**The "Sent-Down" Internet: Using Information and Communication Technologies in Rural China**

A common view of Information and Communication Technologies (ICTs) use in rural China is that it is sporadic, entertainment-driven, and scarcely proficient—when it exists at all. Despite the State's successful efforts to build infrastructure, and despite a large number of policies, subsidies, and other types of support to bring connectivity and devices to rural areas, rural residents are still lagging behind their urban counterparts, and even more so when they happen to be older and female. They lack technical skills, they consider themselves too old or too young to use the Internet, they do not find content and applications that are of interest for their (rural) lives, or they say they do not have the time to be online (as an example, see the answers to the 'reasons for non-use' question in The 33rd Statistical Report on Internet Development in China, 2014).

This is a view that is popular in the press and among the public, and not unusual in academic discourses surrounding the digital divide in China. However, it downplays two important facts. The first is that the parameters of what it means to 'go online' and 'use ICTs' are set by urban users (and researchers), who have their own understanding of what constitutes legitimate and appropriate use. This becomes the normative way of going online, and behaviors that deviate from it are not accounted for, and sometimes not even recognized as instances of using ICTs. The second is the scarcity of actual research on rural areas, whether qualitative, quantitative, or mixed methods. Broad conclusions, which usually fit existing stereotypes of the countryside as a backward counterpart of the developed city, are drawn from small samples, from localized and partial findings, or from surveys that omit important questions or simply fail to ask appropriate ones.

This Special Issue comes in response to such views. It does not focus on what is not happening, nor only on the obstacles to access and use ICTs that do exist in rural areas. Instead, it sets out to show the multitude of ICT uses that are happening in rural areas, the different ways rural residents define, understand, and act out going online, and the bridges that are being created by ICTs between urban and rural areas.

The papers focus on issues that are critical in contemporary rural China: migration and the role of ICT in bridging (or not) the urban-rural gap; efforts to use ICT and education to develop the countryside; projects by urban-based NGOs that seek to unite rural and urban residents in common causes; and in general the role that ICTs should play in the government's efforts, and do play in people's actual lives. Even though the focus is mostly on today's China, these themes have long historical roots. In the late Qing dynasty, the centrality of technology in building a strong China became the battle cry of the reformers, who believed that a combination of Chinese 'essence' (*ti* 体) and foreign 'means' (*yong* 用), or technology, was necessary to preserve the independence of the country (Zheng, 2008). The importance of technology remained a constant under the various political regimes from the fall of the Qing dynasty through the founding of the People's Republic, and by the late 1990s a combination of strong economic growth

and digital technologies transformed "*ti yong*" into "digital leapfrogging" for development (Hughes & Wacker, 2003). This was the beginning of a country-wide strategy of "informatization" (*xinxihua* 信息化), which consisted of a series of plans that made ICTs and the software/hardware industry a strategic priority for the national economy. It started with the Tenth Five-Year Plan (2001-05), followed by the "National Informatization Development Strategy 2006-2010" (*Xinxihua fazhan guihua* 信息化发展规划) which emphasized that information and access to information were as important for the future of the country as natural resources, as they provided the infrastructure needed to support the growth of other industrial sectors in the information age (Dai, 2003; Zhao, 2010). These country-wide policies were then followed by Province-based implementation plans and pilot projects, as well as sector-specific strategies, such as the 2007 "Overall Framework for National Agriculture and Rural Informatization Construction 2007-2015" (*Quanguo nongye he nongcun xinxihua jianshe zongti kuangjia* 全国农业和农村信息化建设总体框架) issued by the Ministry of Agriculture (Qiang, 2009).

Alongside these strategic policies, the first years of the 21st century saw the beginning of an ambitious, and mostly successful, plan to build infrastructure in rural areas. It started with the extension of telephone landlines, radio, and television to rural areas through the "Village Access Project" (*cun cun tong* 村村通) launched in 2004 by the Ministry of Information Industry, which has indeed connected the majority of administrative villages. Together with an on-going drive to supply electricity to remote areas, this has provided the solid basic infrastructure that exists in most of the countryside (Xia, 2010). However, when the plan was extended in 2006 to become the "Village Informatization Program" and cover digital access, success has also become much harder to achieve, given the difficulty of defining "informatization" and establishing clear objectives beyond a generic development of the countryside through ICTs (Ibid.).

For the central government, 2006 was a pivotal year in tackling rural development, although the idea of the countryside as a locus of developmental efforts carried out by urban-based people and institutions is also an old one, going back at least to the 1920s, as discussed in Schulte's paper in this Special Issue. But in the 2000s, as the Chinese economy grew, so did the gap between rural and urban incomes, living conditions, access to education and healthcare, etc. As part of the Eleventh Five-Year Plan, the State launched the "Building a New Socialist Countryside" plan (*Jianshe shehui zhuyi xin nongcun* 建设社会主义新农村) to improve the living conditions of farmers and rural residents. Among policies with a direct, immediate impact, such as the abolition of the centuries-old agricultural tax, the plan singles out ICTs as tools that can help close the rural-urban gap by giving rural residents more and better access to information in order to increase their incomes and diversify their activities (Qiang, 2009).

The abundance of plans, policies, and strategies is not matched by an equal abundance of publicly available research on actual ICT use, or on what the actual ICT needs of people in rural areas are. Existing research is often scattered among different disciplines, and it is difficult to get a birds-eye view of the situation. In the course of my own work, I have come to see research on ICTs in rural China as

belonging to roughly three categories: the first is the relatively well-studied field of ICTs and rural-to-urban migrants, who are the other face of rural ICT use, and who are often the ones bringing ICTs to the countryside. The second is technical literature, mostly from engineering and computer science, on designing and piloting systems for the countryside, such as cloud-computing solutions for education or agriculture (see cnki.net for an example of such papers in both English and Chinese). The third is the scarce quantitative and especially qualitative work on ICTs in rural areas that are scattered among disciplines, in discrete silos that make it difficult to reconstruct a fuller picture, compare research findings, and build on them. (On the state of research on ICTs in China in general, and the lack of attention towards rural ICTs, marginalized groups, and gender, see Bu, 2012 and Qiu & Bu, 2013, as well as The Chinese Internet Research Bibliography (CIR) hosted by the Chinese University of Hong Kong).

As pointed out by (Qiu & Bu, 2013), what is often missing in this research corpus is an attention to marginalized communities, as well as the voices of rural people themselves. I would also add the absence of cross-disciplinary work, which could contribute greatly to a better understanding of this under-studied area. One of the difficulties of cross-disciplinary research, however, is the different epistemologies that underpin different disciplines and different methods, which make cross-disciplinary dialogs fraught with tensions. To contribute to a better understanding of what various research methods consider as data and how they gather and validate them, we invited Wei Bu, Barbara Schulte, Jing Wang, Cara Wallis, and Baohua Zhou, all scholars with experience in studying rural China, for a roundtable on research methods for "Studying the Sent-Down Internet." They discuss challenges in their fieldwork, as well as their methods of choice, with their advantages and disadvantages. Their answers provide an insight into the foundational perspectives of their respective disciplines, but also show that good scholarship is based on the ability to choose the right methods for the research questions we are interested in pursuing (or, alternatively, in finding the appropriate questions to ask for the methods we choose).

The four papers all contribute to paint a fuller picture of ICTs use in rural China, but all have very different research questions at their core. In the first paper, "NGO2.0 and Social Media Praxis: Activist as Researcher," Jing Wang, true to her cultural studies background, challenges both the division "urban-rural" that is the theme of the Special Issue, and the role of the researcher in the field. Wang argues that the most productive unit of analysis when looking at China's digital divide is the Provincial level, because that is where policies are implemented, and decisions that will have consequences for ICT use at all levels are taken. The main focus of Wang's article, however, is NGO2.0, a project she launched in 2009 to train grassroots NGO workers in China's western and central provinces in the use of digital and social media. The project was born out of Wang's observation that, despite the increasing number of NGOs in China, many of the smaller ones did not grow up to their potential, and found serious obstacles in getting resources and gaining public visibility. These NGOs often represent an important connection between the urban and the rural, as they can mobilize urban people and resources for rural causes, and in some cases, like the Rescue Minqin organization she discusses, keep young people

in their hometowns and villages, instead of migrating to urban areas in search of a better life. The paper emphasizes the fact that the power of ICT to create a global community around local issues can paradoxically help to mobilize local people as well; this is very different from activism that takes place only online, infamously known as slacktivism, as the virtual and the tangible become deeply enmeshed. Wang's project and examples provide an important counter-discourse to the rhetoric of State policies for the blanket informatization of rural areas, as they show that social change (and social good) through ICTs can be transformative even if (or especially because) it is piecemeal.

As I discussed above, rural people are generally considered poor ICT users, and if they are female even more so. This is a topic that Cara Wallis explores in her article "Micro-entrepreneurship, New Media, and Gender in Rural China." Drawing from her ethnographic fieldwork in rural Shandong and rural Gansu, and from feminist theories of technology, Wallis illuminates the relationship between gender, economic development, and new media technologies (mobile phones, computers, software, Internet, and web.) Crucially, men are more likely to use ICTs for entrepreneurial purposes, even though both men and women have and use mobile phones. Wallis explains this as partly the result of traditional gender dynamics that are still entrenched in the Chinese countryside, where men are the ones with skills to repair technology, to take jobs outside the house, and to make business decisions. Wallis also shows how physical space matters: women running small shops or other micro-entrepreneurial activities within villages do not use ICTs for their business, as everybody they engage with is right there, and both clients and suppliers are known and come around regularly. For women, mobile phones are mostly "intimate technologies"—in contrast with men, who are better able to use ICTs either directly for their entrepreneurial efforts, or anyway to leverage their existing and more extended social networks to improve their businesses.

An important point that both Wang and Wallis raise is that the most popular ICTs are the ones that are readily available: QQ, the instant messaging platform that is still very popular in the countryside, weixin/wechat, and weibo. This is in contrast to the efforts of top-down initiatives that typically develop specialized software for a variety of rural uses; what these articles suggest is that creating content that adapts to and is delivered through existing and familiar platforms might be a more productive way of "informatizing" the countryside.

The remaining two articles, "(Dis)Empowering Technologies: ICT for Education (ICT4E) in China, Past and Present" by Barbara Schulte and "The Limits of Planning in China: Equalizing Basic Education through the Internet" by Jesper Schlæger and Wang Qian, both analyze ICT and education, but do so from very different perspectives. Schulte's paper traces the historical precedents of the contemporary hopes attached to ICTs as tools to overcome the gap in quality of instruction and achievements between rural and urban areas. Schulte argues that reforms that began in the 1990s to change education towards a more student- and creative thinking-centered approach have now become entangled with the use of ICT in education to achieve not only better learning, but also innovation and modernization. As she aptly puts it, "rather than using the (educational) reforms to launch an ICT initiative, ICT are now employed to push and implement the (earlier)

reforms, that have shown particularly poor outcomes in China's rural regions." Schulte argues that the countryside becomes a research object for urban, educated and reform-minded intellectuals in the 1920s, when they discover in their trips abroad that other countries had a flourishing body of scholarship on rural life in all its aspects. The "scientific" study of the countryside started then, with surveys followed by experiments on educational reforms, among other things. Modern efforts echo the past in their attempts to transfer knowledge and, this time, technology, from the urban to the rural. The obstacles encountered are familiar to those taking a critical stance on ICTD projects: projects are forever started and piloted but never built up and scaled, a fever to start the new takes precedence over the hard slog of maintenance, and content, training, and management are all neglected in favor of technology. And, most importantly, education reforms, via ICT or other means, are still entirely conceived as a one-way exchange between the urban center and the rural periphery, where the rural is a place that can only receive the knowledge that originates from the center, but is unable to contribute its own.

Schlæger and Wang, on the other hand, look at the Internet as platform with a real potential to provide to every student access to the same educational opportunities, given the failure of every other program that has attempted to achieve the same goal. Considering the weight of educational expenditures as a percentage of the country's GDP (4% in the 2012 budget), it is not surprising that "planning for education" is a key concern for the central government. Schlæger and Wang look at a concrete case of ICT4E in Qingbaijiang District in Chengu, which shares through ICT teachers, teacher training, and educational resources at the district level, and their paper describes how planning of the central government, implementation by local authorities, market forces, and new possibilities opened up by the internet come together.

One of the points raised by Schulte in her historical overview of Chinese educational reforms reappears in this paper: the tension between the government's push towards a more creative way of teaching and learning, which is mitigated against by the system in which education is embedded, which rewards rote memorization, a contradiction reinforced instead of overcome in the Qingbaijiang project. Overall, the authors see a partial achievement of the goal to equalize access to education, as rural students do get some access to good teachers who understand well not only their subject, but also exam requirements. Together with the positive, however, there are many negative side-effects, some of which again echo Schulte's historical cases: "flipped classroom" and peer-learning do not really exist for rural students, who are watching lectures on video and memorizing material; rural teachers are trained, but possibly only to become redundant, since their role might be eliminated and classes taught by a small number of urban teachers delivering their lectures online; and the already better-off urban school becomes even richer, through the sales of educational videos done by its teachers and bought by the same government that pays these teachers—an example of the often contradictory goals that exist between central and local institutions.

A point that I found particularly insightful from the methods roundtable is that the definition of what it means to use ICTs are usually set by urban-based

researchers, who often do  not know the rural context, such as which words people associate with online activities, or what is actually considered as "going online." (As I quickly discovered in my own research, people who said that they never went online nor used computers often added that they used QQ, even though using QQ presupposes some kind of Internet connection. Being online and using QQ simply belonged to two different categories of activity). One of the themes that emerge from both the methods roundtable and the articles is the importance of spending time in rural areas just to discover what the context is. We hope that this Special Issue will spur more debate about and more fieldwork on how ICTs are being adopted, adapted, used, and understood among rural residents in all parts of China, and that we will get to hear the voice of rural residents themselves more, so that we can understand the real meaning of the "No need/no interest" answer to "Reasons to Not Go Online" in the China Internet Network Information Center survey on Internet Development in China.

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