Introduction

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You may think of China as a rising global power, the workshop of the world, an enormous market, an irresistible culture, or an immense diaspora. All in all, it is hard to avoid. One in five human beings is Chinese. How can *Library Trends* not take a look at China?

In fact, China has (again) burst onto the world's consciousness during a global moment of wrenching change. As with farming before it, the making of physical things is an occupation for fewer and fewer people worldwide. To borrow from William Mitchell (1995), bits, rather than atoms, occupy our imaginations. What will this mean for social cohesion, for the communities that we live in? What will it mean for the community institutions that we have relied upon, libraries among them? Scholars and others in the Global North have asked a similar question before, when farming ceased to support entire families and communities and migrants flowed to the cities. Their investigation of community in the industrial city launched the field of urban sociology (Burgess & Bogue, 1952; Park, 1964).

And six years ago, *Library Trends* examined "Libraries in Times of War, Revolution, and Social Change" (Rayward & Jenkins, 2007), considering libraries during past and contemporary political disruptions.[1] The current issue widens that gaze to include communities as well as libraries as they navigate through the *technological* disruption known as the information revolution.

The Perspective of Community Informatics

The work presented in this issue of *Library Trends* reflects the rise of a new field of practice and research known in the English-language scholarly literature as community informatics (Williams & Durrance, 2009). Community informatics asks how local communities can and will fare in the digital age, the postindustrial age associated with the information society. Community informatics emphasizes agency: research focuses on the extent to

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which the community is navigator of its own life. Community informatics recognizes that there are multiple interests in and beyond communities, and these interests may determine a variety of outcomes when communities use information and communication technologies (ICTs). Community informatics follows Rob Kling and others who carried out social informatics research and found complexes of interests that influenced what digital tools were used, by whom they were used, and for what purposes (Kling, 1980). Twenty-thirteen is an exciting moment in the life of communities because these tools are now so well diffused as to be in almost everyone's imagination, if not in their hands. Yet the tools continue to evolve and promise new affordances (Norman, 1998). Crowdsourcing, for instance, invites people to join in and shape the future.

Community informatics entails both challenge and possibility. The challenge consists of joining a social transformation that has been led by others: the military, corporations, and large government agencies. These powerful interests have fashioned information technology (IT) to their goals. In the U.S. in the 1990s, this challenge was named the "digital divide." The term signifies many evolving differences in access to and use of IT, and is related to the older term "computer literacy." Demographically, the digital divide mirrors other inequalities in society: rich/poor, more/less educated, old/young, male/female, able/disabled, and dominant/marginalized ethnicities. While many people on the wrong side of the digital divide demographically are in fact adept users of new technologies, and all strata are adopting technology over time, this is at different rates and so the digital divide continues to deepen.

Just as illiteracy in urban industrial societies marginalized people, data suggest that computer illiteracy does the same thing in the information society. This is because so many key aspects of life—looking for work, applying for work, doing the work, buying goods and services, attending school, accessing one's own culture, and just plain socializing—have moved online. In this situation, what is community? What holds local communities together? Can ICT help, as well as hinder, community building and maintenance? Since the vast majority of humanity lives in local communities and so daily life depends on that community's integrity and stability, this is a fundamental question.

The possibility that is community informatics is just as much embedded in the origins of computing as are the challenges above. Early computer builders and software developers recognized and promoted this possibility. Ted Nelson's 1974 book *Computer Lib* recognized and explained this. Richard Stallman (2010) understood this in the 1970s when he set to work on free and open-source software. In fact, as early as 1961, University of Illinois was inventing PLATO, an open-to-the-public time-sharing computer system that got lots of people experimenting with what was possible.

The concepts of social capital, cyberpower, and public computing are particularly key to foregrounding community in community informatics

and keeping the research from being an engineering experiment conducted by outsiders. These concepts can guide anyone who works in, or studies, communities. First, social capital 社会资本:[2] Lin (2002) defines social capital as resources accessed through one's social ties, and Putnam (2000) gives us the paired concepts of bonding social capital (resources shared within a social network, between strong ties) and bridging social capital (resources shared from one close network to another, between weak ties). The social capital within a local community is often invisible. But relying on bonding social capital guides outsiders—such as government officials, university researchers—to partner with people who are deeply rooted in a local community. Social capital is a crucial input to technology in local communities. Second, cyberpower 网络电源: this is the ability of individuals and organizations to meet their own goals using cyberspace. Cyberpower is a crucial output, or outcome, of technology in communities. The third and final concept is public computing 公共计算. We all experience digital divides and computer illiteracy because technology changes and people are learning all the time. Public computing consists of shared resources, sometimes including supportive staff or volunteers, where people can learn and use computers. Cybercafés, libraries, community-based computer labs, even wifi-enabled public spaces, are part of public computing. Some public computing is available for everyone; other places are limited to certain types of people. Public computing is in many ways a requirement for bridging digital divides.

Heretofore the challenge and the opportunity in community informatics have been explored mostly outside of China and mostly in the English-speaking world, where the concept originated and the research infrastructure is stronger. This issue takes us into China, offering theory, method, and policy for China and for the rest of us.

China's Explorations of Community Informatics

Chinese scholars first connected with the Western field of study known as community informatics in 2005. More recently it has been explicitly considered in light of two research foci in China, community informatization and rural informatization. Scholarly activity in community informatics in China has included visiting (to and from China), lecturing, researching, teaching, and publishing. (The account that follows here emphasizes China–U.S. linkages; more history is needed of other international connections.)

The first two Chinese visitors to the U.S. who were interested in community informatics were Professors Chen Jianlong (Peking University), who visited the University of California, Irvine in 2005–2006, and Hu Liyun (Yunnan University), who visited the University of Wisconsin at Madison in 2007–2008. Both scholars returned to China and initiated community informatics work. Hu (2011, 2012) identified some key ideas, people,

conferences, and publications. Chen (2012) carried out four studies in the *lao shao bian qiong* 老少边穷 areas. These areas are remote, old revolutionary base areas with high ethnic-minority populations and/or with high levels of poverty; they are also a focus of recent national policy. Chen also encouraged then-Ph.D. student Yan Hui to align his work with community informatics. Peking University doctoral student Yan Hui and Associate Professor Han Shenglong each visited the University of Illinois, Urbana-Champaign in 2008–2009, with Yan participating in three studies (Williams & Yan, 2009; Williams, 2012; Kok, Williams, & Yan, 2012) and planning his dissertation (Yan & Lai, 2010; Lai & Yan, 2011; Yan 2011, 2012; Yan & Sun, 2012).

After returning to China and becoming an assistant professor at Nankai University, Yan Hui organized a lecture tour by Abdul Alkalimat and Kate Williams, both faculty at the University of Illinois, to coincide with the Fifth International Conference on Cooperation and Promotion of Information Resources in Science and Technology (COINFO) in November 2010. They organized a delegation to COINFO that presented six community informatics studies from the U.S. and Japan alongside five Chinese presentations on either social or community informatics.[3] The same delegation took part in two events at Peking University organized by PKU Professors Lai Maosheng and Chen Jianlong. Alkalimat and Williams spoke about community informatics in nine information management departments or libraries: Peking University, Beijing Normal University, Renmin University, Nankai University, Nanjing University of Science and Technology, Nanjing University, East China Normal University, Tongji University Library, and Shanghai Public Library.

As presentations and conversations unfolded, Peking University and the University of Illinois discussed the possibility of a graduate-level summer course on community informatics. Associate Professor Han Shenglong has organized two of these, in 2011 and 2012. Alkalimat and Williams taught the course; guest lecturers included Yan Hui, Lai Maosheng, Han Shenglong, and Yu Liangzhi (all contributors to this issue), Assistant Professor Wang Sufang from Zhejiang University, Wang Shuai from Yugong Zhongyi 愚公众益, and Chen Jiangong from the China Network Information Center. Each summer the course also had a research component; student teams gathered data in local libraries and other public computing places and piloted computer help services for library patrons. A total of ninety-two people from information management programs or libraries completed the course: fifty-two master's students, nineteen undergraduates, eleven Ph.D. students, two faculty, and seven librarians. Superstars Video recorded the lectures and added them to their database.[4]

The second summer school culminated in a conference bringing together the four editors, public librarians, and others, especially some of the authors in this issue. The conference was called eBeijing in recogni-

tion of this editor's positive experience organizing six years of eChicago meetings in Illinois. eChicago examines that city's advance into the information age from the perspective of public libraries and other community-based institutions, including local government.

The course readings and our research-team work was published as the first Chinese textbook for community informatics. Accordingly, eBeijing was also a moment to celebrate this bilingual community informatics anthology published by the National Library of China Publishing House (Williams, Han, Yan, & Alkalimat, 2012). China's voices in this anthology include Lai Maosheng, Chen Jianlong, Yu Liangzhi, Wang Sufang, and the China Network Information Center. Community informatics courses in the U.S. and China have begun to use this text.

A few more community informatics studies of China have appeared in the West. A project is underway that is assembling and analyzing a large corpus of empirical community informatics work published in English-language books and journals. In this collection of 740 chapters and articles, we found 5 that studied communities in China. Two of them focus on place: Bao (2001) discusses modernizations of the Shanghai public library system, and Soriano (2007) examines what telecenters mean for rural livelihoods in two Wu'an villages. The other three focus on communications infrastructure, social life, and power: Qiu (2007) analyzes the inexpensive mobile network Little Smart 小灵通 as a working-class ICT, and Oreglia (2010) and Wallis (2011) study Beijing migrant women's use of ICT and of mobile phones, respectively. These are undoubtedly not the only studies; further searching will unearth more.

This Issue: Community Informatics in China

The focus of this issue is on theory, method, and policy. Theory means useful ideas that explain causality, that explain why or how something happens. Method means research techniques to gather and analyze data that affirms or revises theory. Policy means practical proposals that are based on solid theory and method, proposals that governments and others can implement to foster information-age, digitally savvy communities that work better for the people who live in them. The articles in this issue are a sample of the latest work in, and relating to, community informatics, with particular emphasis on current challenges for local communities in China.

This issue is in four sections: "Connections," "People," "Places," and a two-part community informatics "Case Study." The first two articles, comprising "Connections," explore the relationship between community informatics from the West and the established work in China in community and rural informatization. Lai Maosheng, Fan Zhenjia, and Zhang Lili define and evaluate community informatization by analyzing 1,600 articles using that keyword and a stratified survey of community residents.

They draw comparisons to community informatics and suggest that digital equality could serve as a policy guiding community informatization. Yu Liangzhi and Yu Binbin discuss three large national rural informatization projects by examining the national policy process, analyzing a set of documents, and considering several case studies. They recommend that rural informatization use the bottom-up community informatics approach to unleash local initiative and serve local purposes, complementing the top-down investment of resources that any national project entails.

The next four articles, "People," focus in different ways on the most crucial development in terms of community for China today: the enormous internal migration from rural to urban areas. Along with the difference between the more-developed coastal provinces to the East and the rest of China (the West), this difference creates inequalities even as it overcomes them. This is largely due to the fact that migrants are not eligible for services—such as health care, or public schools for their children—after they have moved because residence permits (*hukou* 户口) generally cannot be updated.

Zhang Pengyi introduces us to the new general migrant worker—the generation who hasn't worked in the fields and is determined to join urban society, yet has no rights to urban resources and is unable to earn sufficient income to sustain life in the city. Zhang analyzes 1,550 Weibo messages—China's Twitter—all discussing these migrant workers. She finds that migrant workers themselves are not the most influential voices, but that information, opinion, and especially action messages are posted and widely shared. This suggests that people are keen for a solution and Weibo is a resource for these workers.

Chung-tai Cheng introduces us to workers left behind in the exodus from rural to urban China. Via in-depth interviews in Southwest and Northwest China (Guanxi and Gansu provinces), he explores how people adopt mobile phones and use them for economic survival. With "Reform and Opening Up" 改革开放 in 1978, the country shifted from a socialist economy to state-led capitalist development, which was driven increasingly by global market shifts. Stable farming or other employment gave way to temporary jobs. Quick cultivation changes were required as crop prices shifted unpredictably. Rural workers made strategic and creative use of cell phones to keep connected to the labor and produce markets through personal contacts. This mitigated somewhat the power and advantage that large retailers, wholesalers, and employers had gained in the Reform. People also kept better connected to their urbanized relatives. But work and farming information that people used to share by gathering at their children's playground or in their village in the evening has moved to the phone; people describe speeded-up lives, lower incomes, higher competition, and an extended workday.

Even in eastern China where capitalist development is focused, there are rural areas characterized by a hollowing out of the population, which means that working-age men and women (especially women without children) depart for the city to find work. This leaves the rural population reduced to children, mothers, and grandparents. Tian Rui reports on a survey of 186 residents of rural villages around Beijing, looking for causes of their use or nonuse of (1) information technology such as mobile phones and computers, and (2) the book and audiovisual collections known as Farmers' Reading Rooms that were established by the Beijing government before a similar large national project. The adult population is dominated by older people and women raising their families with their husbands working and living in a distant city. TV is the top information source, although not providing what villagers really need and want. Lack of free time, money, and low levels of literacy and digital literacy on the part of the rural residents result in mobile phones being the most common digital tool, even for browsing the Web. Lack of network connections, inadequate hours, and insufficient guidance from Reading Room staff (who may work several jobs) are some reasons for low use of the reading rooms. Where trained and full-time staff can orient the reading rooms to local people's needs and interests and teach and support budding "netizens" in more effective use of IT.

Huo Ran and Wei Qunyi consider China Railways' new practices of online ticket purchasing and antiscalping ID requirements and the response of the public library with its public-access computers. These practices, again, are connected to the enormous rural-to-urban migration. The economic imperative for migration disperses families and makes Chinese New Year the world's highest peak travel time, with gridlock at the ticket windows and rapacious scalpers. But the new practices created digital divides. Public libraries responded with staff at the public-access computers ready to help travelers. Ran and Qunyi interviewed Chongqing library staff and surveyed patrons who used the service, finding lower-income and older rural immigrants the highest users of the service. These largely new patrons were highly satisfied overall even with staff handling unusually personal information and money. They returned to use the library in other ways. The authors also formulate policy recommendations for China Railways.

The next section, "Places," focuses closely on four public computing venues: cybercafés, public libraries, private libraries, and academic libraries. Jack Linchuan Qiu conceptualizes the cybercafé as a commons for the information have-less in China. On the basis of reuse of national statistics, media analyses, and visits to more than one hundred such cafes, he argues that community informatics in China cannot avoid this particular community-based institution. He does this by tracing cybercafé history, from elite coffee shops and digital showplaces to youth and workingman's net-

bars, from growth to catastrophe, from politically tinged overregulation to militant (and economic) resurgence. Mobile phones have taken a slice of the market for this working-class ICT. But, Qiu concludes, "New communal practices have begun to materialize in and around the cybercafé." (p. 137)

Christopher Peter Clarke, Su Hui, and Ruan Li describe the Hangzhou Public Library's projects to provide information and cultural resources via the Web, TV, and the mobile phone. The website includes writings and performances by patrons, who became an active uploading community and led the library to collect and display materials and commentary on the Beijing opera at the library. The authors use community informatics concepts such as social capital and cyberpower to generalize from this experience.

Wang Zizhou, Wu Hanhua, and Yin Peili describe and analyze how private libraries serve local communities. This is based on their several surveys of library websites and the libraries themselves, as well as private library conferences that they have organized where everyone shares best practices and make connections. These nonprofit libraries are operated by individuals, associations, or public or private schools,[5] and rarely corporations. They may be free to all or may require a membership fee. Those operated by individuals were surveyed as to public computing service; roughly half offer such services, overwhelmingly for free. A particular trend in rural communities is for private libraries to provide more than publications and Internet—for instance, they loan music recordings, instruments, theatrical costumes, chess, mahjong, and cards; they have ping pong tables and basketball courts and tournaments; and they offer legal consultations and public forums and volunteer groups on local issues. These libraries are only possible because they tap into local social capital, creating a volunteering spirit and an otherwise missing public space for the mostly low-income communities served. The authors compare the private libraries to several much-better-funded national projects that risk being "image projects" rather than locally effective and characterize the private libraries as strengthening an otherwise weak civil society.

Lian Ruan and Zhu Qiang focus on a national project to bridge the digital divide between academic libraries in the East and their have-less counterparts in the West. In particular, when it came to building databases, these libraries learned firsthand the actual-virtual-actual process that emerges in community informatics. This states that when the actual life of a community enters virtual spaces it can then strengthen the actual local community. West China academic libraries had success not by replicating the databases built by East China libraries but by digitizing materials reflecting their own local history and culture, which was of great value to locals and to outsiders as well.

The last two articles taken together constitute "A Case Study" of a community informatics project in rural Western China. This is very important, because a thorough, well-documented case study is a solid basis for training professionals, benchmarking other projects, and clarifying what the research questions are for larger studies. The two papers use a variety of methods to understand what happened with two related community informatics projects in Gansu Province in Western China. First, Wei Zhipeng, Jiang Guodong, Niu Tuowen, Tim Zou, and Elaine Dong, all of them either based in the US or China, present the Gansu experience of the Hong Kong/U.S. Evergreen Education Foundation (EEF). Founded in 2001, the EEF focuses on rural China, providing scholarships, partnering and augmenting high school libraries, and hosting conferences and workshops to draw lessons from this work and other work like it. Through the long-term collaboration of local teachers and community members and overseas friends, two high schools became community centers providing information and community building. This was possible because each school and community identified an issue of high local concern—health and local history, respectively—and mobilized people to collect, organize, and produce digital and other materials of interest.

Yan Hui, Zhou Wenjie, and Han Shenglong's paper complements the Wei et al. participant-observation paper and completes the Gansu Province case study. They carried out focus groups, interviews, and surveys among 132 villagers in the vicinity of one of the EEF partner high schools discussed in the other article, which was providing digital literacy training as part of its activities. To what extent did the villagers overcome digital inequality and gain digital literacy? What were the roles of bridging and bonding social capital? They found that villagers did gain digital literacy, although those who already had some gained more than those who were the most disadvantaged. They also found that the combination of remote and local involvement, bridging and bonding social capital, was key in mobilizing everyone for a sustained community effort, and that this process had the potential to see that the have-mores then reinvested their social and human capital into helping the whole community move forward.

These last authors echo the policy call elsewhere in this issue for top-down projects and professionals in general to acknowledge, learn from, and link with grassroots, bottom-up projects. As a set, these twelve articles are a biopsy that gives a good indication of the state of local community use of information technology in China. The world knows that China's netizens are a force. These articles help us put our feet on the ground in communities by giving us a more complete picture of Chinese citizens as well as netizens. We hope you learn from all the authors and that they inspire more work in China and elsewhere.

A Note on Chinese-Language Usage in This Issue

This issue of *Library Trends* is a project in global scholarship spanning Mainland China, Hong Kong, and the U.S. and referencing literature, people, places, and concepts in three different scripts.

People's names are written differently around the world. This issue writes people's names as in their home countries. In Mainland China, family name comes first and the Chinese characters are simplified. In Hong Kong, family name comes last and the Chinese characters are traditional. In the U.S., family name comes last and people from China or of Chinese descent sometimes adopt Western personal names.

This issue also provides less-well-known proper names, place names, and specific terms in English, simplified Chinese, and sometimes pinyin.

Citations of publications written in Chinese are provided in English according to the *Library Trends* style guide and then in Chinese according to Chinese style guides. This is aimed to make them easier for readers to find in libraries and databases. The objective here is to help the journal span several different languages and discourses.

As long as the English language by itself dominates the scholarly literature of the world, scholars will never formulate theory, method, and policy that can be usefully considered everywhere—by everyone.

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Notes

1. This issue included four articles about China. Deweerdt (2007) dealt with collection loss in the years 1120–1140, Huanwen & Davis (2007) with a catastrophic library loss in Beijing in 1900, and Wang (2007) and Situ (2007) each reviewed a collection that has endured for several hundred years. Since the journal began in 1952, the only other *Library Trends* article focused solely on China is Sun (2002), which explained information literacy in higher education.
2. For an explanation of the approach taken to the incorporation of both the Chinese and English languages in this issue, please see the note concluding this introduction.
3. Adrian Kok (Dominican University) spoke on computer training for older adults in the U.S.; Noah Lenstra (UIUC) on digitizing local history in the U.S.; Aysha Marsh (Chicago) on a local Chinese-American museum digitization project; Taku Sugimoto (Chiba Institute of Technology) on Web presences of local businesses in a Toyko neighborhood; Aiko Takazawa (UIUC) on nonprofit organizations and local governments in Japan; and Kate Williams on the Chicago Public Library. Chinese presentations included Han Shenglong on an ethnography of a game world; Yan Hui (Nankai University) on digital poor communities; Song Weixiang on a mobile search engine; Zhao Kang on a scholarly LISTSERV; and Luo Jianlan on knowledge maps in the consulting industry. The Chinese participants were from Peking University, except as indicated above.

4. They are available at: http://video.chaoxing.com/serie_400007454.shtml.
5. Especially private schools attended by rural migrant children in the cities where they are not able to attend public schools if they have rural hukou.

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