field in the first place. From a strategic point of view, in order for more interdisciplinarity to take place, emphasis has to be placed on the disciplinary in this context.[13] To make DH more open and more welcoming, international DH advocates have put forward the metaphor of the "big-tent digital humanities" since 2011. Such a "big tent" is expected to embrace differences and diversity in the digital humanities.[14] When we look at the specific teaching and learning environment in China, however, a clear disciplinary identity is still crucial for colleagues there to carve out a space for pushing the DH agenda in pedagogy, as well as for securing the resources for doing so. In other words, before the DH field goes through ample institutionalization and becomes a discipline of its own in China, teaching a new course about "digital + a humanities discipline" will definitely be easier than teaching one in DH broadly defined, which, for many decision makers at Chinese institutions (and perhaps at many institutions beyond China), is still an uncategorizable, vague, and perplexing term.[15] More importantly, it is usually not a term that automatically comes with institutional resources to support teaching in China. When courses are labeled and taught as "digital humanities" and not specific to a particular discipline, instructors often find it difficult to situate them in the centralized, rigid, and highly disciplinary curricular structures. There is therefore a push to pigeonhole DH and its pedagogy into discrete disciplines.

Even within such structures, however, there have been some fruitful pedagogical attempts. For example, the first digital history course in China, titled Digital Tools and World History, was taught at the School of History at Nanjing University in 2016 by Tao Wang, a scholar of German history.[16] The design of the undergraduate course attracted widespread attention when its syllabus was distributed online, and this attention has encouraged Wang to turn his course into a series of ongoing online tutorial posts about DH skills for wider dissemination.[17] Peking University's Department of Information Management has also spearheaded an undergraduate DH course that started in spring 2018. The course is team-taught by Jiuzhen Zhang, Benjun Zhu, and others scholars from the aforementioned department. As an elective general education course, this was not only for students majoring in information management but open to all majors. Fifteen students enrolled in the course,

including undergraduates studying Chinese literature, journalism and communication, government, and information management. The course design exposed students to both topics in the humanities and digital technologies that could be used to rethink those topics. It is quite telling, however, that this semester-long course was initiated by LIS experts rather than by any humanities department in Peking University, which is usually regarded as China's top university in the arts and humanities.

One main challenge that the instructors of this course observed was that the undergraduate students had limited prior training in both computational technologies and the humanities, and this made it difficult to consolidate their DH knowledge and skills. Since the course was team-taught, the connections between the themes delivered by each instructor were also rather loose. When this course was taught again in 2019, the course instructors adjusted their pedagogical approaches. Zhu decided on clearer foci—the classes would focus on Chinese documents and their digital processing. He arranged twenty-minute hands-on activities at the end of each class to strengthen the students' basic humanities knowledge of traditional Chinese culture, such as tutorials on making thread-bound traditional Chinese books, ink rubbings of inscriptions, and so on. He also provided more explanation on how unstructured Chinese texts in traditional Chinese documents are usually transformed into structured datasets, which are a core component of a lot of Chinese DH project work. He also gave sessions on the handling of spatial data, of temporal data, and of the genealogies and social networks in them. The students could then better understand the principles and practices of digitization workflows. To also give them a sense of how these practitioners carry out these workflows in action, Zhu organized his students to visit Unihan Digital Technology in Beijing, which digitizes ancient Chinese books for building academic databases. Each student was then asked to finish an individual project as their main course assignment, and they could focus on topics that suited their own disciplinary training. The instructors and students observed that these revised arrangements gave them a more grounded understanding of the contact zone between the digital and the humanities.

The limited support for digital literacy among humanities scholars in China accounts for the dearth of digital scholarship expertise necessary for DH pedagogy. Institutions within universities that possess the capacity to provide digital training and research support for humanities scholars are rare, but major Chinese libraries have begun to recognize the need to strengthen such efforts. Similar to the situation in many North American and European institutions, the library has been a logical home for DH.[18] When compared with scholars in the humanities, LIS experts are usually more willing to teach DH in these contexts, as could be seen already in Peking University and the earlier programs at Renmin University. This is mostly due to the fact that they are on average much more digitally adept than humanities scholars. Libraries are therefore becoming important focal points for developing digital scholarship in China and promoting change in the field.

To take Peking University again as an example, Zhu and his colleagues at the university library began delivering three one-hour DH workshops per semester beginning in spring 2017: "Network Analysis of Historical Figures," "GIS Analysis and Its Spatial-Temporal Dimensions," and "Large-Scale Datafication and Processing of Texts." These are open to everyone on campus, and each workshop typically includes four sections: international perspectives on the subject, key cases and projects, a hands-on tutorial session, and discussion. The projects and examples from the workshops often combine Chinese cases (such as data from the China Biographical Database) and international projects (such as the Six Degrees of Francis Bacon project).[19] The key cases for the sessions included topics such as the postal routes of Ming-dynasty China or the networks of characters in the *Dream of the Red Chamber*. The tools and applications involved in the network analysis session, for instance, include Pajek, GRAPH, UCINET, CiteSpace, and Gephi; for the geographic information system session, both ArcGIS and the Harvard mapping platform WorldMap are introduced. For the texts session, utilities geared for Chinese-language data were the main focus, such as the reading and text analysis platform MARKUS, which was initially developed for classical Chinese texts.[20] The thirty to forty students who have attended each of these workshops are mainly humanities and social sciences majors, but there are also some from STEM fields, such as environmental sciences and computer science. These workshops take place outside the formal curriculum of credit-bearing courses but are critical for instilling DH thinking and providing starting points for Chinese students who are interested in knowing what they could achieve with DH skills, as well as where to look for more resources.

Based on this, we need to point out that the question of "who should be teaching DH" is therefore under debate in China. With our two examples, we have sampled how humanities scholars and LIS experts respectively try to teach it. Humanities scholars like Wang who are technically equipped with the skills to teach DH are very scarce, so this explains why there are so few DH courses in China, even if a good amount of scholarly research in DH has already been published there, especially from the mid-2010s.[21] With the bridging role that LIS practitioners and scholars play between humanists and technology, a great deal of China's DH pedagogy is done in library contexts.

In short, when courses are labeled and taught as DH and not specific to a particular discipline, DH instructors in China find it difficult to situate them in the centralized, rigid, and highly disciplinary curricular structures in China. Young DH scholars in China aspire to integrate digital humanities into existing academic programs, but it can be difficult for them to find the institutional support to launch DH courses.[22] They are often on their own if they venture into higher technological levels in their pedagogy. This means promoting and teaching DH will require educators to identify the flexible space within institutional structures to implement innovations in pedagogy with regard to DH, and also to ally with extradepartmental

actors from university libraries in doing so. This space, however, is often quite limited and tends to be informal.

Informal Learning in DH: Warming Up for DH Pedagogy in China

Within the context just outlined, all the existing DH pedagogical efforts in the country lie in the relatively flexible area that exists informally between institutional structures. It is normally quite difficult to reshape these structures within a matter of several years in China. As Paul Vierthaler has remarked, "A major barrier to the rapid development of East Asian DH is a lack of formal training mechanisms."[23] The Chinese DH academic community therefore still exists as an informal group mostly based on personal connections, informal collaborations, and online discussions. DH teaching activities also take the form of informal teaching, including ad hoc workshops and academic talks by a select group of professors with DH training or foreign visitors. This shows that the teaching of DH has relied heavily on the participation of international projects and experts who work or were trained outside mainland China. Since 2015, several international DH research groups in Chinese studies have organized researchers to "parachute" into China to organize teaching workshops and training programs tailored to local needs. These are usually coorganized by local Chinese university faculties and international DH projects that have a foothold in the Greater China region.

Group learning has also helped to hone DH skills among graduate students in the humanities, so some DH teachers in China feel that DH pedagogy should begin at the graduate level. When Benjun Zhu taught DH as a general education course to undergraduate students at Peking University, he already sensed that graduate students in the humanities probably had more to learn from DH methods than undergraduates, as graduate students would have a clearer sense of their academic focus and needs. This is an observation that he made once he had given some guest lectures for a graduate-level course titled Digital Library of Chinese Ancient Books at Tianjin Normal University in fall 2020. In it he lectured about digital humanities theories, ontologies for digital libraries, and cyberinfrastructures in DH for four hours in total. Since that course is specifically for master's students in LIS, Zhu feels that it is much easier for them to grasp how they could apply this DH knowledge with their disciplinary background.

Here we would like to discuss two examples that reflect group learning in DH at this graduate level. The first concerns the teaching and learning of DH at Nanjing University. According to one of us who teaches there (Chen), DH pedagogy at Nanjing University has benefited substantially from two strategies: international collaboration and the organization of short-term workshops. Before designing a DH curriculum for their students, Nanjing faculty members thought it necessary to find out what their students need from DH skills. These university teachers coming

from multiple faculties organized their DH activities through the Digital Humanities Initiative at Nanjing University's multidisciplinary Institute of Advanced Studies in the Humanities and Social Sciences.[24] Especially considering the unique features of humanities data in Chinese, Chen and her Nanjing colleagues decided that their faculty colleagues and students should learn first from DH scholars from Taiwan, who are pioneers in Chinese-language DH research and pedagogy. DH teaching of various forms has been going on since 2006 in Taiwan, after all. Nanjing University therefore invited four groups of Taiwanese scholars to give hands-on workshops that typically lasted for two to three days. Local faculty members made the effort to attend these workshops to get inspiration for designing DH courses in the future.

One notable event was the DocuSky workshop in 2018, conducted mainly by scholars visiting from National Taiwan University. DocuSky is an open-access collaborative platform for humanities scholars to build their own datasets and use existing digital tools to tag, reorganize, visualize, and map these data.[25] Since it is a platform serving broad DH research purposes, the two-day workshop taught students how to set up their own research projects from scratch, such as locating the right data, cleaning it up, designing metadata fields, building a dataset, and working with Regular Expressions. Three-quarters of the thirty-five workshop participants came from ten disciplines and were doctoral and master's students in history, literature (especially foreign literature), LIS, geography, computer science, and art. Since DH scholarship is still relatively new to China, sixteen of the participants in a post-workshop survey remarked that they attended the workshop out of curiosity and interest, since they did not know exactly what DH was. Seventeen other participants reported that they attended it because of research needs that arose from their studies. This type of teaching is very different from the general education course at Peking University mentioned earlier. This workshop-type pedagogical initiative is much more research oriented and tailored for budding researchers (such as research graduate students), while the Peking undergraduate course aimed at brushing up digital literacy and core computational skills for humanities learning among undergraduates. Some of the students further built on the skills they acquired from the workshop: for instance, a student developed a project to analyze the use of color terms in the ancient Chinese text *The Classic of Mountains and Seas*. The student built a dataset with DocuSky to tag and analyze the patterns of those terms in the text, aided by some Python programming; the student also visualized the results in term co-occurrence graphs with Palladio. This mini-project that originated from experimentations at the Nanjing workshops later became an award-winning submission to a DH conference in China.[26] With successful outcomes like this, the Nanjing faculty members felt that it makes good sense to base the DH curricula for research graduate students on established digital tools and projects, such as DocuSky, China Biographical Database, and the historical geographic information system projects at Academia Sinica, all core resources for DH research on Chinese history.[27] In the view of the Nanjing faculty members, designing courses along these lines makes it

much easier for the students to understand how and why DH is useful for developing their research projects.

With these preparations, Nanjing University launched the first semester-long DH course for sixty undergraduate students in 2020, open to all majors. The course is team-taught by Chen, Tao Wang, and Gang Chen, a geographer. The end of the course features presentations on the students' research-based projects. This hands-on experience and exposure to DH became the inspiration for at least three undergraduate students to pursue DH graduate degrees overseas. Since the course had to be conducted virtually due to the Covid-19 pandemic, the course instructors took advantage of the situation to turn it into a massive open online course (MOOC) and added a historian of modern China to their team along the way. They recorded over one thousand minutes of content separated into about twenty-five video clips. This was the first MOOC about DH in China, and it will be hosted on iCourse, a MOOC platform in China. Again, this reflects that making DH part of the undergraduate curriculum helps to secure institutional resources in some key universities.

Our second example concerns DH learning activities at the graduate level at Peking University. Lik Hang Tsui was a visiting scholar at Peking University in 2016–17, during his postdoc at Harvard working on the China Biographical Database. The database is an international project developed by Harvard University, Academia Sinica, and Peking University to systematically include all significant biographical material from China's historical record. At Peking University, Tsui taught a non-credit-bearing seminar course for graduate students in the humanities at the multidisciplinary Institute of Humanities and Social Sciences. Even though no credit was offered, several dozen graduate students, mainly from the departments of history, Chinese literature, and philosophy of Peking and other Beijing universities, joined the seven seminar sessions of three hours each. Several faculty members new to DH also joined the seminars. The course orbited around the generation, processing, visualization, and analysis of the historical data in the China Biographical Database and hence mostly focused on DH methodologies for premodern Chinese history and culture. The following were the specific topics and the utilities covered (indicated in parentheses):

1. Digital Humanities: The State of the Field, Basic Concepts, and Theories
2. Relational Databases for History 1: The China Biographical Database from a User's Perspective (Microsoft Access, APIs)
3. Relational Databases for History 2: The China Biographical Database from a Developer's Perspective (Regular Expressions, RegExr)
4. Digital Maps and Spatial Analysis (QGIS, WorldMap, CARTO)
5. Social Network Analysis (Pajek, Gephi)
6. The Processing, Mining, and Tagging of Texts [with guest speaker] (MARKUS, DocuSky)
7. Bibliography and Book History from a DH Point of View [with guest speaker]

The seminars coincided with two academic conferences in Beijing related to DH research, so the participants were encouraged to attend them for additional inspiration and exposure.[28] A WeChat group was set up for the participants so that troubleshooting could take place online and between the seminar sessions, and not only in the classroom. To Tsui's surprise, this helped to lessen the workload of the instructor instead of adding to it, since the queries shared to the group were often solved by other students. Opening this online channel of communication actually promoted peer learning.

The positive reception of the two initiatives taking place outside formal classroom settings discussed here reflects that the current humanities curricula in China do not provide the basic skills required for budding DH work. Due to this, interested learners must be proactive and daring. They have to take advantage of the resources that exist not within proper departmental structures but in other settings within their universities or even beyond their own institutions.

The first point worth noting about our examples here is that neither of them involves teaching programming languages. In other words, student learning in DH for both pedagogical examples is based entirely on the use of existing application packages and specialized online tools or databases for academic research, especially for research taking Chinese data as the focus. To be sure, pitching the teaching of DH at this technical level is not something that every DH scholar in China agrees with. Some have suggested that learning to code is essential for humanities students to build substantial things in DH. For them, coding gives the students a much better sense of what is possible and what is not (yet) possible in DH research.[29]

A second observation about both of our examples in pedagogy here is that they usually do not involve direct collaborations between students. The academic needs for DH skills and a community to discuss DH-related concerns motivated some of the graduate students and early-career scholars in the humanities to step up their efforts in group and peer learning. Based at Peking University, another visiting scholar sent by the China Biographical Database teamed up with doctoral students in the humanities in the Beijing area to organize the Digital Humanities Special Interest Group. Since November 2019 they have organized roundtable discussions of DH research agendas or DH literatures among peers. Rather than having a presenter or lecturer for these activities, the events are much more egalitarian and are organized by ad hoc committees.[30] These self-organized learning activities on generating DH questions and thinking critically about DH work have tremendous potential to nurture a more active role for graduate students, compared with the one they usually find themselves in from DH faculty-student collaborations.[31] In order to encourage them to craft such active roles, a digital humanities competition open to student teams and accompanying workshops are also being planned at Peking University.

Since DH was still relatively unheard of in mainstream Chinese academic circles until the mid-2010s, international conferences have been the main setting in which basic DH concepts and skillsets spread within China. Academic conferences

organized by Chinese institutions to promote awareness of the DH paradigm are a unique form of pedagogical event for DH training in China, usually attracting at least fifty to one hundred participants. Online troubleshooting and networking also go hand in hand with this as an important method of communication for DH learners attending these conferences. DH communities in China have emerged out of these events since 2015, and exchanges within such communities gained a lot more scholarly attention within the five years that followed.

Researchers from various humanistic disciplines are becoming increasingly aware that the DH paradigm is a useful canopy for discussing developments relating to computational tools in their fields and have organized events through their faculties and institutes to conduct such discussions. In 2016 and 2017 alone, more than twenty DH-related conferences, workshops, and seminars were held in the Greater China region. The Peking University Library organized four large forums in collaboration with research institutes, research projects, and database companies during 2016–19. A total of 624 participants signed up for the first three of these forums, and even more people took part online through a live stream.[32] Almost all participants were between the ages of eighteen and forty-five, which is an unsurprising indication that senior scholars in China tend to have little interest in learning DH research skills. Based on this success and the Covid-19 pandemic situation, a fifth forum in June 2020 streamed online on several websites. Other institutions including Nanjing, Renmin, Shanghai, Shanghai Normal, Sun Yat-sen, Tianjin, Tsinghua, and Zhejiang Universities; Shanghai Library; and the University Town Library of Shenzhen have all organized DH-themed conferences or disciplinary conferences with digital-relevant themes. A nationwide annual DH conference has also been held since 2019 by multiple organizations including libraries, university faculties, database companies, academic journals, and social media accounts on DH; this is an important step toward setting up a Chinese alliance of DH organizations.[33] These have each attracted many faculty members and students. Importantly, some of these conferences are held in conjunction with open workshops that offer training in DH techniques. In fact, these events were the first point of contact with DH learning that many students had.

Other than the conferences and workshops mentioned here, many more university departments have hosted DH scholars to give talks; these are mostly Anglophone scholars or foreign experts in Chinese studies. At this stage of DH development in mainland China, and especially for DH pedagogy in particular, higher education institutions are usually much more willing to sponsor and organize such one-off events than to hire long-term staff or faculty members. Such events could be useful for testing the waters, as well as making some noise nationally and putting those institutions on the map of this "new" and "international" field. These effects are quicker and more visible than the benefits that could be yielded from revising the curriculum and gearing part of it toward DH learning, which of course involves a lot more resources (and paperwork to go with it).

Also, the use of social media in learning and teaching DH is becoming quite common. This includes forms of informal learning such as troubleshooting by connecting with DH practitioners in WeChat discussion groups. Similar in importance to Twitter and to a lesser extent Facebook in Anglophone DH communities, WeChat, the most popular social media platform in China, plays a significant role in shaping the country's DH field and its communities. Since the early 2010s, Chinese scholars and students have been increasingly active online in these discussions on WeChat. Several discussion groups host lively and inclusionary discussions about DH learning. In three main DH discussion groups, there are over 940 users mainly from mainland China but also Taiwan, Hong Kong, and overseas who discuss, communicate, and debate daily. These three groups were set up initially for the participants of the DH forums organized by the Peking University Library. Additionally, there are numerous WeChat public accounts (*gongzhong hao,* akin to blogs that incorporate interactive functions) devoted to the sharing of electronic resources for research and relevant academic events, often attracting a large following among younger academics in many fields.[34] At least five of these public accounts regularly publish news, articles, reviews about DH, and introductions to databases or electronic resources for digital scholarship. One of the earliest and most influential of these, 01Lab, has published more than 250 tutorials, essays, news reports, and reviews and had attracted 10,440 subscribers as of March 2023.[35] It was recognized as the first runner-up for the 2019 DH Award in the "Best DH Blog Post or Series of Posts" category.[36] The discussion groups and these online outlets play an instrumental role in building a community of Chinese digital humanists, in encouraging and maintaining their active participation, and in providing an efficient way for communication between DH practitioners and learners, who are scattered all over China and from many different disciplines.

Due to linguistic barriers, the domination of scholarly data by proprietary databases, and the use of a somewhat different set of software applications in China, those who make use of open DH learning resources (for example, online tutorials on programming such as those provided by the Programming Historian or other materials hosted by digital research infrastructures such as dariahTeach) are much fewer.[37] It remains to be seen whether this situation will change with the availability of videos and the emergence of MOOCs that teach DH. Some video tutorials specially designed for researching Chinese data already exist, but they are not in Chinese.[38] There is still a big gap in DH teaching materials for the Chinese audience, such as reference texts and online tutorials; only very few of these have been introduced to China through translation.[39] Even though much in demand in China, materials compiled locally for Chinese learners and with a focus on research materials from China are still rare. With the Covid-19 disruptions in 2020 to 2022, many DH training events took place virtually.

In short, DH courses still have no proper place in the curricula of humanities departments in China, except for in a very small number of key leading universities.

However, university teachers who are steeped in this field, especially humanities faculty members and librarians, are working hard to find and expand the flexible spaces that exist in between institutional structures. These take the forms of informal training, short-term and ad hoc events, and online communication through social media. Interested students, who are increasing in numbers especially at the graduate level, are also seizing such opportunities to learn these new things. Some of them are even actively building contact zones for themselves, with the hope that they can train themselves for the "next big thing" in Chinese academia. To be sure, DH is spreading in China through pedagogical efforts that are primarily in the realm of informal teaching and learning. Even though China's academic structures in higher education are arranged in ways that are vastly different from other regions, this approach for teaching DH is still what it takes for DH to take hold among learners.

Notes

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1. Underwood, "Digital Humanities."

2. See Wang Y., Liu, and Zhang, "Overview."

3. It could be interesting to compare this trajectory with Fletcher, "Educational Technology."

4. See J. Chen and Tsui, "Debating and Developing"; Chen J., "Dangxia"; Xu L., "Huawen"; and Wang X., Tan, and Li, "Evolution." For a study that identifies even earlier origins in Chinese scholarship, see Detwyler, "'Prehistory.'"

5. Guangming Ribao, "2018 niandu."

6. See Tsui, "Charting the Emergence."

7. The development of DH pedagogy in other parts of the Greater China region is another topic worthy of discussion and deserves separate treatment. See J. Chen and Tsui, "Debating and Developing."

8. For a full list of these, see Baidu, "Erji xueke."

9. Here, *world history* usually means "non-Chinese history."

10. This observation does not cover the openings at international branch campuses in mainland China (such as the University of Nottingham Ningbo China) or institutions in Taiwan and Hong Kong.

11. Kirschenbaum, "Digital Humanities."

12. It is useful to note that this type of change is also not entirely impossible, and there have been examples of new disciplines being set up and helping to promote knowledge in new fields in China, such as Instructional Technology (a "second-order discipline"), a branch of Education (a "first-order discipline") in the official categorical system for disciplines in China's higher education.

13. See Klein, *Interdisciplining Digital Humanities,* 14–36.

14. On this debate, among others, see Svensson, "Beyond the Big Tent."

15. To be sure, whether the DH field should and will institutionalize in China remains an open issue. A handful of leading institutions in China and their faculty members who have exposure to DH are definitely pushing this agenda; see Tsui, "Charting the Emergence."

16. Wang T., "Shuzi renwen."

17. These are being serially published on WeChat by 01Lab from September 2019 onward.

18. Rockenbach, "Introduction." On the role of librarians as digital humanists, see Smiley, "From Humanities to Scholarship."

19. Harvard University, China Biographical Database Project; Warren et al., Six Degrees of Francis Bacon.

20. Ho and De Weerdt, MARKUS.

21. See J. Chen and Tsui, "Debating and Developing"; and Wang X., Tan, and Li, "Evolution."

22. Saklofske, Clements, and Cunningham, "They Have Come," 323–24.

23. Vierthaler, "Digital Humanities," 10.

24. Nanjing University, "Digital Humanities Initiative."

25. Research Center for Digital Humanities, DocuSky.

26. See Lin, "Duizhuang ji."

27. For introductions to some of the basic DH utilities for Chinese history, see the special issue of *Journal of Chinese History* 4, no. 2 (2020): 483–580.

28. These were the Tenth China-R Conference in May 2017, held at Tsinghua University, and the Second Peking University Digital Humanities Forum in June 2017.

29. This could be related to the proposal in Birnbaum and Langmead, "Task-Driven Programming Pedagogy."

30. Chen P. et al., "Beijing Digital Humanities."

31. Mann, "Paid to Do."

32. Zhu and Nie, "Kuajie"; Zhu and Nie, "Hudong."

33. The 2020 conference "DH 2020: Benevolence and Excellence: Digital Humanities and Chinese Culture" became a hybrid event due to the Covid-19 pandemic.

34. On the roles of these accounts in scholarly communication, see S. Xu, "Sneak Peek."

35. Some of its posts are archived on 01Lab, "Publication."

36. DH Awards, "DH Awards 2019 Results."

37. One exception is the video tutorials in Chinese that Taiwanese academics have produced for specific tools and platforms. On some of these challenges for China's DH development, see Tsui, "Digital Humanities."

38. For example, those mentioned in Vierthaler, "Digital Humanities," 10.

39. For instance, Graham, Milligan, and Weingart, *Exploring Big Historical Data,* of which Zhejiang University Press published a Chinese translation in 2019. Some of the broader linguistic issues in the digital humanities field are discussed in Mahony, "Cultural Diversity."

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