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Cell phone use among low-income communities – an initial study of technology appropriation in the favelas of Brazil

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<http://www.souzaesilva.com>

Artwork by [Zhu Yue Yao](#)

All artworks in this receiver issue are part of a student project by the Central Academy of Fine Arts, Beijing, China

Between December 2007 and January 2008 three topics dominated the technology section in [O Globo](#), a leading newspaper in Rio de Janeiro, Brazil. Anatel, the Brazilian National Telecommunications Agency, announced the results of a federal auction offering radio spectrum to wireless providers to develop third generation cell phone services in the country. Envisioning potential profits through the development of high-speed mobile internet, Samsung announced its plan to introduce [cell phones that are able to receive a digital TV signal](#) to the Brazilian market early in 2008. Finally, location-based services are expected to become popular in Brazil even prior to the full development of 3G. Services such as Google Maps or "Vivo Encontra", which allows users to locate restaurants, hotels, and other users with their cell phones via GPS or triangulation of radio waves, [are being greeted enthusiastically in major cities such as São Paulo and Rio de Janeiro](#).

Like most of the world's metropolises, Rio de Janeiro is densely populated with people of diverse social, cultural and economic backgrounds. The city, however, has a peculiar characteristic: high- and low-income populations live side by side in very close geographical areas. For example, a bird's-eye view of Ipanema, one of the wealthiest neighborhoods in Rio, reveals a "favela" (Brazilian for slum) on one of its hills. As in Ipanema, other [hills across the city are occupied by low-income communities](#) who try to live as close as possible to their workplaces. These hills were randomly occupied since the end of the 19th century, and because residents do not officially own the land, the favelas have scarce provision of basic services, such as electricity, gas, or landlines.



Left picture: Favela Pavão-Pavãozinho (Rio de Janeiro), view from the 18th floor of an apartment building in Ipanema, one of the wealthiest neighbourhoods in Rio. The Favela and the building are so close together that it would be possible to literally jump from the favela into one of the apartments. Right picture: Neighbourhood of Santa Teresa (Rio de Janeiro). Note the apartment building in the background, where middle-class people live in close proximity to the favela.

It is estimated that [20% of the population of Rio live in favelas](#). Studies reveal that this population increased by 25% between 1991 and 2000 . The situation is similar in other major cities such as São Paulo, Recife, Salvador and Fortaleza. This growth highlights a serious problem in Brazil: elevated unequal income distribution. [Roughly 10% of the population earn 46% of the country's overall income, while 50% make only 13.3%](#) , placing the country near the bottom of the list for income distribution in the world. A superficial awareness of these facts is enough for us to question technology news of the type mentioned above. Likewise, we may be slightly curious to hear that [Brazil finished 2007 with 121 million cell phones - a 63% penetration rate](#) . Furthermore, the country is the 5th in the world in cell phone absolute numbers - [behind China, the United States, India, and Russia](#)



"Hills across the city are occupied by low-income communities who try to live as close as possible to their workplaces."

A reasonable conclusion for the growth in cell phones is that despite the poverty in the country, low-income people are indeed acquiring them. The exponential cell phone increase in developing countries is a worldwide tendency. However, in a place with economic inequalities like Brazil, it is fallacious to think that cell phone use is homogeneous across different sectors of the population.

- How does the low-income population appropriate technology in its own particular ways, based on pricing policies and technology availability?
- What is the relationship between high- and low-income population cell phone use?

With these questions in mind, we built a small team of communication and social scientists and started a series of interviews with favela dwellers in three low-income communities in Rio de Janeiro: Jardim América, Vidigal and Mangueira. **Here I present some of our initial findings.**

Among middle- and high-income classes in Brazil, cell phone use does not substantially differ from that of developed regions in the world such as Europe, the United States or Japan. People have access to state-of-the-art cell phone devices as well as to the latest services. Among the low-income population, however, cell phone use is mainly defined by costs. Since the majority of the favela population earns less than the minimum wage, acquiring a cell phone might be a challenge.

The first question we asked ourselves was "Why is there a need for cell phones"? The answers we gathered in the favelas show that cell phone use among these communities differs greatly from what one expects to encounter in North America, Europe, or even among the privileged population in Rio and São Paulo. In fact, we can see how these communities appropriate technology by changing its primary purpose.

Cell phones have been studied as devices that promote safety and security (most notably by Richard Ling and Katz & Aahkus). Favela dwellers also say they need cell phones for safety. However, instead of calling the police in case of an accident, they want to be able to call the favela before going back home to make sure the situation is safe there. In the favela drug lords might battle for territory, and shootings between them and the police occur. "Sometimes you are at school, and if there are shots being fired [in the favela], your mom calls and says: 'Do not come up'." Many also point out the need for a cell phone because there are no landlines or pay phones around. As in most places in the world where cell phone numbers increase, pay phones are scarce in the favela. So cell phones replace a missing landline infrastructure.



"Favela dwellers also say they need cell phones for safety."

Cell phones have also been characterized as personal and private devices (see the work of Rich Ling and Ito, Okabe & Matsuda). Although favela dwellers acknowledge owning their cell phone, they typically share the device with other family members, especially if the cell phone is the only phone in the house - or in the neighbor's house. Therefore, the typical image of a cell phone as a personal device does not always apply.

Besides the different uses that emerge from security and privacy issues, we observed three tendencies that come from the need to control costs: the rise of pre-paid phones, the sole use of the cell phone's basic functions and the creation of a parallel market.

First, it is important to notice that [cell phone growth increased in Brazil when pre-paid phones became available in 1998](#). In December 2007, [80% of all cell phones in the country were prepaid](#). Prepaid phones allow users to have a phone with no monthly bill. Furthermore, the majority of interviewees said they do not pay at all for their cell phone, since adding credit on a regular basis is too expensive for them. Theoretically, a user is supposed to add credit every three months in order to keep the line active. However, most favela dwellers know that even when receiving warning messages from their provider, the device is rarely deactivated. So, low on credit, a cell phone owner will call another one, but drop the call upon connection. A widespread way to communicate on a low budget, not only in Brazil, is to call, let it ring just once and hang up to [let the person called know there's a need to get in touch](#). Since pre-paid phones without credit can still receive calls, the called party can call back if necessary. A female interviewee takes advantage of this to notify her boyfriend to pick her up after her class is finished.



"Since pre-paid phones without credit can still receive calls, the called party can call back if necessary."

Second, most people in low-income communities use their cell phones for voice calls. It is intriguing to say the least to see the amount of investment in the newest technologies such as 3G, location-based services, and camera phones, when the majority of the population does not even pay a cell phone bill. With high penetration rates, cell phones in Brazil are no longer considered a status symbol. Even in low-income communities, a cell phone is viewed as a necessity, as an item that is part of daily life like a TV or a refrigerator. However, the ownership of expensive devices or services is still considered a symbol of status, since they are mostly inaccessible for this population. Community members acknowledge that it would be nice to have a device that can access the internet and send pictures, but these services are too expensive for the average favela dweller. For example, to download 2MB of data with a basic cell phone plan costs around 8 dollars, which represents 5-10% of the average monthly income. Moreover, most pre-paid phones do not include advanced services, which need to be purchased along with a post-paid contract. The image of the expensive cell phone as a status symbol is one of the reasons for the creation of a parallel cell phone market. It is in this tendency that the worlds of middle- and high-income classes merge with those of low-income.

After GSM phones became popular in 2005, cell phone theft considerably increased in the majority of big cities in Brazil. In São Paulo, [cell phones were the most stolen items in 2007](#). Unlike CDMA (Code Division Multiple Access) and TDMA (Time Division Multiple Access) phones, which are still around in Brazil, GSM phones include a SIM card that contains all the cell phone data. Devices are generally expensive, but it is easy to replace a SIM card. One of the interviewees told us she found a cell phone on a bus last January: "I then waited 10 minutes and thought: 'If anybody calls within 10 minutes, I will return the phone; if not, I will turn it off.' Nobody called and I turned it off. Then I bought another SIM card and gave the phone as a present to my brother. It was a brand new phone!"



"In São Paulo, cell phones were the most stolen items in 2007."

Another favela dweller told us that it might be dangerous to use a cell phone on the bus since that can attract a thief's attention. "Even if the cell phone just rings, somebody might follow you after you get off the bus and take it. Then, if the device is a good one, he will sell it in the favela. If it is a cheap cell phone, he will give it to the kids to play with." Buses circulate around the whole of Rio, including wealthy neighborhoods such as Ipanema, Copacabana and Leblon, and are used not only by the low-income but also by the middle class population.

This type of discourse demonstrates that it is common practice among low-income communities to take cell phones from the most affluent areas of the city to re-sell them in the favelas. In fact, in one of the communities, all cell phone owners interviewed had bought their devices on the parallel market inside the slum. This is viewed as reasonable since the majority would not be able to buy a device if they needed to pay the full price for it. As it is also easier to buy from inside the community, nobody even considered going to a store.

Frequently, recent cell phone models come to the favela by the very hands of the middle- and high-income classes. It is common practice to visit the favela to buy drugs and give a cell phone in exchange. Thus, cell phones become a type of currency. Devices originally used by a privileged section of the population end up in the favela, have their SIM cards replaced, are transformed into prepaid phones and are sold or given as presents among the community.

Perhaps this creation of a parallel market, in which cell phones work as a kind of currency and which promotes the circulation and sharing of devices within low-income communities, is the strongest evidence that mobile technologies are appropriated strongly according to pricing policies and availability. Although high-end services are available in Brazil, receiving huge investment and advertising, they still target a very small portion of the population. However, the economic differences in the country create a system in which low- and high-income populations interact, promoting the circulation of cell phones among the less privileged.

Although most early research into cell phone use focused on developed countries and on the issues of privacy, security, and teenage use, recent research emphasizes cell phone use and appropriation among low-income communities in developing countries. Interestingly, cities such as Rio de Janeiro include both of these realities, with two types of very different users impacting on other. With the inevitable introduction of

new services which might lead to an even bigger gap in technology consumption and population connectivity we need to ask ourselves how to create opportunities to address these issues, and to develop a legitimate market in the country.

This article was written for receiver

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2 comments to “Cell phone use among low-income communities – an initial study of technology appropriation in the favelas of Brazil”

1. It's good to have these parallel worlds in view when thinking of Brazil's metropolises. And it's good to know that favelas most of all and simply are the places to live for many of the average city dwellers in Rio, Sao Paulo etc. There are shootings, right, but also activities like Projeto Morrinho – you might have a look at <http://www.youtube.com/watch?v=n75RKsManyQ>

by *Julitschka* July 11th, 2008 at 1:20 pm

2. Holidays are just around the corner and I'm curious to know which mobile phones will be in high demand this season. I've compiled a list of the top 5 handsets I think will be popular on this year's wish lists. Let's see if your fave made my list. Best is <http://www.fommy.com/blackberry-storm-9530.htm>

by *Storm* November 9th, 2008 at 4:17 pm

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