Research Article

ICT and (Personal) Development in Rural China

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Abstract

Information and communication technology (ICT) is increasingly widespread in rural China, and is finding unlikely us-ers: elderly people, rural women, and people with little education or disposable income. Their ICT use is driven by the desire to find connections and entertainment, and it offers three insights for broadly utilitarian ICT for development (ICTD) projects: first, rural users who are thought to be beyond the reach of ICTs because of their age or educational level and who do not see themselves as ICT users may nonetheless begin to use ICTs after observing other people go-ing online and identifying activities that relate to their own lives and interests. Second, they have time to figure out how to incorporate ICTs into environments that are extremely different in terms of economy, social structures, and habits from the urban environments where ICTs originate. Finally, ICT uses that emerge from family-based practices rather than from hetero-directed programs can provide insights into the priorities or social practices of seemingly marginalized populations who have otherwise been overlooked.

Introduction: ICT for What?

On a hot July morning in 2010, in a small village in the Chinese northern province of Hebei, I was sitting on a pile of bricks by the side of the road, waiting for a potential interviewee to return from the fields and show me her laptop, at the time still an expensive and rare device in the countryside. While waiting, I chatted with three older women sitting along the wall, taking a rest from their morning's activities. They seemed unlikely Internet users, especially the two oldest, Mrs. Ouyang in her late 50s and Mrs. Kong in her late 70s. To pass the time I asked what I was asking everyone in the village: Do you have a mobile phone or a computer? Only the young-est, Mrs. Tao, then in her late 40s, answered that she had a mobile phone, but said she could only use it with her daughter's help. This aligned with what I had expected to hear in terms of Internet and mobile phone use in rural China. Before starting my fieldwork, I had been reading the China Internet Network Information Cen-ter's quarterly reports on Internet use in the country, which showed consistently that use was concentrated in urban areas and among younger people and that rural use was lagging because of cost, lack of access, and lack of understanding of the Internet's potential (*25th Statistical Survey,* 2010).

   As the conversation continued, however, an entirely different picture emerged. All three women had com-puters in their homes. The computers belonged to their children, but a combination of watching them go online and hearing about the Internet in family discussions and in daily outdoor gatherings of neighbors had made the women aware of the Internet and of some of the things one could do online. Only Mrs. Kong main-tained that she had never seen or used a computer, which again seemed reasonable to me. But she also turned out to have used QQ Video, a program similar to Skype, to chat with her son and grandchild who lived away from the village. She was not entirely aware of how QQ worked, and it was Mrs. Ouyang who said, "Of course you've used video-calls. Don't you remember? It's just like television, except there was your grandson on the screen!"

   These older women, like most people in the village, have children and other relatives who are rural-to-urban migrants, that is, residents who move from the country for shorter or longer periods to urban areas to work in factories or in the service sector, fuelling the impressive economic growth that has characterized China

since the 1980s (Gaetano & Jacka, 2004; Solinger, 1999). While contributing to the economic progress of the country as a whole, this migration has also increased the gap that has historically existed between urban and rural areas in terms of economic, employment, and educational opportunities; infrastructure development; and the availability of social and welfare services. In recent years, the Internet and new information and communication technologies (ICTs), and in particular, mobile phones, have started to play an important role in efforts to bridge this gap, both through government policies and initiatives and at a grassroots level as migrants bring ICTs and know-how from cities to villages. At the public level, much emphasis has been placed on the role of ICTs in rural *economic* development, as illustrated by this quote from an influential World Bank report on rural informatization in China, written in collaboration with the Chinese government and, in particular, with the Advisory Committee for State Information in China:

> Rural populations have dramatically increased their demand for new technologies, policies, and market information, and obtaining useful information in a timely manner has become critical to the rural economy and society. With the arrival of the information age, the market economy in rural areas has been growing, and competition in the expanding economy necessitates access to information—especially in agriculture, which is particularly reliant on information. ICT is being perceived as an effective tool for disseminating information resources widely and cost effectively. (Qiang, 2009, p. 1)

Despite this emphasis, and backed by substantial investments in infrastructure, software, and information networks of various types, rural ICT uses still consist mainly of entertainment and communication, such as watching TV online, playing games, and staying in touch with relatives and friends who have migrated. In China, as in many other countries, Internet use is often perceived as driven by entertainment—and the spectacular success of online gaming, social networking, and video and music websites indicates there is some truth to this perception. In the latest report on the Internet in China, the categories of communication (especially instant messaging) and entertainment still comprise the majority of Internet use, despite a marked increase in commerce and business use (*33rd Statistical Report,* 2014). In recent years, an awareness has grown that part of the problem in the countryside is the lack of locally relevant content and interfaces that are difficult to negotiate for people with little education. The solution is seen to be at the supply side, i.e., in the production of easier interfaces and more appropriate content (*33rd Statistical Report,* 2014). In this article, however, I argue that the preponderance of entertainment- and communication-based ICT uses are an essential component of the developmental role that new media can play among rural residents. Combined with the essential role of personal networks that introduce and mediate such technology use (e.g., the children of the three women described above), the initial focus on "fun" activities that create familiarity with the technology and help people stay in touch with their families are essential in keeping people "in the loop" who might be otherwise left out and that allow people the space, time, and support to integrate ICTs into their lives. How might one argue that the use of ICTs *for leisure* in emerging countries (Arora & Rangaswamy, 2013) contributes to creating development opportunities and should not be considered as outside the scope of ICTD projects? Drawing from my ethnographic fieldwork, I see the study of leisure-driven ICT uses as an important vector for understanding aspects of ICT uses that can add value when integrated into ICTD (ICT and/for development) interventions. For my research participants, the value of digital leisure "for development" is three-fold. First, it allows people who do not think of themselves as ICT users and who are not considered by others as able to become proficient users to acquaint themselves with ICT devices and find uses that are meaningful for them—in other words, to start imagining themselves as users. Second, the time dedicated to play is time invested in slowly negotiating and accommodating into one's daily rhythms tools and ways of communicating that represent a dramatic shift from traditional modes of interacting and exchanging information. Finally, a close observation of ICTs for leisure can provide insights into user priorities and needs, in particular as far as communication needs are concerned. In this article, I trace a social chronicle of mobile phones (and occasionally, computers) as they are adopted and adapted at the margins of Chinese society. By looking at how they fit into people's lives from these three perspectives, I consider some of their effects on social ties and personal well-being to gain a more holistic view of ICTs' roles among people "at the margins" who are the main concern of the ICTD community. In the rest of the article, I analyze all three areas in more detail: I begin with a short introduction to

informatization policies in rural China and details on my fieldwork. Then I describe how new ICT users understand themselves as users, how time is a necessary element in integrating ICT uses into rural daily life, and how leisure- and communication-driven ICT uses reveal the priorities of residents in rural areas.

An Ethnography of ICTD in China: Background and Methods

In China, the last decade has seen rural *informatization,* that is, "the transformation of an economy and society driven by information and communication technologies" (Qiang, 2009, p. 1) as an important component of the country's development plans. Informatization is seen as crucial for promoting the advancement of the countryside, shrinking the urban–rural gap, reducing rural poverty, and improving economic opportunities (Dai, 2003; Duan, Warren, Lang, & Lu, 2009; Fan, 2006; Qiang, 2009; Xia, 2010). Most parts of rural China already enjoy a solid basic infrastructure, thanks to previous efforts to extend electricity, television, and land-lines into the countryside. Since the mid-2000s, there have been similar efforts to build an ICT infrastructure, including the construction of mobile phone networks and Internet, carried out by private telecommunication companies with government encouragement (Wu, 2009; Zhao, 2010), uneven efforts to expand fast and broadband Internet to rural areas (Liu, 2012, 2013), and a variety of public, private, and NGO-driven projects to increase ICT use among rural residents (Qiang, 2009; Zhao, 2008). According to official statistics, the number of Internet users residing in the countryside is slowly rising, reaching 177 million at the end of 2013, or 28.6% of all Internet users in China (*33rd Statistical Report,* 2014). Of those who do not use the Internet, the majority do not because they say they do not know how to use computers (58.1%), rather than because they do not have access to networked devices (10%; *33rd Statistical Report,* 2014, p. 21).

Many of these users live in the countryside, where I conducted the fieldwork that I draw on for this article. In 2010 and in the summer of 2011 I followed three migrant women I had met and interviewed in Beijing back to their home villages, two in Shandong province and one in Hebei province. The three villages were connected to the electrical grid and had good mobile phone coverage and Internet connections, even though the number of users was significant only in the Hebei village, the largest of the three and the one closest to an urban area. In the villages I lived with local families, interviewed family members and neighbors, and carried out participant observations. Interviews took place in Chinese, sometimes with my hosts or a younger person in the village who spoke the standard language acting as a translator if the interviewees spoke a dialect. Most of my rural interviewees were women, which reflects partly the dynamics of migration, wherein younger people and men move to urban areas, leaving older women, young mothers, and children behind (Fan, 2009; Hannum, 2005), and partly because, as a woman, I had easier access to female interviewees. There are definitely gender differences in how ICTs are perceived and used, especially among older interviewees, which I have explored elsewhere (Oreglia & Kaye, 2012) and which I remark upon when appropriate in this article. The core of my argument, however, is linked to ideas surrounding ICT uses among people at the margins of China's modernization, rather than to gender. Finally, to protect the privacy of the interviewees, their names and the identity of their villages have been anonymized.

Constructing Oneself as User

When asked if they could use a computer or go online, Mrs. Tao, Mrs. Ouyang, and Mrs. Kong answered a very convinced—and convincing—no. And even after they started to describe their online activities, from playing cards to chatting with family far away, it was clear that they did not think of themselves as computer users, something they identified with younger, urban, more educated people. In the context of village life, where most people are farmers or manual laborers and where models of computer and Internet use such as office work, Internet cafés, or family and friends going online are scarce, this was logical and almost inevitable. Policies and mass media portray informatization as tied to economic development and urbanization, things that many older interviewees described as no longer their concern. Most people in the village had family who had migrated and, between remittances and farming income, they had enough to get by and were not particularly interested in learning ICTs to achieve more. But it was clear that they were appropriating ICTs for their own purposes and making them into something more relevant to their lives than economic development or

agricultural information. The phenomenon of users appropriating, reconfiguring, and shaping technology to fit their own lives and goals rather than the goals imagined by the technology developers and marketers has been well documented by social histories of technology (Bijker, Hughes, & Pinch, 1989; Bray, 2008; Fischer, 1988, 1994; Flitsch, 2008; Wu, 2008). In *America Calling: A Social History of the Telephone to 1940,* Claude Fischer describes how phone companies promoted a "productive" use of the telephone, specifically to support and grow business for companies and small business people alike, but he also shows how its initial success was partly due to the fact that it was embraced as a personal communication tool, especially by women and by people living in isolated communities. The idea that the telephone's real potential was not necessarily or primarily as a business tool, but rather its creation of networks in which the value was in connecting people regardless of purpose, took some time to take hold and emerged from grassroots ways of using the telephone rather than marketing strategies (Fischer, 1994).

This misalignment of normative goals coming from the supply side and adaptive behaviors from the demand side is commonplace in rural China. For many older adults, ICTs are something for experts, in part because using them present concrete, practical challenges. Older generations, even when they went to elementary and some middle school, did not study *pinyin,* the Romanization system that is one of the most common ways to input Chinese characters into a computer or a telephone keyboard, or if they did study *pinyin,* they are likely to have forgotten it. Even if they can read and recognize characters, they often have a hard time inputting them, so that functions based on writing—sending text messages, searching for content online— are beyond their reach. Other input methods, such as stroke-based or pen, require training and are likely to be frustrating because of the precision necessary to obtain good results. At an even more mundane level, mobile phone screens and characters are often too small for people who don't wear glasses, and symbols that most users familiar with ICTs consider obvious or have learned to recognize even when they are not part of their cultural background (for instance, the yellow folder icon, a quintessentially American office symbol that does not necessarily translate to other cultures, as astutely noted by Sun [2012]) are often opaque to users who have never seen such a folder or who cannot reliably deduce the meaning of a lock icon. Given these practical obstacles, it is remarkable that several older women I interviewed and observed using ICTs have learned the basics of both mobile phone and computer use and are pursuing their own goals online through patient training from their children, collaboration and knowledge sharing among themselves, and frequent reliance on other people to perform specific actions.

In the Hebei village, which was close to an urban area, it was relatively easy to find cheap computers and installation or trouble-shooting assistance. Thus, several families had computers at home, and people consistently described three major motivations to buy (or use) a computer: families with children in school typically bought one "for school purposes," young married couples received one as a wedding gift, or couples with grown children had access to their children's computers or even inherited them when the children bought new ones. In many households, there was a computer and someone able to use it more or less proficiently. Many women become curious about computers and specific functions after seeing their family members use them. For example, Mrs. Ouyang initially said she did not have a computer at home; then she admitted she had one but could not use it. Finally, it turned out that she could not use it autonomously, but she knew about several features and, with her son's help, she could play cards online as well as take advantage of video calls to talk with her daughters:

Mrs. Ouyang: I have a computer at home, but I can't use it.

Author: Not even a little?

Mrs. Ouyang: No, not at all. . . . The first time I touched it I didn't know anything, so my son taught me how to use the mouse. But that was two years ago, when we bought the computer. Now I can use the mouse.

Author: Do you go online?

Mrs. Ouyang: No! I can't! But sometimes when my son is online and plays a game, I tell him I want to play too, and then he finds a card game for me and helps me play. But I don't play for a long time, because my eyes are not good, and I'm also afraid of ruining the computer . . . When I see my son playing, then sometimes I ask him to let me play. But not if he's playing war games, those I don't play, only when he plays cards, then I join him.

Author: Does your computer have a video?

Mrs. Ouyang: Yes, but I can't use it.

Author: Has your son ever used it and you were there too?

Mrs. Ouyang: Yes, we call my second daughter. I saw things on the video too. I can talk to my eldest daughter, the one in Beijing, and see her and I can also talk to my other daughter and see her, her husband, and their son. The first time I thought it was fake, but then I could see that the image moved, and you can see the other people clearly, what they wear, what they are doing . . . I can talk to people who are far away fast. You just turn on the computer and talk to them, like a phone. If I miss my nephew, I can just see him in video, I don't have to wait until they come to visit. That's really nice.

Mrs. Ouyang barely finished elementary school, and had difficulties with *pinyin,* with moving the mouse around, and with understanding the various steps needed to open the computer and launch the software she wanted to use. However, once she saw things she could relate to, such as playing cards, she immediately understood the utility that the Internet could have for her own goals. For her, independent use of a computer is unlikely, absent significant changes to the interface. For other women, a similar start in use—tutored by a family member—might result in autonomous use, as Mrs. Yang described:

Mrs. Yang: I started using [the computer] just now, to watch videos of dance.

Author: For example?

Mrs. Yang: Oh, well, whatever I want to watch, I just watch! I know about Baidu [a search engine], but *pinyin* is very difficult for me, so slowly-slowly. My daughter showed me how to search, and then she usually finds the videos for me too, then once she finds the page with the videos, I know how to click to watch them. She also helped our neighbor [Mrs. Li] to search for videos of dances, and now Mrs. Li can find them by herself too. Sometimes we look for these videos together. But it's hard for us.

Mrs. Li confirmed the cooperative work to look for dance videos:

Mrs. Li: I can't do anything on the computer!

Author: Can you turn it on?

Mrs. Li: Yes, of course. Then Mrs. Yang's daughter showed me how to find a dance video I was looking for because sometimes in the evening I go to the city with her mother to dance in the square. So I watched that.

Author: Can you watch it by yourself, or do you need someone to show you?

Mrs. Li: I can do that by myself. I can also search for things on Baidu and other search engines. *Pinyin* is not a problem at all for me. I studied it very well at school. I was born in 1971 and at the time, at school, we all started from *pinyin,* so I know that very well. I don't type fast, though. I'm very slow.

Older women often find it easier than older men to ask for help with technology because the women accept their lack of knowledge and are willing to be taught by their children. They do not hesitate to ask again if they forget what they have been taught. Many middle-aged men, however, disliked "not knowing" about computers and not being in a position to take them apart and figure out how to make them work, as they often do

with mechanical devices. This was confirmed both by men themselves, who then also claimed that a computer had nothing of interest for them and that they did not *want* to use it (rather than that they could not use it), and by children who had tried to teach both parents to go online. Mr. Qiu summarized what many younger interviewees told me when he said, "My parents can both use the computer now, because I taught them, but my mother was a better student than my father because she was more attentive and patient."

Mrs. Li, Mrs. Yang, and Mrs. Ouyang were exposed gradually to their families' Internet use, by catching glimpses of various online activities and matching them to their own interests. The physical layout of rural houses and the typical positioning of computers also helped. As the traditional, two-room brick buildings were torn down and rebuilt as big, sometimes two-story cement houses, the issue of how to fill the newly created space was still being negotiated, with elements from old houses transported, sometimes awkwardly, into the new ones. Most houses were sparsely furnished while the family saved money to buy furniture or decided how to allocate rooms to different activities and to different people (a married son, an old parent, etc.). Desks are rare, typically found only when families had a child at university or more educated family members. In those cases, the computer was put on the desk, but most often it was on a chest of drawers or on the main table, and in any case, in a central position in the house: in the living room, in the entrance, or next to the television, in places of high traffic and visibility. The computer thus ended up at the center of the house, its use not hidden in bedrooms or studies but instead observable by anyone who walked in, family members and visitors alike. Mrs. Yang saw her daughter watching videos, which led her to watch dance videos. A neighbor was visiting a friend and saw him watching television on the computer, so he asked how to do the same and was helped to download peer-to-peer file sharing software on his own computer. Seeing the machine constantly used made it more familiar, and casual but repeated observations of what more expert users were doing on it created opportunities to *see* something interesting done by someone else, rather than being suddenly confronted with endless possibilities and no concrete entry point. Mrs. Yang and her neighbors' stories suggest serendipitous encounters with what turned out to be the specific "meaning of the Internet" for these individuals. But far from being mere luck, these encounters were the result of a specific combinations of factors that were common among most families: a lifestyle where spaces are not strictly divided into private (a bedroom) and communal (a living room) spaces as in many Western countries, and where the computer is more similar to the television in terms of its position in the household than to a mobile phone, which is a personal and private device. In this scenario, a more expert user carries out a variety of online activities that can be observed by anyone who walks by. When a specific activity sparks the interest of another family member, a novice, or a potential user, the expert more or less graciously guides the novice to a certain, sometimes limited, autonomous use.

Having ICTs fit in one's life, rather than reorganizing one's life to fit ICTs, means that the motivation to keep using ICTs and even to learn new skills presents itself as part of daily life. When there is a clear motivation, there is a willingness to learn, to imagine oneself as a "computer user," and to overcome possibly significant difficulties. This does not mean the older generation of rural residents suddenly starts using QQ by themselves and then moves to online banking. However, they are subsequently likely to use a phone to communicate with their relatives who can use the Internet, and they themselves may begin to use the Internet by proxy. This "mediated-by-relatives" approach to using ICTs is more aligned with the traditional way that many rural residents already have to find, receive, and pass on information—in person and orally—rather than in writing or through the mediation of unknown information brokers (e.g., website owners). In these conditions, a search query can be formulated in normal words, without Boolean operators or *pinyin* to complicate the picture, passed on to the mediating relative, and the results evaluated by trusted persons. The results may not be the correct ones, but the fact that they are delivered by familiar people makes them more reliable than possibly more accurate results delivered by unknown entities. The result is that even people who live far from resource-rich areas such as cities can be connected to others through personal ties and appropriate and mediated use of new ICTs.

Time

The adaptation process necessary to fit a technology into existing practices, social organization, and institutional arrangements takes time, as discussed above and as illustrated in social histories of technology. This time cannot be compressed indefinitely without denying people and societies the chance to come to their own compromises and adaptations with technology—something that Western societies have always had the leisure to do (Jasanoff, 2002). Drawing again from historical precedents, the introduction of Western clocks into China via European Jesuit missionaries in the 16th century did not change people's habits or how they thought about time; in fact, for centuries the clock "remained . . . a curious toy" (Cipolla, 1978, p. 89) until society incorporated it into its social and economic organization. For the residents of the three villages, as for the majority of people in rural China, technological innovations such as television, landlines, mobile phones, and Internet-connected computers have all appeared in a 15-year span, preceded by electricity only 10 to 20 years earlier. In the United States and Western Europe, these same innovations were introduced over almost a century. Time, and idle time spent playing mindless games or watching music videos, allows people to extend their daily routines in different ways and perhaps allows them to become more receptive to utilitarian ICT uses as they become available. It is a process that mirrors the creation of a user as described above, but it encompasses different kinds of people, not only those who do not view themselves as ICT users. A typical incorporation of ICT into a villager's life starts with a straightforward use that reflects established routines and is slowly expanded to include new activities.

Mrs. Tao, in the Hebei village, had been using a mobile phone since 2008, initially only to stay in touch with her husband when he was away for work. Early on, she used her mobile phone exactly like a landline: merely to make and receive calls. In recent years, however, she has discovered new functions and she particularly likes reading romantic novels on the device.

Mrs. Tao: My phone also has e-novels.

Author: Are the novels already on the phone?

Mrs. Tao: No, you download them on the computer and then you transfer them to the cellphone. The phone can't go online. It has no Internet access.

Author: So how do you find the novels?

Mrs. Tao: I don't! It's my daughter-in-law. She finds them on the computer, and then downloads them for me and puts them on my phone. I can't use the computer myself.

The daughter-in-law also taught Mrs. Tao how to take pictures, after which Mrs. Tao took pictures of her grandson every time he visited as a way to comfort herself when they were apart. Mrs. Long, from one of the Shandong villages, was taught to use her camera-phone by her daughter, who had been working in Beijing for several years (and who had also given her mother one of her old phones). At first, Mrs. Long liked going through the photos her daughter took in Beijing and had left on the phone, but then she gradually started taking photos of things she herself liked, such as a flower arrangement in a shop, or she would have her husband take pictures of her. She did not know how to print the photos, and in any case, there are no such facilities in her village, so every now and then she would go through her entire collection and delete older or less interesting photos. For her, however, a mobile phone had also gradually become an important tool for work. When her husband and two daughters first left the village, she remained behind with the youngest son to farm. After a few years, she found a part-time job as an insurance salesperson with a company located in the county seat, about an hour by bicycle from her village. She went to the office a few times a week, but her job mostly consisted of finding and cultivating clients in villages near her own. Early on, she had a landline at home and used it to contact and follow up with clients. Although it was better than visiting the home and finding no one there, it was not very efficient. Since getting her first mobile phone from her daughter, she could call her clients and be reachable herself at all times, and she said this had helped her expand her business. I personally observed that several times, when visiting nearby villages to go to the market or run other errands, Mrs. Long

would call clients living there and if they were available, she would stop and visit them. In Mrs. Long's case, there was a direct, economic advantage in having a mobile phone, but this was not why she got one and, most important, it was not why she learned to use one. Her daughter thought a mobile phone would be a good way to stay in touch, cheaper and more convenient than calling on landlines, and in fact, they communicated often through short conversations and text messages (from the daughter to the mother, rather than vice versa, because Mrs. Long found inputting characters too complicated). Once the phone was incorporated into Mrs. Long's routine, she found organic ways by which the device could support other activities with the help of her daughter and son.

Priorities

For many of my interviewees, female and male, the most common use of mobile phones (and, to a certain extent, the computer) was also the most basic one: to stay in touch. For older people, this use was delineated in essentially two ways: to be reachable by family and other people within the village and to stay in touch with people who were not in the village, typically children and at times husbands and other relatives.

Mrs. Yang, in Hebei, had wanted a mobile phone for a long time, but her husband did not think she needed one. When she finally got one through her daughter, she declared that she finally had more freedom to move around the village as she pleased, to go and play cards with her friends yet still be reachable by her husband or her mother-in-law when they needed her. She also took advantage of this newly found reachability to visit her mother, who was in her 80s and in poor health, in a village nearby. Before Mrs. Yang had a mobile phone, she did not like to visit her mother too often because her mother-in-law disapproved of it (and made her disapproval clear to the entire neighborhood, as I witnessed several times). With her own mobile, Mrs. Yang could go more freely because she could avoid telling her family where she was exactly and still be reachable, and she did so about once a week when the weather was good and she was not too busy with farming and other chores. Mobile phones are often given to older people by their children (Oreglia & Kaye, 2012), who acknowledge that they do so mostly for their own peace of mind—so that they can find their parents at all times, get in touch in an emergency, and know that they themselves could be reached if something arose. Mostly it is the children who initiate mobile phone calls to their parents, whereas parents tend to use the landline to call children, but only if there is something specific to talk about. Still, the mobile phone represents a tangible sign that there is a connection: On one hand, people in the countryside know they are not forgotten by the people who have migrated to the city; on the other hand, migrants in the city can always call their parents to check their well-being, but also to confirm that they themselves have a family waiting for them in the village whom they had not abandoned. This is important, especially for younger migrants, who in their first years away from home are often overwhelmed by the pace of the city, the loneliness, and the challenges of their jobs (Fu, 2009; Jacka, 2006), and it was true for both women and men. Ms. Long, whose mother I described above, visited home three or four times a year, and called her mother at least once a week in addition to sending her text messages, even though she had then been away from home for about eight years. Mr. Xu, a 19-year-old from Henan who worked in a massage parlor in Beijing, said that the person he called most often was his mother, every couple of days or so. Mr. Qiu, a 23-year-old also from Henan, who worked in a nail salon, showed me the log of his mobile phone, which showed several calls to the same number, his mother's. He said:

> I talk to my mother more often than with my father. I have difficulties talking with him. Usually I call my mother once or twice a week. We talk for about 20 minutes. Yesterday was my father's birthday, so I called him, and we were on the phone for an hour, which was very nice, but unusual.

Whereas informatization policies emphasize the need for the countryside to develop and become more like the urban areas, grassroots informatization emphasizes a mutual exchange between the two areas. A solid, trustworthy connection established or kept alive through regular communication is an efficient and effective way to transfer information that can then lead to more "useful" ICT uses. For instance, a farmer who cannot use the Internet and who cannot imagine what possible use a computer could be to him might use a mobile phone to communicate with his migrant children, and that channel of communication might lead to an exchange of

information he needs but does not know it could be found online. Such "networks of intimacy" that "reveal(s) how technological choices and practices mediate between the emotional and material micro-dynamics of family life and the broader imperatives of livelihood, political economy or citizenship" (Bray, 2008) are a new way to connect the countryside with the city and the city's opportunities and ideas of progress. This stands in stark contrast to the results obtained by telecenters (public Internet access points) and other top-down initiatives to bring ICTs to the countryside, seemingly implemented without taking into consideration the social dynamics and conditions of the places where these initiatives are imposed.

Not far from one of the villages in Shandong, a village government had opened a "culture station" (文化站) that included a library, a television, two computers with an ADSL Internet connection, and printers. The station was, in theory, open to all nearby rural residents and was supposed to play the role in fact played by older people's migrant relatives: connect rural residents with information that might not be available where they live. In the five times I went to visit the station—in different seasons and all in daytime during the week—I found it closed. When I finally found someone to open the locked door, everything was in pristine order, seemingly untouched. The woman who opened the door confirmed that nobody ever came to the station: There was nobody there to teach people how to use computers, and most of those who could already use one did not live in the village or they went to the city to use Internet cafés and do what they pleased online. This is not unusual. In fact, the history of telecenters worldwide highlights the considerable difficulties that exist in creating sustainable business models, training people, finding users, and keeping the equipment viable. It also highlights the social adaptation necessary for telecenters to flourish (Toyama et al., 2007). Early localized assessments of telecenters in China confirmed my experience at the culture station in the Dezhou countryside. The assessments suggested that these centers were difficult to sustain financially and ineffective for the targeted population to use, and that despite the initial financial support of the central and sometimes local governments, there has been an emphasis on quantity rather than quality and on form rather than training (Soriano, 2007; Ulrich, 2004). Meanwhile, what are often described as trivial or entertainment-driven ICT uses are actually working to strengthen the links between rural and urban areas and the sense of belonging for both sides.

A second important role played by ICT is in allowing older rural residents who have never left their village to see something of the wider world. The groundwork for such a phenomenon was laid by radio and television, the first ICTs to give a shared experience of the country to people who had mostly experienced only their own, local realities. However, with the new ICTs, the effects are more personal, even if in some cases these contacts are with strangers. For example, Mrs. Zhou bought a computer the year her only son left for university, about six years ago, because she thought it would give her something to do as she no longer had to spend all her free time caring for him. Her son taught her the basics of browsing, but then she discovered by herself bulletin board systems (BBS) and chats. She said that when she discovered she could find people she didn't know in real life to chat with on QQ, she immediately sought someone from Kunming, in Yunnan, because she had visited the city years ago and had always been curious to know more about it. She found a Kunming-based "QQ pen pal," and although they have never met, they chat regularly. She said that this made the city she visited briefly only once seem closer, and that her virtual friend had become an important part of her life.

Mrs. Zheng, in Shandong, was in her late 40s and had been using a computer for a few years when I talked to her. She also went online to keep in touch with friends, many of whom she had never met:

> I use QQ. I've used it from the very beginning because then I can keep in touch with friends. In Chinese we say, "You can learn something from anyone." . . . I have about 400 friends on QQ . . . I don't know them all personally. A lot of them are Chinese working abroad, so I can hear about different parts of the world.

In all these cases, staying in touch and communication are priorities, with a variety of goals. Among family members, the increased communication opportunities that ICTs afford support more stable ties between young migrants to the city and their families in the villages, which provide a sense of belonging to the former, and a glimpse into urban life and a more direct line into their children's lives to the latter. This is an important role for ICTs to play in a country rich with economic opportunities, but whose social structure is being constantly upended and its rural traditions threatened. Among strangers, being in touch online is a way to glimpse

life in other parts of the country, which can serve as a welcome distraction from closely-knit village life that can feel oppressive or controlling.

Conclusion

In this article I suggested there are three areas where entertainment- and communication-driven ICT uses in rural China can be thought of as part of ICTD use, even if not directly related to economic development. First, users who are written off as beyond the reach of ICTs due to age or educational level and who do not think of themselves as ICT users can begin to use ICTs after observing other people going online and identifying activities that relate to their own lives and interests. This, in turn, can expand the reach and potential impact of ICTD programs. Second, leisure-driven ICT uses allow people in rural areas the time to figure out how to adapt and incorporate ICTs into their lives, which are lived in environments markedly different in terms of economy, social structure, and habits from the urban environments where ICTs originate. In this article I focused on users who are mostly older and without much education, but who have the same need for time to incorporate ICTs into daily routines, who grew up in a traditional countryside still dominated by agricultural work and its rhythms. Finally, ICT uses that emerge from family-based practices, rather than from hetero-directed programs, can provide insights into people's priorities or social practices that have otherwise been overlooked—in the cases illustrated above, a need to sustain links among family members living apart or to enlarge rural residents' social horizons.

Although these aspects of ICT adoption can be considered precursors to more utilitarian uses in line with the goals of China's informatization policies, I am not suggesting a teleological trajectory in ICT use, that sees playing Farmville online as the gateway to taking educational classes or accessing government reports or setting up e-commerce websites, in a modern-day replay of the early American public library debates over whether fiction would open the world of serious literature to the uneducated masses (Garrison, 2003). But looking at ICT use as a dynamic rather than a static event and enlarging the definition of "meaningful use" to include entertainment can provide a very different picture of how ICTs fit into people's lives and suggest different parameters for evaluating ICTs' impact in rural, developing areas. ∎

Acknowledgments

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References

*25th statistical survey report on Internet development in China (The). Beijing, China: Author.

**33rd statistical report on Internet development in China (The). Beijing, China: Author.

Arora, P., & Rangaswamy, N. (2013). Digital leisure for development: Reframing new media practice in the Global South. *Media, Culture & Society, 35*(7), 898–905.

Bijker, W. E., Hughes, T. P., & Pinch, T. (1989). *The social construction of technological systems: New directions in the sociology and history of technology.* Cambridge, MA: MIT Press.

Bray, F. (2008). Constructing intimacy: Technology, family and gender in East Asia. *East Asian Science, Technology and Society: An International Journal, 2*(2), 151–165.

Cipolla, C. M. (1978). *Clocks and culture 1300–1700.* New York, NY: Norton.

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*China Internet Network Information Center (CNNIC). (2010).
**China Internet Network Information Center (CNNIC). (2014).

Dai, X. (2003). ICTs in China's development strategy. In C. R. Hughes & G. Wacker (Eds.), *China and the Internet: Politics of the digital leap forward* (pp. 8–29). London, UK: Routledge Curzon.

Duan, M., Warren, M., Lang, Y., & Lu, S. (2009). An analysis of ICT development strategy framework in Chinese rural areas. In IFIP International Federation for Information Processing (Ed.), *Computer and computing technologies in agriculture II* (vol. 295, pp. 1835–1844). Boston, MA: Springer.

Fan, C. C. (2006). China's eleventh Five-Year Plan (2006–2010): From "getting rich first" to "common prosperity." *Eurasian Geography and Economics, 47*(6), 708–723.

Fan, C. C. (2009). Flexible work, flexible household: Labor migration and rural families in China. In L. Keister (Ed.), *Work and organizations in China after thirty years of transition* (pp. 377–408). Bingley, UK: Emerald Group Publishing.

Fischer, C. S. (1988). "Touch someone": The telephone industry discovers sociability. *Technology and Culture, 29*(1), 32–61.

Fischer, C. S. (1994). *America calling: A social history of the telephone to 1940* (p. 424). Berkeley, CA: University of California Press.

Flitsch, M. (2008). Knowledge, embodiment, skill and risk: Anthropological perspectives on women's everyday technologies in rural Northern China. *East Asian Science, Technology and Society: An International Journal, 2*(2), 265–288.

Fu, D. (2009). A cage of voices: Producing and doing *dagongmei* in contemporary China. *Modern China, 35*(5), 527–561. doi:10.1177/0097700409337477

Gaetano, A. M., & Jacka, T. (2004). *On the move: Women and rural-to-urban migration in contemporary China.* New York, NY: Columbia University Press.

Garrison, D. (2003). *Apostles of culture: The public librarian and American society, 1876–1920.* New York, NY: Free Press.

Hannum, E. (2005). Market transition, educational disparities, and family strategies in rural China: New evidence on gender stratification and development. *Demography, 42*(2), 275–299.

Jacka, T. (2005). *Rural women in urban China: Gender, migration, and social change.* Armonk, NY: M.E. Sharpe.

Jasanoff, S. (2002). New modernities: Reimagining science, technology and development. *Environmental Values, 11,* 253–276.

Liu, C. (2012). The myth of informatization in rural areas: The case of China's Sichuan province. *Government Information Quarterly, 29*(1), 85–97.

Liu, C. (2013). Seeking the Chinese model of telecommunications development: A critical review and research agenda. *Sciencepaper Online.* Retrieved from www.paper.edu.cn/en_releasepaper/content/4535623

Oreglia, E., & Kaye, J. J. (2012). A gift from the city: Mobile phones in rural China. In *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work* (pp. 137–146). New York, NY: ACM.

Qiang, C. Z. (2009). *Rural informatization in China.* Washington, DC: World Bank.

Solinger, D. J. (1999). *Contesting citizenship in urban China: Peasant migrants, the state, and the logic of the market.* Berkeley, CA; Los Angeles, CA; Oxford, UK: Berkeley University Press.

Soriano, C. R. (2007). Exploring the ICT and rural poverty reduction link: Community telecenters and rural livelihoods in Wu'an China. *Electronic Journal of Information Systems in Developing Countries, 32*(1), 1–15.

Sun, H. (2012). *Cross-cultural technology design: Creating culture-sensitive technology for local users.* New York, NY: Oxford University Press.

Toyama, K., Kuriyan, R., Bailur, S., Rangaswamy, N., Ratan, A., Veeraraghavan, R. . . . Srinivasan, J. (2007). Review of research on rural PC kiosks. In *Encyclopedia of Life Support Systems.* Paris, France: Eolss.

Ulrich, P. (2004). Poverty reduction through access to information and communication technologies in rural areas: An analysis of the survey results from the social impact assessment conducted by the Chinese Ministry of Science & Technology and the United Nations Development Program: With recommendations on issues of future sustainability and household participation. *Electronic Journal of Information Systems in Developing Countries, 16*(7), 1–38.

Wu, I. (2009). *From iron fist to invisible hand: The uneven path of telecommunications reform in China.* Stanford, CA: Stanford University Press.

Wu, X. (2008). Men purchase, women use: Coping with domestic electrical appliances in rural China. *East Asian Science, Technology and Society: An International Journal, 2*(2), 211–234.

Xia, J. (2010). Linking ICTs to rural development: China's rural information policy. *Government Information Quarterly, 27*(2), 187–195.

Zhao, J. (2008). *The Internet and rural development in China: The socio-structural paradigm* (p. 287). Bern, Switzerland: Peter Lang AG.

Zhao, Y. (2010). China's pursuits of indigenous innovations in information technology developments: Hopes, follies and uncertainties. *Chinese Journal of Communication, 3*(3), 266–289.