Locating the user in a global context

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ABSTRACT
When a mobile phone designed in California, assembled in Shenzhen, marketed from Beijing ends up in the hands of a rural Chinese farmer, we see a certain split between the intentions of "user-centered design" and its reality. Users in emerging regions live in very different circumstances than those of developed regions, and there has been some work done to develop appropriate ICT solutions. However, studying users in emerging regions often gives us a framework to better understand users in developed areas. Using examples from existing literature and my own field work in China, I discuss how some characteristics that are typically associated with users in emerging regions can in fact be useful to understand users in developed regions, and I argue that integrating requirements from user-centered research in emerging regions is likely to create better products for users everywhere.

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User-centered design, rural users, developing regions, methods.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

"User-centered design" is now a key concept in the development of technology. In the early days, the focus of technology development shifted from the point of view of creators and developers to that of users; more recently, the concept of users itself has been enlarged to encompass very different communities, uses, and geographies. In the context of CHI, increasing attention is devoted to users outside the traditional context of user-centered design – i.e. the "developed" country. This is partly motivated by the awareness that designs and solutions developed to work in places with reliable infrastructure and by users with certain, basic shared-characteristics (e.g. literacy) are not necessarily ideal in what are variously called "developing world," "emerging regions," or "emerging markets."

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Although these terms are used interchangeably, their actual meaning is often unclear. Is it possible and/or desirable to talk about "users" from emerging regions? Do "they" share a set of characteristics that distinguish them from users in developed areas? Is "emerging region" a byword for limited infrastructure, or does it refer to areas that receive rather than produce technology? Most importantly, from a technology development and a user-centered design perspective, what does the division between emerging and developed regions mean at a time when design, production, distribution, and use of ICT are distributed around the world? Who is the "user" at the center of technology development, when a mobile phone is designed in multi-national corporation offices, then sold in a store in Beijing, and through gifting is finally used by an old woman in the remote Chinese countryside? Although corporations are increasingly trying to integrate users from different countries in the product development process – by opening offices around the world, doing ethnographic studies of local markets, collaborating with local companies - the focus is still firmly on developed markets, and input from emerging regions is limited to adapting products to local markets, rather than creating a bidirectional design input process.

In this paper, I use examples from my field work in rural and urban China to highlight some challenges to user-centered design of mobile phones in a globalized marked, and possible new directions in user research suggested by 'emerging users,' while arguing that the distinction between emerging and developed regions is becoming obsolete.

LITERATURE

The evolution of user-centered design

Since the mid-80s, user-involvement in the development of technology, or "user-centered design," has become a mainstream concept, commonly adopted by different disciplines such as front-end design, back-end development, and marketing. The idea that most devices, technology-driven or mechanical, are made to be used by humans and must therefore take into explicit consideration the peculiarities of generic and/or specific groups of users, was first popularized by people like Don Norman [8, 9], and Alan Cooper [4] for the front-end design, and Ivar Jacobson [6] for back-end development. Users had already been at the center of the attention of marketing departments, who were looking for tools to gain a more sophisticated understanding of their markets, as the number of products

available increased dramatically and the consumers base became more varied.

In recent years, the emerging field of Human-Computer Interaction for Development (HCID) has been focusing on finding solutions to sub-optimal infrastructure conditions [2] and on adapting/creating software/hardware solutions more attuned to the people who use them, often very different from the users for whom these tools were designed [10, 11, 14]. This attention towards "appropriate technology" on the one hand acknowledges the existence of a huge number of users that are absent from the classic development cycle, but on the other is typically limited to the project at hand. Researchers do field work to find out user requirements, a system is developed and sometimes deployed and evaluated, but scenarios, needs, and requirements remain local and are not integrated into the development cycle at headquarters. Users in emerging regions are an 'add-on' rather than a main driver of technology development, and in an age of increased interdependency this is no longer sustainable. Aside from obvious market-share considerations, understanding emerging user requirements can shed some light into "hidden requirements" of users in developed countries, and integrating them into the design and development cycle can create better products for everybody.

COMMON FINDINGS FROM EMERGING REGIONS

In this section, I will discuss themes from HCID literature and from my own field work in China (in urban areas, among migrant workers, and in rural villages) to illustrate how findings from emerging regions can complicate the concept of user-centered design, and at the same time be relevant to developed regions.

Different modes of ownership

The success of mobile phone sharing in some emerging regions – as a business [1] or as part of local cultures allegedly more prone to sharing than developed countries – has somehow obfuscated the variety of "ownership" models that are common in places where users cannot all afford to buy their own device. [3] identifies several roles that people in rural Uganda can play in accessing mobile phones - as purchasers, owners, possessors, operators and/or users. Others [12] describe sophisticated strategies to manage shared devices, including pooling of minutes and coordination of the phones' charging.

In rural China, it is common for people to receive as gifts the old mobile phones of family members who are migrant workers in urban areas, and therefore have more money and access to newer sets. In a village in Shandong where I conducted field work, I interviewed a 15-year-old, Mr. Long, who had four mobile phones: he was the youngest of three children, and both his father and his two sisters were migrant workers. Whenever they upgraded their mobile phones to a newer model (in the case of the sisters, once a year), they would bring the old model back home, to be used by the mother and then the brother. Each of his phones, Mr. Long explained, had a specific function: one was for listening to music, because it had the best collection of downloaded songs; another had the best pre-loaded games; the newest one was reserved for making calls and using QQ, a popular chat program. In another village, also in Shandong, the owner of a mobile phones shop explained the pattern of mobile phones purchases in the village: each year after the harvest and around Spring Festival, when people have disposable income, young men come to buy a new phone, even if their old one works perfectly well. Having the latest phones, even if they are not the most expensive, is a status symbol. Old phones are then gifted to wives and other family members.

Gifting complicates considerably the issue of 'who is the user,' because buyers choose characteristics that they like and find important, which are not necessarily what people who end up using the phones like or find important. For example, several farmers complained that newer phones they received from their migrant children did not have radios – in urban areas mobiles with radios are considered unsophisticated, but they are still very popular in the countryside. Similarly, the mother of Mr. Long received a touch-screen phone from her daughter, and was eager to use it because she thought it had functions that she might be interested in, but could not figure out how to use it, and had to go back to using her old, and predictable, phone.

Observing the practice of gifting mobile phones, or different models of ownership and use, which are much more visible in emerging regions than in places where individual ownership is common, draws the attention to an aspect of user-centered design that is often neglected, i.e. how do users change in time and space. Decisions over which user to serve can be perfectly logical as long as the device follows its prescribed path. For example, the *Nokia LifeTools* mobile set developed in India is created around the needs and constraints of farmers: the device itself is cheap, the services offered are relevant and useful for farmers, and priced accordingly. However, if the majority of mobile phones that reach farmers are gifts from their urban children, then there is a break between the goals of user-centered design and its reality. These rifts are more visible in countries with more extreme conditions, but they exist everywhere.

Individual, shared, and mediated use

Connected to ownership is the issue of individual versus shared use of ICT. HCID literature often emphasizes that shared use is typical of emerging regions, and is due to lack of individual ownership of devices, as well as illiteracy, which makes successful ICT use dependent on other people [11]. This is true, but it also underplays two factors: the first is that use of ICT used to be a shared experience in developed countries as well – think of the early days of radio and television, and of start-ups like Boxee, which allows to connect tv viewing with social networks and

therefore friends' recommendations. The success of social networks websites suggests that sharing is still an important part of the overall experience of using ICT, regardless of whether people own or use their devices independently. In Beijing, I interviewed and did participant observation with several rural-to-urban migrant women, and for them watching television was definitively a key moment of socialization, more important for the conversation and the 'togetherness' they experiences than for the actual programs that were shown. One evening, a group of young women were watching the last episode of a popular soap opera, Love Links. One of them was on her phone the entire time, using QQ to comment the episode with a former classmate who had remained in her home village, and who was in an internet café, watching the same episode on a computer and also using QQ.

The second factor underplayed by highlighting how much technology use is dependent on intermediation in emerging regions is that intermediation is also extremely widespread in developed countries, from older people who depend on the help of children, family or neighbors to set up their computers and to fix any problems, to mobile phones used only for making and receiving calls because other functions are too difficult to learn. In other words, new ICTs created around the idea of individual use are not very good at supporting collective, communal, and shared use – whether it is for experience-sharing or for mutual help. More "radical" conditions, e.g. countries where illiteracy won't allow people to use ICT directly, or poverty won't allow them to own their own device, simply make these issues more visible.

Orality, illiteracy, semi-literacy

Semi-literacy and illiteracy are probably the biggest focus of HCID: percentages of people who can read and write only partially or not at all are much higher in developing countries than they are in developed ones. A more nuanced way of understanding issues of literacy is provided by [13], who explains how cultures or communities that do not rely primarily on writing develop a sophisticated system to remember and exchange information based on orality. This preference towards oral exchanges are not limited to areas with high rates of illiteracy. In rural China, most people can read, and the majority of those below fifty can write, if sometimes not easily, but the main way to share information is still through oral exchanges. In villages, the main sources of information are the television, and co-villagers, even for people who can read. This is partly because people are familiar with these information sources, and know how to evaluate them, so they know different people's biases, the tendency of television to exaggerate certain information and downplay others, etc. When they deal with written information, these reference points disappear: some farmers express doubts about the reliability of the internet ("they are all lies anyway, and it's good only for games"), whereas some accepted that there was some useful information, but it had to be vetted, if possible in person ("My daughter helps us find contact information about possible clients on the internet, but then my husband calls them on the phone to see if we can do business with them" said Mrs. Tao, who owns a small transport company with her husband).

The case of China shows that preference towards oral information can be widespread even in societies with high literacy rates. Solutions that are developed to address this issue in developing countries, such as IBM's World Wide Telecom Web, a "network of interconnected voice sites" [7] accessible through the telephone, has the potential to be successful also in developed countries, among segments of the population that cannot or prefer not to use the internet.

Innovations in emerging regions

Hardware and software are increasingly created in emerging regions, and they are usually more attuned to specific needs of the local markets and local users than imported ones. Sometimes these innovations make the cross-over from emerging regions to developed countries: for example, money transfers via mobile phones started in Kenya with M-Pesa [5] and are now beginning to be available in the US.[1] More often, they remain tied to the place where they were developed. In China, there are alternatives to mobile phones such as *Little Smart*, a limited-mobility wireless phone that was much cheaper than a mobile phone and very successful in the early 2000 among people who could not afford mobile phones, and more recently a wide-reach landline that can serve as mobile phone in limited areas. Although in these cases both users and developers are located in emerging regions, their user models and solutions have a reach that goes beyond emerging regions. As local IT industry in emerging regions grows, this scenario will become more frequent, and it is likely that it will produce software/hardware developed according to a user-centered design approach where the archetype user is in an emerging region, but some actual users will be in a developed area.

CONCLUSION

Locating the user of 'user-centered design' in an interconnected world is increasingly hard. ICT devices circulate among countries and within countries, and reach people whose requirements, capacities, and conditions were never part of the development cycle. Understanding these users often sheds light into issues that are hidden, but very much present, among users in developed countries. Making them a bona fide part of the user-centered approach, rather than keeping them within the confines of a "user-centered

[1] The founder of Obopay, one of the companies that offer such service in the US, says explicitly that she was inspired by seeing money transfers by phone in Africa. https://www.obopay.com/corporate/en_US/aboutUs.shtml

design for emerging regions" sub-discipline, will enrich the user-experience everywhere.

REFERENCES

1. Aminuzzaman, S. et al. Talking back! Empowerment and mobile phones in rural Bangladesh: a study of the village phone scheme of Grameen Bank. *Contemporary South Asia 12,* 3 (2003):327-348.
2. Brewer, E. et al. The challenges of technology research for developing regions. *IEEE Pervasive Computing 5*, 2 (2006), 15-23.
3. Burrell, J. Evaluating Shared Access: social equality and the circulation of mobile phones in rural Uganda. *Journal of Computer-Mediated Communication 15,*2: (2010), 230-250.
4. Cooper, A. *The Inmates Are Running the Asylum: Why High-Tech Products Drive Us Crazy and How to Restore Sanity.* Sams-Pearson Education, 1999.
5. Hughes, N., Lonie, S. Mobile money for the "unbanked" turning cellphones into 24-hour tellers in Kenya. *Innovations: Technology, Governance, Globalization 2*, 1-2 (2007), 63-81.
6. Jacobson, I. *Object-Oriented Software Engineering: A Use Case Driven Approach.* Addison-Wesley, 1992.
7. Kumar, A. et al. WWTW: the world wide telecom web. In *Proceedings of the 2007 workshop on Networked systems for developing regions* (NSDR '07). ACM, New York, NY, USA, Article 7 , 6 pages.
8. Norman, D.A. *The Design of Everyday Things*. Doubleday Business, 1990.
9. Norman, D.A. *User Centered System Design: New Perspectives on Human-Computer Interaction*. 1986
10. Parikh, T. et al. Understanding and designing for intermediated information tasks in India. IEEE Pervasive Computing 5, 2 (2006), 32-39.
11. Sambavisan N. et al. Intermediated technology use in developing communities. In Proc. CHI2010, ACM Press (2010), 2583-2592.
12. Samuel, J., Shah, N., Hadingham, W. Mobile Communications in South Africa, Tanzania and Egypt: Results from Community and Business Surveys. *Vodafone Policy Paper Series* 2 (2005).
13. Sherwani J. et al. Orality-grounded HCID: Understanding the oral user. *Information Technologies and International Development 5*, 4 (2009), 37-49.
14. Sukumaran, A. et al. Intermediated technology interaction in rural contexts. In *Ext Abstracts CHI 2009*, ACM Press (2009), 3817-3822.