Special Section

Sociological and Technological Interdependencies of New Media

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Somehow I got assigned to create a faculty bulletin board, with photos of each faculty member along with answers to several questions students had asked. Someone started on it about two years before, but there were photos and quotes from only about a third of the faculty. This seemed unnecessarily tacky–just who were the rest of the faculty, and why weren't they included? So, the Chair of the department, wisely realizing no one but me really cared, told the faculty during one meeting that I was now in charge of completing the board, and I had authority to harass them for photos and a short interview. That was actually fun, as I got to spend some time with old and new faculty, learned how to use my new little digital camera and transfer the photo files to a CD, and get them printed through online ordering–learning about and using digital media. After I finished the faculty bulletin board (using all my high-level skills of formatting, using colored paper, and stapling, but also reducing a bit the potential of my doing further harm to the discipline or my university through writing or analysis), two faculty asked if I could use a different photo, meaning I needed to get just two new photos printed.

Certainly not worth using the online service again, with transaction costs geared toward 36 photos, wait time, and a long trip to the pic place. So I decided to use one of the self-serve kiosks in a nearby drugstore–always on a mission to force myself to learn about new media technology. Well, there were several warning signs right there: a simple task, intended to help others, motivated by the potential for learning, communicating with service personnel, and using new media technology.

After cropping and adjusting the photos using the standard Microsoft Picture Manager (nothing fancy for me!) I copied the two photos onto my USB flash memory (sort of like my own memory–not fast, but it disappears in a flash) drive. I went to the pharmacy, and, as it was early in the day, all the kiosks were free and the person behind the photo counter had only one customer. I sat down by the one for self-service, individual prints–not the large-volume kiosks that sent the orders to the photo processing department for later pickup.

The kiosk was a marvel of potential openness to the world of digital data–there was a physical input/drive/port for every imaginable data device, including several I had never heard of. These were all included in a lovely yellow and blue cover for the monitor and computer and photo processor–that is, it was clearly designed to be an all-purpose, completely integrated "user-friendly" system. The touch-screen came up, asking me to select what kinds of photos and output I wanted; I selected the simple (it seemed at the time) "prints." It then showed a screen with several input devices, asking me to choose which one I was using. I had the USB drive in the USB port, and the drive light was on, indicating it was a live connection. HOWEVER. The screen displayed only four choices (such as CD or photo memory card), but did not include USB drive. Even though the integrated inputs included it and even though apparently the computer itself recognized the USB drive. Strange.

I waited until the photo department person was free and asked about this. After a fair amount of looking at exactly the same things I was looking at, she told me that it doesn't accept those things. It physically, but not digitally, accepted them.

Ah! I said. Ah!

BUT, as she was nice and wanted to be helpful, she said I could use the bulk processing kiosk, as there were no other customers waiting and she could just process the two photos immediately instead of requiring a full set with several hours turnaround. However, the fact that the first kiosk was strangely not actually integrated, and actually misled users, was now forgotten, possibly (probably) to happen again and again to other users enticed to physically but not digitally attach their USB drives.

So she went back to the counter, and I sat down at the more powerful, even better kiosk. Curiously, it had fewer input drives/ports but did include the USB drive. And the display screen did offer the USB drive option. And the USB drive was alive with its little yellow glow at the end, like a firefly trying to attract a mate. The screen even had a very nice animation showing just exactly how to insert the USB drive into the port, in case I was thinking of cramming it into the floppy disk drive. BUT. . . no matter how many times I performed this exquisitely clear movement, it never registered the existence of the USB drive–it kept telling me to insert the USB drive . . . just so. I did it many times. I'm not sure anyone watching me would have approved such obsessive attempts just to connect. So this kiosk not only physically accepted the USB drive, but also digitally promised to process it. One step further along, but still short of interaction.

So, after waiting until she had no customers, I called the helpful photo department over again. After a fair amount of looking at exactly the same things I was looking at, she told me that it wasn't working.

Ah! I said. Ah!

By now I had to go to work. (As I actually had to go to a meeting at the university and then teach a class, it's not clear that this was really "work," or that it was more "work" than trying to get the kiosks to submit to my needs). No problem, though. After class, I went to the photocopy store completely on the other side of campus

(rejecting the hypothesis that extensive new media use isolates and thus reduces social capital), and in the right corner was a kiosk that had a USB drive. Unfortunately, it also had a pleasantly handwritten sign on it that it was "temporarily inoperable." Unlike the apparently permanently or partially, or permanently partially, inoperable kiosks of my recent experience. BUT they had a second kiosk, of yet a different type. But this kiosk did NOT take a USB drive. But it did take a diskette. I just happened to have a blank diskette in my briefcase (a fond souvenir of simpler times). So I went to the counter and asked the nice person if I could use one of her computers to copy two files from the USB drive to the diskette, so that I could use the diskette in the working kiosk to make two photos, for which I would gladly pay the advertised rate. This apparently was an unusual request, as she courteously asked me a few times to repeat/explain my request. She finally told me that their computer would significantly compress the file, down to just 72 dpi, and that wouldn't make a good photo. All I wanted was to copy the file, and they had a computer right there, and that use would allow me to use their other equipment for which they would charge me, but apparently the only way they thought they could handle it would be to process the file through some photo software and then send it on to the diskette.

Okay. So I walked back across campus to my office, copied the two files from my USB drive to my diskette, and then walked back across campus to the photocopy store and back in front of the temporarily operable kiosk. The kiosk had a flatbed scanner, so you could scan in photos. I didn't want to scan photos in; I just wanted to print them. But the top of the scanner lid showed the size of photos you could make from the printed stuff you scanned in–apparently with the scanner and presumably with the machine in general. One of the sizes was the bulletin board-compatible 4x6. So I touched the screen, was asked what I wanted to do (just print two simple photos, I whispered, and pressed "prints"), and then it asked me what size photos. It showed that there were four sizes to choose from, including the 4x6. HOWEVER, at this time, amazingly, just in time for my kiosk experience, the 4x6 size was shaded out—indicating, I guess, that that size paper was temporarily not available in the photo processing bin. Sigh.

I remembered that I had the photo files on my diskette. So I could go back to the local pharmacy and use the self-serve kiosk which I remembered did indicate it could accept diskettes. But by then it was about 5 p.m., and the drugstore and the photo area was pretty busy. I went through the guided touch screens, selected "prints," selected "diskette," and the screen in a very animated way showed me just how to insert the diskette and, amazingly, the two photos came up. Quickly, before anything else happened, I selected "print".

At this point a screen popped up asking me to enter my print password. I figured perhaps this was something I could make up, and use when paying for them to make sure that no one else could pick up my photos (see *One Hour Photo*?). It allowed me to enter 5 digits, but no matter what I entered, it just told me to enter my print password again. I wanted to ask the photo processing person to help, but he (now a different person from the morning, and so not likely to be contextually sympathetic) was busy

doing what he was paid to do. Eventually, after waiting until he was unoccupied, I asked him why the print password thingy wasn't working. He said "592."

I asked him "what?"

He repeated "592."

So I said, "so I have to get a password from you to submit my print request?"

He said "yes."

I asked him how I would have known this.

He said "that's me. . . you have to get the password from me." The screen didn't say this; it just asked me to enter a print password. So I entered 592 and "naturally" it worked just fine.

It said the two photos would print in a few minutes and I would get a receipt to take to the counter to pay for the photos. It printed the first one. Then the system froze, with a cryptic message saying there was a "system management error." There was nothing I could do (as the rest of the day was making very clear), and certainly not in the way of managing this system or the error. I wanted to ask the photo processing person to help, but he was still busy doing what he was paid to do. After waiting until he was unoccupied, I asked him for help, again. After a fair amount of looking at exactly the same things I was looking at, in addition to some new screens, he told me that it wasn't working.

Ah! I said. Ah!

He said that he would have to reboot the computer, it would take some time, did I mind waiting? Um, no of course I didn't mind.

Fifteen minutes later, it finally rebooted. I went through all the screens again; it accepted my diskette; it showed my two prints; I selected "Print"; it thought about it, whirred, and spit out both photos. No receipt. I wanted to ask the photo processing person to help, but she (now yet another different person from the morning and the evening) was busy doing what she was paid to do. After waiting until she was unoccupied, I asked her for help. After a fair amount of looking at exactly the same things I was looking at, she told me that there was no receipt.

Ah! I said. Ah!

She took me to the photo processing counter, entered the cost for each photo (3 now, at 29 cents each, with tax, for a total of 94 cents), gave me my three photos in a nice pharmacy photo processing envelope, and my 6 cents change. The photos look lovely on the bulletin board.

So why do these kinds of errant subroutines persist? Seems like there are very fruitful, theoretically and empirically informed possibilities for communication research here. I believe there are many issues here involving traditional and new media (bulletin boards, photos, computers, interfaces, storage media) and organizational communication (emotional labor, task design, interaction processes, expectation management), and intersections between the two (managing conflicting tasks, responsibility for without training about technologies and services, feedback among technology, service providers, and customers), unusual routines (such as errors and dysfunctions that are part of some system and activated by someone

doing exactly what the system says to do, so that they must be repeating, but no one seems to notice, much less fix) (Rice, 2008), and innovation diffusion (perceptions of innovation attributes such as compatibility or trialability, understanding of potential adopter needs, technology clusters).

As Scott and Fulk note, we should look to theories that help place the use and implications of new media in more general contexts that do not trap our insights in the specific medium of the day. There's actually quite a lot of literature about all these things, within and outside of communication research, such as sociotechnical systems, actor-network theory, work design, digital divides, outsourcing, social construction of technology, etc.

Scott refers to the by now vast literature explaining how, due to mobile, wireless media, we can communicate wherever we are. However, as new media become embedded, pervasive and interconnected, they ARE wherever we are. Thus our interactions and dependencies, both functional and dysfunctional, with new media will become "more common, even mundane," and involve multiple media, as Parks notes, and decontextualized, as Jackson and Baym explore, and embedded in actor-networks, as Contractor suggests. The obstacles, challenges, adaptive solutions, and unmanaged constraints are organizing forces related to, or forms of, the organizing processes noted by Contractor. Examples such as the one above are, in fact, more general forms of the "code" Contractor refers to as shaping the experience of new media technologies.

Poole emphasizes the potential of new media to foster collaboration. But the example recorded here (it is *not* fiction!) notes two complementary issues—situational needs and knowledge force each person to craft their own solutions, while the pervasive but unmanaged interdependency (definitely *not* integration) forces us to collaborate with people and systems not rewarded or designed to do so with us. Indeed, designed but imperfect integration prevents users from becoming involved in the diffusion and reinvention process (Johnson & Rice, 1987) that Parks highlights. Attempting to resolve incompatibilities across media and people will require a sort of personal version of the communication "mash-up" Jackson proposes—here, though, requiring people to mix and match components of media and social interactions available, understandable, workable, willing, able. This often unconsciously frustrating network of media/social interdependencies is related to, but perhaps more general, than the interwoven new media experience Baym highlights. Thus these developing, embedded, pervasive irritations and compatibility obstacles, and the tensions among interdependence, collaboration, and dysfunctional sociotechnical interactions may be two of the long-term consequences Parks says we should study.

References

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