

ICT4D.at

Austrian Network
for Information
and Communication
Technologies
for Development

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ICT for the empowerment of citizens

**ICT4D – the social impact of Information
and Communication Technologies in
LDCs**

**Mobile phones for the poorest of the
poor – how access to ICT can change a
society**

How do Information and Communication Technologies (ICT) influence society in Lesser Developed Countries (LDC)? In our opinion, ICT are the most promising tools that can shift the power balance between the rich, the poor, the institutions and the people to be offered in decades. In areas such as democracy, journalism or the business/financial sector, new and innovative movements are emerging, empowering the poorest of the poor. The first part of this article attempts to express our views on how this is being accomplished and provide examples demonstrating the enormous power of Information and Communication Technologies for Development, known as ICT4D. The second part of this article suggests a research approach and methodology that we use to evaluate how people in LDC interact with ICT using a User Centered Design approach, which what we also call UCD4D.

For the past two decades it has only become easier to access information and opinions on countless topics on the internet, often at low cost. Furthermore, communicating over wide distances is no longer an issue. These statements definitely apply to the Western world, but what about the South and the UN defined category of Less Developed Countries (LDC)? ICT4D.at is an Austrian NGO attempting to answer these questions by contributing to the worldwide Information and Communication Technologies for Development (ICT4D) movement. Through ICT4D.at's own grass roots projects, awareness of the potential of information technology for social and economic changes have been raised to develop and eventually shift government policies, which should bring social change worldwide. One of the main aspects of social change triggered by ICT is the very promising newly emerging empowerment of the inhabitants of LDC, concerning various sectors, which is mentioned in greater detail in the following sections.

ICT provide inhabitants of LDC, often de facto dictatorships or unstable democracies, new ways of enforcing their participation in the political processes. Prepaid mobile telephones are very popular in large parts of Africa and South America, providing their owners an anonymous telephone number which cannot be tracked back to an individual person. This empowerment was utilized during the Orange revolution in the Ukraine¹, as well as during social unrest in the Philippines to organize gatherings. In other more authoritarian countries where internet access is available without problems (such as the Iran), ICT make it

¹ Ethan Zuckerman (2007) 'Draft paper on mobile phones and activism', blog entry, Retrieved 17 February 2009 from <http://www.ethanzuckerman.com/blog/2007/04/09/draft-paper-on-mobile-phones-and-activism/>

possible for the political opposition to communicate with each other and with supporters in foreign countries. Encrypted email accounts and mailing lists provided by platforms such as riseup enable safe communication. Internet connections via secure proxy servers or services such as picidae, enable the transmission of pictures, instead of text that can be easily parsed.

Another political process where mobile phones are utilized extensively in LDC, are elections. In countries such as Sierra Leone and Nigeria, volunteers set up an online repository during the elections where complaints about irregularities sent via SMS were gathered and published². This method complements other services, such as broadcasting incidents on the radio. The publication of these incidents should put pressure on the ruling power to restore the legal order. There are two existing grass roots projects that are currently popular in the media: Ushahidi and FrontlineSMS. They complement each other and are both built with a bottom up approach using Open Source paradigms. As news from LDC in the past has hardly ever made it to the mainstream media of the Western world, ICT now enable inhabitants of the South to reach the public directly. Blogs and citizen journalism are sometimes even the only possibility for interested persons to get news about a certain country, as official newspapers are often only available in the local language. This method of media provides the reader with a more balanced view on a country, while in mainstream media LDC usually only come into focus in connection with conflicts or natural catastrophes. One leading and successful example is Global Voices Online, where content created by local bloggers is collected and offered

² Katrin Verclas (2007) 'Texting It In: Monitoring Elections With Mobile Phones', blog entry, Retrieved 17 February 2009 from <http://mobileactive.org/texting-it-in>

to interested readers. GVO covers areas which are not in the spotlight of traditional media and also provides translations into various languages. One of our goals is to provide a start up package for potential new bloggers in LDC that includes our WordpressMediaWiki integration and a one day course providing instruction on how to learn how to use this software.

The majority of inhabitants of LDC work in the agricultural sector and therefore do not generate much income. Banks have minimum interest in acquiring customers from this sector of society. Most lower income inhabitants of LCD do not have a bank account and therefore are limited in their financial flexibility in regards to saving and making financial transactions. Western Union and other similar money couriers provide financial transaction services, however with a high fee. With the increased popularity of prepaid mobile phones, people have found a way to overcome this constraint. Air time is used as a substitute for money; people can pay for goods and services with airtime. By giving customers the possibility to transfer air time, mobile network companies have taken on a position similar to that of traditional banks. People now have the opportunity and the security of flexible financial transactions through their mobile phone. Another way that ICT empower inhabitants of rural and often poor areas of LDC is by providing information on supply and demand. This enables them to compare prices and choose the best offer. This completely changes the relationship between buyers and sellers, which originally was influenced by a middleman, who charged suboptimal prices while taking unfair advantages. One platform, tradenet.biz is very successful in providing this kind of service for the West African region.

Of course there are more ways that ICT empower the citizens of LDC, such as in the education and health, sectors, but we think that the examples we have highlighted show the greatest

potential since they shift the power from the ruling institutions back to the people. Especially in LDC where the gap between rich and poor is very broad, such approaches are most promising. Unfortunately it is difficult to be too optimistic, because the challenge of introducing this new way of communication and social empowerment considering the government policies of most LDC still remains. Government policies are rigid, and governments often question their role and possible loss of power with the introduction of new technology. However it is somewhat of an issue of human rights; people should have the right to access information and technology that will improve their lives. Obama will hopefully sway this way, as the European Union almost supports this track, but there are still a lot of battles to be fought. It is worthy to mention here two organizations demonstrating this: The Free Software Foundation FSF and the locally based Austrian quintessenz - Verein zur Wiederherstellung der Bürgerrechte im Informationszeitalter. We really appreciate both organizations and intend on establishing a working relationship with them. What still remains is to document and publish the successful and innovative use of ICT for social improvement, make people aware of the power of these tools, and guarantee accessibility for everybody.

We have reflected on various methods for capturing user needs in LDC that have been used for interactive systems design. The review led to the decision that an ethnographic approach in combination with methods borrowed from the more recent contextual inquiry approach³ would best fit the context and requirements of this research setting. Ethnography has a long tradition, especially in the field of anthropology, where

³ Beyer and Holtzblatt, Contextual Design, In Interactions, Vol. 6(1), ACM Press, Jan./Feb. 1999.

researchers used it as a method for gathering data about human societies through field work⁴. Only lately it has also become a popular research method among human-computer interaction researchers to inform or evaluate the design of interactive products⁵. One of the four principles that characterize ethnography is that it takes place in a natural setting. An essential part of an ethnographic study is that the researchers have to live along with the people they observe over a long period of time. This assures a reduction of the influence of their presence on the results. Data is recorded by taking notes or using a video camera. Only after the field work has ended is the data interpreted in a team setting. Contextual inquiry is the first step of a contextual design process. It foresees the inclusion of users in the design process at various stages⁶. In the requirements collection stage data is gathered using contextual interviews, which are interviews conducted in the field, e.g. at the users' workplace. After the field sessions the interviews are discussed in a group to produce a visual illustration called an affinity diagram. At the bottom level the affinity diagram consists of many post-it notes, each depicting a particular observation that was captured during the interview. The top level of the diagram will eventually reveal ideas for specific applications. We are suggesting a mixed approach using methods from ethnography and contextual inquiry, field studies complied with the four principles of ethnography, although we are not following individuals over an extended period of time, but rather conducting interviews with many different users (e.g.

⁴ Simonsen and Kensing, Using Ethnography in Contextual Design, In Communications of ACM, Vol. 40(7), ACM Press, Jul. 1997.

⁵ Hughes, King, Rodden, and Andersen, The Role of Ethnography in Interactive Systems Design, In Interactions, Vol. 2(2), ACM Press, Apr. 1995.

⁶ Holtzblatt, Contextual Design: A Customer-Centered Approach to Systems Design, Morgan Kaufmann, 1st ed., 1997.

mobile phone users as we did in UZI Africa). We also document demographic data of people that we interviewed on video to an additional spreadsheet. The affinity diagram, which is described in the contextual inquiry approach, also promises to be a helpful method for interpreting the data collected in the field.