

China Images

By Nancy Pine

Volume 1, Number 3

April 2004

Thanks for your many stimulating comments and questions.

Telecommunication Gaps and Growth

2002. Dusk settled over the streets of Xi'an [shee-ahn], where camel caravans began the Silk Road trek West for a thousand years. Small lights twinkled in trees and meat sizzled on smoking braziers as I threaded my way down a narrow pedestrian street through the muted murmurs of hundreds of conversations. Among shops attracting Jiaotong [jee-ow tong] University students with video discs, clothes, CDs, and toiletry items, I paused at a one-room building crammed with computers and alive with students. Having spent a fair amount of time in China I knew it was okay to look, so I did, recognizing that I would be conspicuous as the only Westerner around. The woman proprietor motioned for me to walk around and see what the students were doing. I spent 20 minutes watching the video game actions, the website configurations (I can't read Chinese), and soaking up the dynamic of 50 or so Chinese university students--sometimes two or three to a computer--logged in and highly connected to the internet.

2003. An advertiser in *Wired* magazine ran a two-page spread, "Chinese To Become #1 Web Language by 2007." To many in the U.S. this is a startling hard-to-comprehend projection. Having stood in that pulsing room full of computer users, I could easily connect to such an assertion.

This was not how it was in January 1990 when I first went to China. In the early 1990s Chinese communication networks were sparse, and my communication with family and colleagues in the U.S. or with Chinese in different cities or even in the same city required time and patience. I now communicate with my Chinese colleagues by email, pdf files, attachments in English and Chinese, and musical holiday cards. My own telecommunications experiences appear to have paralleled the enormous changes in China during the last 15 years.

January 1990. Joe and I headed for the Foreign Expert Building doorway, bundled against the raw weather. "Where are you headed," called our Ph.D. advisor as he dashed through the door and up the stairs. "Gulou to send a Telex, then meet Yue Meiyun [u-ay may-yoon] so we can send a fax to Gail." "OK. Wait in Joe's room when you get back. Weibo's going to call you at 3:00 about the school visit tomorrow." The Gulou [goo-low] area, a 15 minute walk from the campus, housed the telecommunications center for the city of Nanjing and was a reliable place to communicate with people in China via Telex. The fax room was in a hard-to-find corner of Nanjing University. We spent a lot of time those few weeks in 89/90 shuttling back and forth to Gulou and various fax machine locations, trying to use the communications systems as best we could, but lacking both

the knowledge and the patience. The conversation we had as we left for Gulou was repeated many times daily.

Joe and I had been invited to China by our Claremont Graduate School advisor and his colleagues at Nanjing University. We spent a week with him learning to negotiate our way through this unknown culture and were then on our own for the remaining two weeks. Many of the school visits to be arranged for us depended on patient negotiating by our Chinese colleagues, and we learned of their success or failure at the end of long, anxiety filled waits. They relayed their messages via tenuous phone links or personal trips across the city. It all required focused effort and the Zen of waiting.

Returning from Gulou that afternoon, Joe, who seemed to hit one dead end after another in pursuing research ideas, waited dutifully in his room hoping Weibo [way-bo] had succeeded in making arrangements for him to visit a school the next day. Three p.m. came and went with no phone call. Although he tried to remain up beat, Joe was increasingly distressed that he might end the trip with little useful information. Dinner at a colleague's home that evening was pleasant, but Joe had an unrelenting worry that he would have no prospect of visiting schools. Time was growing short with school vacations fast approaching. Later that night while in our advisor's room trying to invent new plans for him, the phone rang. To everyone's relief it was Weibo. He had forgotten Joe's room number, had called our advisor's room several times during the afternoon, but John was at the library, and there was no way to leave a message and no way to find out Joe's room number.

We became increasingly aware that the Chinese were more able to cope with the difficulties of communication links than we were. At the university, we Westerners lived in privileged housing for Foreign Experts, each room equipped with a bright orange phone that had immediate local access as well as operators occasionally available to put through international calls. We had the convenience of being able to call from our rooms to those university offices equipped with phones and to receive local phone calls from them. But our hosts seldom had phones in 1990. Residential phones were almost non-existent. Chinese colleagues often had to call us via the street kiosks that sell books, newspapers, and phone service for a fee. Even in 1995 the total urban residential phone subscribers had reached only 1.5 million, out of a population of 1.3 billion (0.115 percent).

We had to train ourselves to think continuously of how to communicate within the system, and it seemed that we spent an inordinate amount of time doing this. Many arrangements were made face to face, and remembered. We made trips to university and school offices without phones and to the phoneless junior faculty dorm rooms. If someone did not call when promised, we waited another hour in our room just in case we had misremembered the time. Phone books did not exist. Numbers could only be obtained from the person with the phone. When I tried to make a reservation in a Shanghai hotel, I finally made one at the Shanghai Hilton--an absurdly expensive and opulent edifice--because that was the only place for which we could obtain a phone number. Even that was difficult to get. A Chinese colleague called the Western hotel in Nanjing and talked them out of the phone number for the Hilton in Shanghai which seemed to be privileged information.

Remembering phone numbers was an essential skill, and I learned it imperfectly. I did succeed in mastering it once though. A colleague in Xi'an, after an hour of trying to

find the number to confirm my plane reservation in 1996, handed me the proper number on a piece of paper about the size of those that Chinese cookie fortunes come on, and said, "Here, keep this for your next trip." And I did, and I still have it. Not bad for a Westerner who loves to throw out excess papers. But in general we Westerners were very negligent about this, and I continue to be to this day. When I ask Chinese colleagues for their phone number, they often remind me that they already gave it to me. "Yes, last year," I think. "But now I don't know where it is."

To communicate quickly with someone in another Chinese city, telex and telegram were the way. This was how we let people know when we were arriving on a train so they could meet us. In 1991 when I was collecting my Ph.D. data for a month, I became proficient at this. With train ticket in hand--which often took days to purchase--I telegraphed my host in the next city with the arrival time, train number, and coach number. Then I hoped that it was received and that I would see someone on the platform or at the station exit. In one spirited arrangement a Chinese colleague, who needed to send research data back to the U.S. with me, realized my long-distance train was going to pass through his city. He had me telegraph the necessary information so he could be at the right track and railway car at the right time. When my train pulled into Xuzhou [shoo-jo], there he was. The train stopped for 4 minutes, he handed me the papers, and off I went. Not exactly Fedex, but it worked!

The Chinese seemed used to living without rapid communication links. They reacted to news instantly when it arrived or they managed without any news. In one instance, I had written Xu Jian-yuan [shoo jee-ahn you-ahn] inviting him to join us in Nanjing to discuss research possibilities. He lived a 6-hour train ride north. We had heard nothing from him by the time we left for China. Then late Friday afternoon of our first week in Nanjing a messenger arrived at our rooms from the Foreign Affairs Office. Xu had just called. He had received my letter that morning (5 weeks after I had mailed it) and was trying to get a train ticket for Nanjing. He managed to get one for late that night, arrived Saturday a.m., spent every moment we could manage discussing ideas, and was back on a train Sunday night, returning home in time to teach Monday morning. Only many months later did it sink in how difficult all of that had probably been for him.

We preferred faxes for international communication. We just had to have a good, dark pen and find a sending office. Faxes were pricey to send and exorbitant for Chinese to receive, but efficient and generally reliable. In 1991, international fax charges in China varied enormously, often including unused minutes on international phone line and multiple service charges. The cost was sometimes 60 yuan to send or to receive one page, equal to a full month's salary for a young professor.

By 1994 my international communication in China still revolved around sending faxes, but local phone communication was easier with more phones in senior faculty apartments and sometimes in hallways of the junior faculty dormitories--although often this required a Chinese conversation part way through the link.

But then cell phones began appearing--a salvation for Chinese, most of whom did not have home phones. By 1997 there were 10 million mobile phone subscribers. In 1998, long before mobile phones were common in the United States, I asked at a small dinner gathering if anyone had a phone so I could confirm my plane reservation, and 7 of the 8 people around the table whipped out a cell phone! Everyone laughed. The times

were definitely changing. By 2001 50 million were mobile phone subscribers, and a 2004 *Wired* article reports that China is the largest and fastest growing mobile phone market in the world with 260 million subscribers now and a half a billion predicted for 2007.

The pace of telecommunications development in the last 15 years has increased beyond imagination as China has moved from almost no phone communication to internet fluency. Having learned to navigate the communication systems of the early 1990s, I have found each communication system upgrade amazing, and the speed of change always faster than I had thought possible. By 1995 AT&T Direct was available from Western, high-priced hotels, if you had a room there and an AT&T account in the United States. Expensive but convenient. Bilingual "yellow page" phonebooks appeared in a few Western hotels in large cities. By 2000 I found AT&T Direct available from every pay phone in China. In disbelief I kept inserting my phone card into phones on city main streets and dusty village street corners, at bus stations. No matter where, AT&T Direct was available. Stick in the card, dial the toll free number 10811, wait a few seconds, and the smooth voice responds, "AT&T. To make a calling card call...." You probably know the rest of that. Even in dimly lit hallways in university hostels in far western China. What a strange sensation. It was still expensive, but what a luxury to be able to call the U.S. whenever the spirit moved me.

Last fall I discovered international IP cards readily available, the ones with code numbers on the back. Just dial 20 numbers correctly, and the phone in the U.S. rings. 100 yuan cards were sold at the kiosk on the corner of Shanghai Lu [100] near the foreign student hotel for 50 yuan, good for about 30 minutes from any phone. Wow! Twenty cents a minute instead of AT&T's \$8.60 a minute. I had a wonderful time calling family without constraint. For the last few years Chinese colleagues with family overseas have been making free phone calls from their home computers via the internet, but I have not figured that out yet.

And then there is email. That, for better or worse, has changed all of our lives, but for China/U.S. communication it leap-frogged a developmental chasm. Suddenly we moved from long-term one-month airmail communication (since faxes were too costly for Chinese except for urgent messages) to email--one month turn around to one hour turn around! Email began in earnest for senior faculty (often through private accounts) in 1995. By 1996 I was using colleagues' office computers to send emails home. By 1998 email communication was as seamless as it gets, and I was receiving and sending Ph.D. dissertation drafts with multi-colored Microsoft edits and graphics. University departments figured out how to raise money to pay for computers--for example, by offering courses to employees of large corporations who in turn paid for the computers. I began hearing stories of university students pooling their resources to buy a computer and hooking these up in all sorts of ways to get internet connections. Students are now getting on-line degrees, and China is being wired with a new electronic backbone as the government extends access into rural areas. Urban children are learning programming in upper elementary school and have increasing access to internet game rooms and home computers.

The fast-paced change continues and seems to be gaining momentum as China's technical skill development merges with the rapid changes of worldwide information technologies. Looking to the next decade, China expects to become an innovative world

leader in electronic communications systems. The *Wired* ad states not only that Chinese will be the dominant web language in 2007, but in parentheses at the bottom, "Now it gets interesting."

Resources

Wired magazine has 3 articles, accessible at its website or in print edition.

In the April 2004 issue there's an article, "Hello, Ningbo" by Frank Rose, about the Chinese cell phone companies that are giving Motorola and Nokia stiff competition. It also gives a good overview of mobile phone development in China.

<http://www.wired.com/wired/current.html>.

The February 2001 issue has a substantive article on the laying of a nationwide fiber optic system supported by the Chinese government and corporations. "Betting on Bandwidth: Edward Tian has a pipe dream for China. It's called democracy," by D. Sheff.

In the July 1996 issue, an article entitled "Computer Insect" by Sang Ye reports an interview with a brash, in-your-face Chinese hacker. In Chinese, *diannaο chong* (computer insect) is the term for hackers, software pirates, etc.

[If you are not used to on-line magazines, you may need to go to <http://www.wired.com> and select (on the left) the live link in the current issue. It will take you to the current issue address (above). If it is still the April issue, scroll down to "Also in this issue..." Select it and then scroll down to the article "Hello, Ningbo." To access earlier issues, on either of the last 2 screens select "Browse Archive" (on the left). Select the desired issue and then click "GO."

The March 3, 1997 *Newsweek* is a Special Report, "China after Deng," that gives some interesting statistics on telecommunications development.

CERNET, the China Education and Research Network <http://www.edu.cn> has a technology link where you can access the education-related 13th Statistical Survey on the Internet Development in China (January 2004) and previous surveys. If you get a bunch of ???, click "English."

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