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Fixing Things: The Politics and Techniques of Cell Phone Repair

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start something big

What can we learn from documenting cell phone repair?

Each of the some 6 billion cell phones in the world unites an array of people, places, and things. This project explores the role of the cell phone, one of this century's most ubiquitous technologies, through an ethnography of cell phone repair. The cell phone represents more to us than simply a piece of machinery, but an important tool through which we maintain our connection to the social world. The moment of breakdown disrupts this connection, leaving the users unable to maintain their personal social network and in need of a replacement or a repair. This project investigates the who, where, and how of cell phone repair by creating a chaîne opératoire or operational sequence of how repair technicians restore the cell phone's material components to a functional state and ultimately allow users to restore their own social networks. Documenting the process of cell phone repair allows us to see not only the intricacies of the cell phone, but also the ways in which this device has become so intimately woven into our daily lives. This poster documents the process of repairing the front glass of Samsung Galaxy SIII revealing some of the interesting techniques of cell phone repair, but also exploring the larger social role technicians play in restoring the customer's connection to their social network.

Four specific questions drove this research

1. What are the essential stages of repairing a Samsung Galaxy SIII?
2. What are the key elements of general cell phone repair?
3. How do cell phone repair technicians acquire and share the knowledge and skills required for cell phone repair?
4. What roll do technicians play in our relationships with the cell phone?

Capturing a chaîne opératoire of cell phone repair

The primary method for this summer's fieldwork has been to use the chaîne opératoire as a methodology for capturing the series of operations involved in cell phone repair. The chaîne opératoire provides specific details about the series of actions involved when a person transforms raw material into something meaningful or useful (Lemonier 1992). Furthermore the chaîne opératoire can provide valuable information about the society within which the action takes place (Martinón-Torres 2002). Documenting the repair of Samsung Galaxy SIII demonstrates that the value of cell phone for most users does not lie in the material components, but comes from what the cell phone represent as a social networking tool and piece of self. Furthermore creating a chaîne opératoire allows us to see the roll technicians play in restoring the customer's relationship with both the phone and those it allows them to communicate with.

To capture the chaîne opératoire of cell phone repair I followed four basic steps.

1. Observation: Conducted an ethnography of 2 uBreakiFix repair shops in Washington, DC
2. Description: Gathered notes, audio and video recordings, and photos of multiple repairs
3. Transcription: Converted this material to text
4. Analysis: Capture key stages and elements of cell phone repair

STAGES OF REPAIR OF A SAMSUNG GALAXY SIII WITH BROKEN FRONT GLASS



1. Diagnostics: The technician conducts an initial inspection and documents the broken front glass.



2. Heating up of Broken Glass: Technician waves a heat gun over the glass, warming the adhesive behind the glass. Technician repeatedly feels and checks the temperature to avoid damaging the LCD.



3. Removal of Broken Part: The technician moves between the heat gun and several specialized tools, working to carefully remove the broken glass.



4. Cleaning: The technician meticulously cleans the phone and the new parts using special cleaning supplies, hands, and fingertips.



5. Checking: The technician continually reviews their work, checking that all of the old glass pieces have been removed and the new glass has enough adhesive.



6. Installation of the New Part: The technician sets the new glass on top of the phone. Then presses and rubs fingertips along the edges assuring a smooth seal.



7. Final examination: The technician examines the exterior looking for issues with the glass or adhesive. The technician also examines the other functions such as the key board, camera, and power button.



8. Completion: The technician determines that the phone is completely repaired as per the order of the customer. Then, formally documents this and returns the phone to the customer.

Shop talk: Technicians talk about interesting experiences with customers and repair techniques that set individual shops or technicians apart from the rest of the repair world. The content of these conversations remains within the shop not extending to the broader public.



Tool kit

Tools: Tools are essential to any repair and may vary between technicians, but they all consist of the same core tools that allow them to cut, screw, pry and pull things apart. Tool kits can be bought online through a variety of vendors, and often include improvised tools that can be part of a repair shop's trade secrets.

Collaboration: Technicians claim responsibility for the particular phone they repair. Yet, technicians continually help and assist one and other throughout the process offering advice, helping with shop maintenance, or passing a tool across the workstation.



Cell phone spare parts

Shop Maintenance: Throughout the day customers come in to the shop, the phone rings, a new part needs to be ordered, financial paperwork needs to be completed, and the floor needs to be swept. This means at varying stages of the repair process technicians will leave the repair to maintain the smooth running shop.

How do cell phone repair technicians learn, share, and use their knowledge?

Learning and refining any skill requires repetition of the action over a period of time (Mauss and Schlanger 2006). For cell phone repair technicians this process involves multiple attempts at repair during which they become familiar with a multitude of tools, phone models, and methods of repair. During these attempts technicians receive bits of guidance from other technicians and collect information through internet research.

Technicians admit to a desire for tinkering and knowing more about technology which keeps them passionate about repair. This passion is coupled with a series of specific qualities that allow technicians to navigate the successes and failures of repair including; perseverance, patience, and critical thinking. This specialized set of skills allows technicians to repair and understand an exceptionally complex device. However, these skills and characteristics give them the ability to play a mediating roll between the cell phone user and the social networks they maintain with this device. In doing so they become more than simply repair technicians, but really counselors for the customer. By returning to them a functional phone they also restore the user's connection to the social world.

References:

- All photographs of the chaîne opératoire by Dr. Bell; Background image of the inside of a Samsung Galaxy SIII obtained at <http://www.ifixit.com> (File: [GINJTQuaSPNUw2pN](#) License: [Creative Commons BY-NC-SA](#))
- Carrier, James G., and Peter G. Luetchford, eds. 2012. *Ethical Consumption: Social Value and Economic Practice*. Oxford: Berghahn Books.
- Horst, Heather A. and Daniel Miller. 2006. *The Cell Phone: An Anthropology of Communication*. New York: Berg Publishers.
- Lemonnier, Pierre 1992 From Field to Files: Description and Analysis of Technical Phenomena. In *Elements for an Anthropology of Technology*. Pp. 25-50. Ann Arbor, Michigan: Museum of Anthropology, University of Michigan.
- Martinón-Torres, Marcos 2002 Chaîne Opératoire: The Concept and its Application within the Study of Technology. *Gallecia*: 29-43.
- Mauss, Marcel and Nathan Schangler. 2006. *Techniques, Technology, and Civilisation*. New York: Berghahn Books.

What can be learned from documenting cell phone repair?

Inside the cell phone lies an array of intricate parts placed there through a series of individual laborers all of which many users have little or no knowledge (Carrier and Luetchford 2012). At the moment of breakdown when this device so integral to maintain their social networks leaves them disconnected, this lack of understanding produces feelings of panic and anxiety leaving them to decide between replacement or repair. However, what leads many customers to repair is not simply the broken glass, but restoring our connection to the social world and repairing the device which represents this connection.

However, for cell phone repair technicians, this moment is not one of panic or anxiety, but one of intrigue and excitement. It provides them an opportunity to deconstruct and explore this broken device and ultimately transform it into something usable again. In doing so they not only connect with the object itself, but also allow their customer's to restore a connection with their social networks.

Documenting the processes of cell phone repair highlights the increasing importance of the cell phones in our daily lives. It also reveals the interesting ways in which technicians are restoring a connection with things and objects. Furthermore, an ethnography of cell phone repair shows the special roll repair technicians play in maintaining the social networks created through use of the cell phone.

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