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SHARED PHONES

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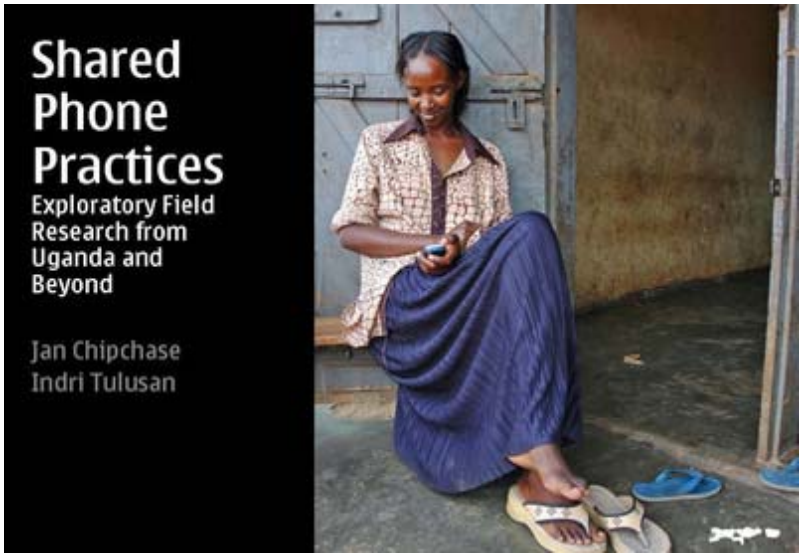
Shared Phone Use

Much of the growth in the telecommunications industry is coming from emerging markets - places like India and Africa and **for many new consumers their first mobile phone experience is a shared one**. This essay uses the term sharing in the sense of primary usage orientated around borrowing and lending rather than 'let me show you the photos I took at last night's party'. Mobile phone sharing is not just limited to personal use - from the streets of Cairo to Kampala kiosks are springing up with little more than a mobile phone and a sign advertising call rates. **What happens when people share an object that is inherently designed for personal use?** And based on how and why people share in what ways can devices and services be redesigned to optimise the shared user experiences? Indeed, should they be re-designed?



*A summary of this essay appears here and a presentation that compliments this essay entitled **Shared Phone Practices: Exploratory Field Research from Uganda and Beyond** can be downloaded from the resesarch dot Nokia dot com site here [7MB, PowerPoint]. In time, related posts on **Power Up: Street Charging Services in Kampala**, **Rural Charging Services**, **Community Address Books & Call Logs** and the **Village Phone, Uganda*** will be listed here.

In July 2006 I met up with colleague Indri Tulusan in Uganda to conduct a field study into shared use of mobile phones. The study compliments prior Nokia field research in India, China, Nepal and Mongolia and was later followed up by Indri by a study in Indonesia (the third slide of the presentation highlights to what extent this research is a team effort). **The focus of the research was to document existing shared use practices and in particular novel uses that hadn't been noted elsewhere, understand barriers to convenience, and then explore areas that were ripe for future innovation.** As with related research this essay covers the methodology and findings but steers well clear of how these innovations were applied (or not applied) to future products applications and services.

Prior to arrival we drew up a list of questions to probe and challenge our assumptions about

what, how and why people share what they do. What do people share and with whom? **What would share with your best friend? Your colleague? Your worst enemy?** For that matter what kinds of things do people avoid sharing and why? *You can read other people's comments and add your thoughts here*. Our starting assumption was that **the baseline benefits of mobile phone ownership - personal, convenient, synchronous and asynchronous communication are appreciated by pretty much everyone** and therefore in principle the market for mobile communication devices is 6.3 billion - just about everyone on the planet. Just how valued are the personal and private aspects of mobile phone communication?

Uganda was chosen as the location for the study for a number of reasons: an **expanding yet still limited connectivity in rural locations** (see a GSM association cellular coverage map of Uganda here); **literacy rates** male 77%, female 58% (source Unesco Institute for Statistics); and is also one location for the **Village Phone Initiative** - a collaboration between Nokia, Grameen Foundation USA, and local micro-finance organisations to bring cellular connectivity to remote rural communities (a short essay on Village Phone will eventually appear here). The conditiions in emerging markets vary considerably and the reader needs to carefully consider how these findings from Uganda apply to other cultures.

Prior to arrival the **local team arranged 15 contextual in-depth interviews split between Kampala and 3 rural locations** - a farming community, a fishing village and a small town and this pre-planned research was complimented by 10 days of ad-hoc interviews, artifact use (a fancy way of saying we bought and used stuff), trying out services, and generally immersing ourselves in the local culture. Football aficionados will no-doubt appreciate that the study coincided with the world cup and the (lack of) progress of African nations formed the backdrop to this already rich cultural experience.

For a research team more accustomed to working in developed markets Uganda presented a number of **methodological challenges** including but not limited to: the time it takes to travel and meaningfully conduct research in rural locations; punctuality and scheduling sessions with participants; coping with power cuts the noise of the back-up power were actually the biggest problem, it is hard to conduct and record an interview over the thud-thud-thud of the nearby generator; in more remote places non-local faces draw a crowd making the subtler aspects of our research more difficult; paying sufficient respect to local power structures, for example to ask the blessing of the village chief or elder to conduct the research. Interviews were typically conducted by a native Lugandan speaker and transcribed into English. These factors all highlight the need to work with a strong local team; we were fortunate in our choice of both a very capable guide and a data translator/transcriber.

So what did we learn?

To get the obvious out the way first - people prefer to have their own mobile phone rather than borrow one and the cost of buying and then running a phone was see as the main barrier to use. One of our starting questions was **whether shared use is considered an inherently stable state** - where someone has access to a shared mobile so there is no need own one personally, or simply a **stepping stone to sole ownership**. Whatever you sell it helps to know whether people aspire to individually own the products you make. **In Uganda sharing was clearly seen as a transition that would eventually lead to full ownership.** With a backdrop of a growing number of ways to connect and falling

prices for connectivity, how long will the window of opportunity, designing for shared use, remain open? It's worth noting that two baseline benefits of owning a mobile phone - personal and convenient use, are compromised by sharing. Yes there will be demographic differences in attitudes to sharing, and yes you can argue that everyone shares to some extent - it just depends how to define 'sharing'. There may yet be cultures where sharing a mobile phone is valued greater than sole ownership, we just haven't come across them yet.

For the lender sharing was often driven by a **deep sense of social obligation** particularly in rural locations, that extends to friends, family or tribe . Sharing was extended outside the regular group for emergencies the local equivalent of which included a death in the family and during the Indonesia study the tsunami. Unicef puts the life expectancy of Ugandans at 49 years and combined with the current HIV crisis, death is not an abstract event.

The study uncovered six shared phone practices each of which are covered in turn:

1. **Sente is the informal practices of sending and receiving money that leverages public phone kiosks and trusted networks.** In Uganda the word Sente has two meanings the first being 'money' and the second 'the sending of money as airtime'. It works like this:

   Joe lives in Kampala and wants to send his sister Vicky 10,000 Ugandan Shillings - about 4 Euros. He buys a pre-paid top up card for that amount but instead of topping up his own phone calls the local phone kiosk operator in Vicky's village. The phone kiosk operator uses the credit to top up his own phone, takes a commission of anywhere between 10 and 30% and passes the rest onto Vicky in cash. The kiosk operator then resells the airtime at a profit (it is after all his business).

   Sente is particularly relevant in a country where there is limited access to formal banking infrastructure and is largely driven by necessity and convenience. **The receiver doesn't need a bank account, merely access to a friendly phone kiosk, and the risk of theft is reduced because there is no need to carry cash**. The Sente process can take as little as 5 minutes whereas using regular banking infrastructure can absorb a full day's time with additional travel costs (a comparison of costs between regular bank infrastructure and Sente are outlined on slide 29 of the accompanying presentation).

   There are **a number of ways that Sente could be improved**: it is not always clear to whom the cash should be passed onto; there is no receipt mechanism - so the sender doesn't know if and when the money has arrived though the level of trust is high enough for the sender to assume the money will be passed on; the phone kiosk operator may not immediately have enough cash to pay the recipient in which case a payment schedule needs to be agreed for example 2,000 Ugandan Shillings a day is paid out for 4 days (the remaining 20% being the kiosk operator's commission). As with all money transfer mechanisms there is potential for laundering (relatively small sums of money), and **to some extent a pre-paid mobile phone is the equivalent of an off-shore bank account - largely untraceable**.

   Mobile banking services are not unique - companies such as MTN, Smart Communications Inc., Fundamo and Safaricom already offer micro-banking, cash deposits and withdrawals and third party deposits making it possible for your employer

to pay you directly to your phone account. The major difference between Sente and these services is that the driver for innovation is coming from the street and as with the Grameen Bank, the extent to which trusted relationships are leveraged. The continuing innovation by commercial companies in this space is at the forefront of what is possible and has significant positive impact on people's lives.

There are three reasons why I like Sente: On one level **it turns the owner of a mobile phone into an ATM machine** and as such challenges assumptions about what is or could be infrastructure; it is an example of **innovation at the frontier of the edge of the network** (with apologies to the original author for butchering this phrase); and lastly the designer in me is humbled by its **elegance, flexibility and optimal use of scarce resources** - whilst commercial offerings exist Sente as it now stands is not the kind of service that is likely to come out of a multi-national corporate research lab - the subtleties of the social aspects of the system are highly challenging to design, and yes I'm assuming participatory design practices. Sente's existence challenges me, and perhaps also you to prove our worth as a service designers.

2. **Beeping, flashing and missed calls are all ways to describe the practice of calling and hanging up before the recipient answers**. It is in essence the cheapest form of lo-fi personal convenient communication and can be found anywhere where there are highly price sensitive consumers - from students in Helsinki to village dwellers in Uganda. The practice is not unique to mobile communication and examples can be found in a number of paid for communication systems.

   It's worth reflecting on **what information is communicated via Caller ID**: the **cellular identity of the caller**, and **the timing and frequency of that communication**. During research into users with low levels of literacy (essay here, presentation here [6MB]) we explored extending caller ID to auto-populate the address book for example with a photo of the caller (editing and managing content are both illiterate barriers to convenient use). However this conflicts with practice of missed calls because in effect it increases the range of free communication that is possible. Yes, it still remains viable for all-you-can eat communication.

3. In Uganda most **phone kiosk communication is mediated through a kiosk operator who completes parts of the calling task** normally carried out by a sole device user. The operator inputs and confirms the number before calling and hangs up

before the cost of another unit is incurred often with a hand hovering over the receiver for the last few seconds of the call. Mediated communication is more likely in places where there is underemployment and is bolstered when there are customers who are textually or technologically illiterate.

Kiosk operators don't mediate calls because out of benevolence - it simply makes good commercial sense: being involved in the task process increases their perceived value; it is a service that many customers appreciate; it limits the scope for arguments about miss-calling and reduces the risk of kiosk equipment being damaged.

An important aspect of service design is in finding the right balance between aspects of the task that can be carried out by the user and that which can be delegated to the system. In cultures where mediated use is common such as Uganda, India and Nepal the designer can orientate more of the task workload to this person. Mediated communication neatly sidesteps many of the barriers confronted by illiterate users.

4. **Pooling is the collective buying of air time that exists amongst peer groups - students, colleagues, friends who each contribute to buy the lowest available denomination of airtime**. In Uganda this amounts to 2,000 UGX about 1 Euro. The airtime is loaded onto one person's phone and either that phone is shared until the credit runs out or is transferred via text message to members of the pool using services like MTN's Me2U.

A pre-paid account that is not topped up for a period of time may lose its remaining credit or be cut off. The person in the pool who loads the airtime onto their phone receives the additional benefit of **access days**, in essence extending the time before being cut off. Who gets the access days is agreed amongst members of the pool, and is often the person who has contributed the most.

Pooling suggests the need to introduce lower denomination units of airtime though this is not always economical (solutions such as eRefill can make offering lower denominations more viable). Incidentally the process of buying small denominations of airtime is sometimes referred to as **sachet buying** - after the practice of buying single portion sachets of soap powder or tobacco.

5. **Phone kiosk owners often use a large notepad to document phone numbers**

used by their customers and over time it represents a form of address book and call log for the local community. But why?... Customers often turn up with phone numbers on scraps of paper and the act of transcribing from one form to another allows the kiosk owner to reconfirm its accuracy before the number is dialed, thereby reducing the risk of errors. There is also the perception amongst kiosk operators that it encourages repeat business and whilst it might encourage loyalty, with so many kiosks offering a similar service and the sometimes haphazard method of logging numbers there is limited hard evidence that this is the case.

Kiosk operators also anticipate numbers that customers are likely to call such as the local magistrate or midwife and call-in radio shows - radio being a popular way to send a message to friends and family in rural communities. Whilst the anthropologist in me recognizes the community phone book as a rich cultural artifact - its lasting significance is likely to be minor.

Examples of community address books from Uganda and India will be posted here.

6. **Step Messaging** is the process of **delivering either a text or verbal messages via shared mobile phone or kiosk where the message is delivered the last mile on foot.** It is largely driven by necessity and cost and takes advantage of both social ties and an available pool of people to deliver the message. In many instances the message is simply foreplay to the main event: 'please come to the phone, I will call back in 10 minutes'.

The practice relies on the fact that it is socially acceptable to leave messages with a neighbour or phone kiosk operator even if the recipient lives hundreds of meters away from the kiosk and that the call receiver is socially obliged to fetch the person being called. If the kiosk operator is busy with customers he or she can call on members of the social network that tend to hang around the kiosk. After all, the phone kiosk often forms part of the social hub of the community - in the cases of remote and newly connected communities it's the point through which communication with the 'outside world' flows.

There are a number of areas where **Step Messaging can be improved**: message details can be lost over time or incorrectly communicated; it can take considerable time before the message is delivered; and if the receiver is illiterate the message is likely to default to 'person A called'. As with Sente, there is no confirmation that the message has been successfully delivered.

To what extent are these six practices unique to Uganda?

Missed calls can be found in many parts of the world though the practice is more obvious in a culture like Uganda with low income and highly price sensitive consumers. Prior Nokia research in India has documented shared address books. Mediated communication should exist anywhere there are sufficient numbers of textually and technologically illiterate consumers and can apply to both kiosk based and sole device use communiation. Some form of pooling is likely to exist in any market where there is insufficiently low denominations of pre-pay credit. For this research team pooling, **sente and step messaging were novel practices**. Sente is unique in the sense that it is not centrally co-ordinated, though both mobile banking services e.g. Me2You and trust as an inherent component of lending e.g. Grameen Bank exist and flourish. The act of passing on a message for someone else is clearly not new, but where step messaging stands out is the extent to which it can be assumed that a call to phone kiosk will be delivered.

Discussion

For many readers it is logical to associate ownership of a mobile phone with it being used for communication. If the definition of communication only covers *receiving* incoming calls and messages this is a fair assumption since both are free. **However in markets with highly price sensitive consumers if there is a marginally cheaper communication channel it**

will be used. It is common to see people standing at public phone kiosks using their mobile phone as an address book. This kind of behaviour can be witnessed anywhere in the world from Seoul to New York it is just that much more obvious in a country like Uganda.

The Ugandan communication consumer often shops to find the best deal before using a phone kiosk. In turn phone kiosks clearly advertise prices - for example the Village Phone kiosk (slide 56) advertises call rates to: MTN i.e. the same carrier as the Village Phone, UTL, Mango and Celtel as well as calls to East Africa and beyond. One study participant mentioned **waiting until the weekend to send a text message because it was marginally cheaper than the weekday rate**.

Whilst people appreciate the level of privacy that comes with sole device ownership, for most people **only a small percentage of communication truly needs to be private**. Of course notions of privacy vary from person to person and culture to culture and with wholesale listening in by government agencies the issue shifts to re-interpreting privacy. To understand privacy vs. convenience consider public phone kiosks in Nepal or India - they often have 2 or 3 conveniently placed phones on a front counter and more private but slightly less convenient booths at the back of the shop - calls cost the same from either location. Most of the communication takes place at the front counter where the customer forsakes privacy for convenience. This could well be a factor that effects the future communications landscape - **why would someone want to own or carry a personal mobile phone** in its current incarnation **if 95% of its functional and emotional benefits are ubiquitously available in the urban infrastructure and in other objects that are carried?** This is not the same as saying there isn't a future for mobile phones, merely that we need to consider the composite elements that make up the current mobile phone experience and extrapolate what they will evolve into.

To what extent will these practices exist in the future? **Our research suggests that phone sharing (as it is defined above) is mostly driven by cost rather than by social drivers and that as the price of connectivity drops people will move to sole device ownership**. The question for companies wishing to re-design products for shared use is: how long will this transition process take? Other factors may increased shared use over time, for example portable device identity - where a person can access all their personal 'stuff' regardless of whose device they are using may be possible with a sufficiently fast and smart network.

For many poorer consumers in emerging markets **other people's perception that they are connected is the status symbol**, a sign that they have arrived. This can be achieved for people in proximity simply by brandishing a mobile phone and pretending to make a call. For more distant contacts having a phone number implies connectivity - never mind that you don't necessarily have a mobile phone to put it into (borrowing a mobile phone to pick up messages and make calls is one to imply ownership and connectivity). In some cultures the *type* of mobile phone number carries an additional significance - a low numbered dial code in Iran can imply being an early adopter and in Mongolia a particular dial code impiles being a student.

Once sufficient members of your peer group are connected the status effect shift to the manner of connectivity - where **the brand and model of mobile phone is paramount**. Consumers in emerging markets have the same desires for the latest and greatest devices as consumers in more economically developed nations. What constitutes 'the latest and greatest' is naturally up for discussion, but the speed at which trends are communicated around the world mean that there is significant potential for uniformity.

There is subtle evidence that **for the poorest members of society the mobile phone is the primary form of identity**. For people who quite literally live where the streets have no name a phone number painted above the door is a fixed point of contact (photo from Kyotera Uganda, thanks to Ken Anderson for the tip). The phone-number-as-identity effect is likely to increase as mobile phones become established at providing banking and other core services.

We use the term **unlikely consumers** to describe the phenomena where relatively high end mobile phones end up in the hands of the very poor. Two recent examples: a Lhasa's rickshaw driver pulling out his RAZR; and a Cairo back street cafe waiter pulling out his Nokia 6600. Both the RAZR and the 6600 are devices that in their moment in time were perceived as being high end objects of desire.

How do the devices end up thousands of miles away from their original point of purchase? Many phones are formally recycled, refurbished and later resold in emerging markets (photo from Delhi's Karol Bagh market, below), but I believe there is a sizeable informal process people repatriating mobile phones for relatives and friends abroad. The practice of extending the life of mobile phones through **informal repair cultures** is documented in this essay and this presentation [4MB Powerpoint]. **That these objects end up traveling shouldn't be a surprise - they are after all *mobile* phones**. However the speed at which they travel is surprising - a combination of the volumes involved, replacement cycles and the universal appreciation of their baseline benefits (its not that the same phenomena exists with PC's or microwaves). We have tentatively dubbed this movement **sideways adoption** a topic worthy of a later essay in its own right.

In the next few years we are likely to 100's of millions of consumers in emerging markets own their first digital camera and video camera and take their first steps on the internet - all through their mobile phone. That low resolution photo and tinny audio that you might consider poor alternatives to your dedicated camera and home stereo just so happen to be state of the art for someone else, it just depends on the context. The rapid growth in cellular connectivity that is currently getting so much press is a forerunner to something more profound.

Innovation at the Edges of the Network

It is difficult to imagine designing a service with the subtle nuances of Sente or Step Messaging. Without any kind of central planning these practices have evolved at the frontier of the (cellular) network and now thrive. What we understand of the world around us is constrained by what we learn and how we learn it. With the perspective of living in Tokyo and traveling to countries such as Uganda it is clear to this author that the scope for innovation is increasingly in places like Manila and Harare rather than Manhattan and Harajuku.

The simple fact that we (me, my co-author Indri, much of Nokia, and perhaps also you) find these practices novel says more about how and where we direct our research, and what we still need to do to move forward. Despite our best efforts we shouldn't pretend to fully understand these practices - they evolve in response to ever changing contexts. The fact that at best the research team is in a position to explore, document, publish and move on, suggests that we need to find new ways of working, thinking and ultimately listening to the voices from the field.

The following presentation compliments this essay:

- *Phone Practices: Exploratory Field Research from Uganda and Beyond [7MB PowerPoint]*

The following links/materials were referenced in this essay:

- *Unesco Institute for Statistics literacy rates*
- *Grameen Foundation USA partners with local microfinance organisations and Nokia for the Village Phone Initiative*
- *Village Phone, Uganda short essay pending*
- *Unicef life expectancy statistics for Uganda*
- *MTN mobile banking*
- *Smart Communications Inc. mobile banking*
- *Fundamo mobile banking*
- *Safaricom mobile banking*
- *Grameen Bank*
- *Lessig Blog, innovation at the edge of the network from a talk titled Comedy of the Commons*
  Yes, innovation at the edges of the edge of the network is better than at the frontier of the edge of the network
- *Literacy, Communication & Design Essay, Presentation [6MB]*
- *MTN Me2U service for transferring airtime between pre-paid accounts*
- *Nokia eRefill lowers costs of topping up prepaid accounts, removes need for Pooling*
- *New Yorker, USA Today articles on wholesale listening by government*
- *Ken Anderson mobile phone numbers instead of house numbers*
- *Global Voices the world is talking, are you listening?*

- *Informal Repair Cultures Essay, presentation [4MB PowerPoint]]*
- *Textually's links to mobile banking stories and more*
- *Community Address Book & Call Log short essay pending*
- *Power Up: Street Charging Services Kampala short essay pending*
- *Connecting the Unconnected [2MB PowerPoint] introduces different types of qualitative research methods used*

Have links that other reader's should know about? Email *info at janchipchase dot com*

Photos and images on this page taken by the author from the study and from personal collection unless otherwise stated:

- *Village Phone operator*. Uganda, 2006
- *Rural road*, Uganda, 2006
- *Watching Brazil vs Ghana, Kyotera village hall*, 2006, Uganda, 2006
- *Breakfast using two mugs to transfer tea*, Kampala, Uganda, 2006
- *Everyone is an ATM machine*, Shibuya Crossing, Japan, 2006
- *Group interview in university dorm*, Kampala, Uganda, 2006. ***Photo by Suzanne Hietala***
- *Annotated Village Phone kiosks walls*, Uganda, 2006
- *Step Messaging*, Uganda, 2006. ***Photo by Indri Tulusan***
- *Village Phone aerial seen through the leaves*, Uganda, 2006
- *Motorcyclist on the road to Llwamagwa*, Uganda, 2006
- *Phone shop vendors in Delhi's Karol Bagh Market*, India, 2005
- *Village Phone operator*, Uganda, 2005