

**Women's income generation through mobile Internet:
A study of focus group data from Ghana, Kenya and Uganda¹**

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Abstract

For many women in resource-constrained environments, mobile phones are the first and foremost information and communication technology (ICT) used. In theory the increasing pervasiveness of mobiles and mobile Internet across developing countries should provide growing opportunities to women, especially in terms of earning through small, on-the-fly jobs – using the very mobility aspect of the devices. Using Donner's six affordances of mobile Internet and Cornwall's discussion of the meaning of women's empowerment, we analyse data from 30 focus groups conducted with 18-25 year olds earning under \$2 a day in peri-urban areas of Nairobi (Kenya), Accra (Ghana) and Jinja (Uganda). We explore the relation between the affordances of mobile Internet and structural changes in the economic and societal status of subjects, as reflected in the narratives of women adopters. We find that such affordances, while leading to new mechanisms for income generation, do not result in changes of societal structures: older cultural stereotypes are built around adoption of the new technology, and policies underlying economic activities are hardly challenged by digitalisation. This problematises the extent to which the mobile Internet can be universally conceived as a tool for income generation, and by extension as a long-term, secure means to the empowerment of many women.

Keywords: mobile Internet, income generation, women and mobile phones, women entrepreneurs and mobile phones, affordances

Introduction

The link between the diffusion of information and communication technologies (ICTs) and empowerment, with particular reference to female empowerment in developing country contexts, is being leveraged in the formulation of global development policies. The President of the World Bank, Jim Yong Kim, wrote in his foreword to the World Development Report 2015 that “new technologies allow women to participate more easily in the labor market” (2015: xiii). The UN's Sustainable Development Goal 5 (UN, 2015) also has an explicit focus to “achieve gender equality and empower all girls”, with a sub-target 5b to “enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women”. These statements are predicated on the recognition of a link between technology and development, with strong implications for both the theory and the practice of female empowerment.

At the same time, mobile and mobile Internet use are growing exponentially around the world, and their growth – much faster than that of fixed lines or desktop Internet – yields visible potential for social development. In 2008, the New York Times had a feature titled “Can the cellphone end global poverty?” (Corbett, 2008) with a number of examples answering this affirmatively. The focus on poverty reduction, recognised by Heeks (2014) as a priority in the post-2015 agenda for ICT4D, needs to be accompanied by the ability to disentangle potential from actuality, identifying the mechanisms through which ICT-based developmental advances unfold in practice. A concern lies indeed in the determinism that lumps ICT diffusion with better development outcomes, without problematising the conditions for this to happen (Walsham, 2012).

It is now, as a result, a priority to unpack the link between adoption of mobile Internet and female empowerment, conceived in the economic as well as in the social sense. For Cornwall (2016), empowerment may be based on diverse preconditions: a key one lies in income generation, whose potential is being increasingly leveraged in the developing world. We need to ask questions on the type of empowerment fostered by mobile Internet, as well as on the mechanisms through which this is enabled or constrained: crucially, what kinds of income generation can these devices enable for women? And what implications does this have for development policy?

We engage these questions through a composite theoretical framework, juxtaposing the affordances (conceived as possibilities for action embedded in the social environment) (Gibson, 1977) of mobile Internet with a structuralist view of female empowerment (Cornwall, 2016). The framework allows us to conceptualise the link through six primary affordances as well as restrictions, and look at their intertwinings with specific forms of income generation. In this way, the link between adoption of mobile Internet and income generation is unpacked, and can be studied through application of its theoretical structure to a number of practical cases worldwide.

We answer our research questions by analysing empirical data from 30 focus groups (a total of 198 respondents) conducted in Kenya, Ghana and Uganda with 18-25-year-olds living on under \$2 a day. The original focus groups were conducted with both men and women (largely unknown to each other) but we analyse mainly the female focus groups, unless we bring in a male perspective for contrast. The focus group data allow to shed light on the mechanisms flowing between mobile Internet usage and income generation, through the narratives of women adopters operating in resource constrained environments. As such, our data support Donner's (2015) argument that the mobile internet yields affordances for low-income communities, creating new mechanisms of income generation that the poor and vulnerable are diversely enabled to exploit.

Nevertheless, it is on the translation from affordances to empowerment that our respondents' narratives cast doubt and suspicion. In spite of the affordances of mobile Internet, exploited by women adopters in various ways, older cultural stereotypes are found to be built around the new technological device, factually replicating old forms of patriarchy around a novel form of ICT artefact. At the same time, environmental factors do not seem to evolve towards structural change: in particular, policies underlying economic activities are found to be mostly static, and hardly challenged by the advent of digitalisation. Relying on focus group data, the study is subject to the constraint of analytic generalisation (Yin 2013), but remains capable of problematising the ability of the mobile Internet to act in the pursuit of female empowerment.

This paper is structured as follows. We first conduct a literature review on the growing use of mobile, particularly across Africa, with a focus on the Internet for income generation. We then introduce Donner (2015) and Cornwall (2016) as our composite theoretical framework. We then present the empirical data collected from our focus groups, discussing the findings in terms of realisation of Donner's six affordances and gendered affordance in terms of Cornwall (2016). We conclude by using our focus group data to discuss the implications a "mostly-mobile" or "mobile-only" world might have for women and income generation.

Landscape review

Growth of mobile but not for women?

Mobiles are the most accessible form of technology for many subjects (GSMA, 2011) and mobile phones rates are rising exponentially around the world (Blumenstock and Eagle 2010; World Bank, 2012). Between 2000 and 2010, the number of mobile subscriptions in low- and middle-income countries increased from 4 to 72 per 100 inhabitants (World Bank, 2012). Across the continent of Africa, mobile telephony has brought new economic possibilities (Aker and Mbiti, 2010), to the extent that Africa was already a few years ago referred to as the "mobile continent" (Hersman, 2013). While basic phones are still the most diffused ICT device in emerging markets, most Internet connections in the world are also *through* mobile devices rather than desktops (Internet Society, 2015). As Donner (2015) says, "in many cases, people want and have mobile handsets anyway – to make phone calls, send a text, save photos and more – so the incremental cost to a user of acquiring a device with a data connection is often zero" (p. 56).

Despite this growth, data also shows that women in low and middle-income countries are substantially less likely to own a mobile phone than men (GSMA, 2011; Sylvester, 2016). In

2015, it was estimated that around 200 million fewer women than men were likely to own a phone (on average 14% less likely) with the gender gap widest in Asia with women 38% less likely (GSMA, 2015). Bridging this gap is key to women's empowerment and greater economic gain. However, a set of interconnected variables, including economic (cost, income), individual (confidence, literacy) and societal (security and harassment) factors are key in constraining mobile access (see for example, Buskens and Webb, 2009; 2014). With this in mind, we turn to the potential for income generation.

Income generation using mobiles

Income generation may occur through the multiple functionalities - or affordances, as we will discuss - of a phone. Donner and Escobari (2010) suggest that mobile phones may ease the search for price information, reduce business-associated travel, and aid in communication with existing suppliers and customers. Mobility is a key aspect - albeit in a study on Norway and Hungary, a Hungarian respondent says "I can be more mobile because of it, because I can take it with me. So I'm more marketable. So if I were bound to one place, I couldn't get half the work" (Nielsen and Fjuk, 2010, p. 378). Integration with mobile banking is also a key aspect of mobiles for income generation.

As we will explore below, all these, particularly mobility, have immense ramifications for women. Aminuzzaman, Baldersheim, and Jamil (2003) recount how mobile use by women contributes to household income in Bangladesh. In Mexico, Mariscal et al (2016) recount Eulalia, a 50 year old "housewife and occasional saleswoman in Santiago Nuyoo" who sets up a clothing franchise in partnership with older brother in Texas. Although the phone helps her with mobile payment, she feels her skills restrict her in ordering stock, contacting customers and so on. In contrast in China, Wallis (2011) researches parallel stories of young female immigrants to Beijing for whom mobiles are a critical business tool. Chen Jingfei sells bric-a-brac and paintings; Sun Li blouses and sweaters; and Luo Judi hair accessories and jewelry. Each says her mobile enables orders from customers, restocking merchandise, and checking prices elsewhere. Wang Anmei (27) sells apples at a migrant market in the north of Beijing. In their five years in the city, she and her husband have expanded their business from selling only in the market to delivering apples all over town. Wang Anmei says her basic phone has been a key feature in increasing her income.

In India, Potnis's (2015) research with 43 members of a small-scale, women-run cooperative Mahila Gruha Udyog (MGU) in Bhor, population 20,000, finds that most women owned and used Reliance (basic models) and Nokia (1100 series) mobile phones. Bharati, a co-op member says "Our relatives and I prepare papad and kurdaee [traditional Indian snacks], and I receive calls regarding that. I prepare and sell those items to my customers regularly". 35% of those surveyed for the research state that they use the phone for "employment" and 12% further for "business", although as Donner (2015) has argued, it is impossible to separate mobile use into "purposeful" and "purposeless" use.

However, numerous challenges exist around the link between mobile ownership and income generation (Duncombe, 2014). One is the extent to which mobiles are really used for finding price information. Revisiting Jensen's (2007) study on fishermen in Kerala, south India, Srinivasan and Burrell (2013) find that mobiles are used for one-to-one interaction rather than to share price information, which casts doubt on the orthodoxy linking mobile usage specifically to market price search. Similarly, Burrell and Oreglia (2015) argue that market prices searched on mobiles are often subordinate to other factors, such as trust in trade partners and the subjects' attitude towards risk. This relates back to Donner and Escobari's point that "where mobile telephony is introduced, there is currently more evidence suggesting changes in degree (more information, more customers) than for changes in structure (new channels, new businesses)" (p. 615).

Income generation opportunities using mobile Internet

Income generation is offered even more potential through Internet access in addition to SMS and call only phones. In the Chinese case study comprising an eight country study on social media around the world (Why We Post, 2016), the researchers document women buying and selling make-up through WeChat, China's most-used messaging app. One buyer says she finds WeChat more trustworthy than online marketplace Taobao because the former is linked to a personal profile. In the same study, the India researcher finds that young mothers use WhatsApp to sell home-made snacks or advertise music lessons in India (Venkatraman, 2015). Venkatraman says: "an advertisement for an affordable homemade snack at around 2:30 PM on a community based WhatsApp group, attracts a lot of customers, several of them being loyal and repeat customers".

More sophisticated potential of earning through mobile Internet is occurring through micro-tasking such as tagging photos or taking part in research (e.g. Amazon Turk, Upwork, Jana and so on). Another new venture is Premise (2016), recently awarded \$50m venture capital in 2015 (Loizos, 2015). Premise recruits thousands of human data trackers (at last count, 200 towns in 30 countries) to gather observations in the marketplace on what products are available and how much they cost. The trackers take photos on their dataphones, aggregating to big data for Premise, which the company can interrogate to forecast trends, e.g. inflation. Thus potentially anyone with a mobile phone, camera and Internet connectivity can be a data tracker and earn an income. A recent article on Premise began with "in the Butantã branch of Extra, the Brazilian supermarket chain, in the western suburbs of São Paulo, Sandra Morais, 37, is taking photos of bags of rice" (Baker, 2016) and goes on to state that Sandra earns around \$100 a month from this. The question is, if women are traditionally grocery shoppers, could crowdsourcing like this be a plausible and increasing source of income generation?

The picture that emerges here is that it is largely social media - WhatsApp, Facebook, even Instagram and others which are used for income generation. In a study of Internet access in low-income urban areas of ten countries, the World Wide Web Foundation (2015) found that 97% of women access the web through social media, especially Facebook, while female Internet users are 25% less likely to search for jobs online. However, it is dismissive to think of social media as purely entertainment-related as this could also be a pathway to connect with new markets as well as find new opportunities. As Donner puts it succinctly "mobiles blur the lines between livelihoods and lives" (2009, p. 91).

Challenges

The greatest challenge to women using mobiles for income generation is that the majority of women still face major constraints in just accessing the devices. There have been several media reports of women in India who are prohibited from using phones in rural India (Dave, 2016; Lewis, 2016). Potnis (2015) and Venkatraman (2015) make similar observations. Venkatraman (2015) states: "unmarried young women with school education have the highest potential to access the Internet of all the people in our fieldsite, but are cut off from tools to gain such access. Once married they may gain the right to own a phone, yet access to the Internet might still be guarded by their in-laws". This has two-fold implications. One is that women may be prevented from accessing phones - so this is controlled by whoever controls the finances, pays the bills and so on. And second, this fear can be internalised and passed on amongst women - in Potnis's work for example, women are nervous of mobiles because of a fear of being open, vulnerable, and receiving unwanted calls ("dirty talks") from unwanted people - a fear which can be passed on from those familiar with technology, including men.

It follows on then that there is a lack of large-scale systematic research on the intersectionality aspect of gender access and potential of income generation through mobile Internet - the extent to which race, class, caste impact on success (Crenshaw 1991). Who else has access to mobile devices? Who shares information or cautions? It does not have to be binary (male/female) but it could be a mother-in-law who encourages or discourages her daughter-in-law, a female cousin, or others. Gendered use of the phone is different in different countries (Zainudeen et al, 2015) but within countries and between demographics too.

In conceptualising challenges, an “entrepreneurial mindset” may represent another factor for concern. In non-gender specific research on microentrepreneurs and mobile phones in Rwanda, Donner and Escobari (2010) concluded that while phones assisted and augmented existing ties with suppliers and customers, there was inconclusive evidence that they would bring in new customers and suppliers. The need for this entrepreneurial spirit is noted by Horst and Miller (2006) in Jamaica; in India (Chew, Levy and Ilavarasan, 2011; Chew, Ilavarasan and Levy, 2013) and China (Wallis, 2011). To illustrate the lack of this too, Wallis (2011) quotes one of her respondents, Zhao Ning, a stall worker (rather than owner), who says ‘if I like my job, or don’t like my job, it’s all the same.’” When she is asked if having a phone had helped her increase her income, she laughs and says “no way” (p. 476), suggesting that she sees it merely as a day job, not one where she needs to innovate or be entrepreneurial through her phone, unlike others mentioned before.

Another challenge lies in understanding exactly which activity leads to income generation, as opposed to those that do not or do so in limited ways. As cited above, Donner states that mobile phone behaviour cannot distinguish between livelihoods and lives, with a combination of mixed and interlaced personal and professional calls, complex content, and what he calls double-duty hardware/airtime. In his Rwanda research, the author finds that about a third of the call and texts of the microentrepreneurs are business-related, while the rest are social - but how does one distinguish between the two as the former can lead or relate to the latter. As Donner says, conversations between longstanding clients may often be to check in and build rapport, trust and social capital.

A side point here is on safety, security and broader societal change in terms of income generation. Tacchi and Chandola (2015) and Veena (2007) discuss the challenges of women using mobiles for sex work in India and Thailand respectively. In rural South Africa, Klonner and Nolen (2010) find that mobile phone coverage increased employment more often among women than among men, but only when women did not have large child care responsibilities and could engage in gainful work outside the home. This is important in the sense that regulations and legal form seems to be trailing income opportunities for women. Graham (2016) calls for stronger regulations and “digital unions” particularly in the context of micro-work platforms.

A final challenge is understanding constraints to access as more nuanced and complex than simply that of women not having access or being denied access to mobile phones or that access to technology means “empowerment”². “Empowerment” for women through mobile phones may simply mean empowerment within existing and continuing constraints, which actually reinforces hierarchies, as argued by research in Sri Lanka (Handapangoda and Kumara 2013), and Uganda and India (Masika and Bailur, 2015) where women make a conscious effort *not* to use technology in order not to offend their husbands. In their research, Fatuma, a 32-year old female pavement trader around the central market in Kampala, says “at home if you see that the phone won’t make you free, it is better you stay without it. Because there are men who are full of anguish that he can demolish that phone the moment it rings because he does not know the caller number and then he tells you that if you want peace in the house, stay off the phone”. Thi Hoan et al (2016) find Vietnamese brides in Singapore re-enacting restricted agency, using mobile Internet mainly for beauty tips and recipes rather than job searching.

Until now, the challenges we have discussed have mainly been around the restrictions for women - either on a personal or societal basis. However, one challenge remains in terms of the device itself - what exactly mobile and mobile Internet is capable of. Nielsen and Fjuk’s (2010) work in Hungary and Norway shows how mobile use is for quick checking, leaving more substantial work for the PC. However this is dependent on the assumption that a PC will be available, which is likely in a developed country for more affluent users but not likely in an emerging market for many women. Mobile devices are also designed to enable network capabilities, and this is relevant to understanding their place in users’ economic lives,

² Note in fact, the difference in terminology in distinguishing between connectivity as technical and access as social (Roman and Colle 2002).

especially as far as gender differences in capability development are concerned. So what are the capabilities and restrictions of mobile Internet (including connectivity issues)? We discuss this next by introducing Donner (2015)'s framework of affordances.

Framework

The rationale: affordances of a mobile phone

The notion of *affordances* is rooted in interactionist psychology literature. Originally developed by Gibson (1977), the term refers to all possibilities for action embedded in the social environment. Possibilities for action do not depend on the subject's capability to recognise them: at the same time, they can only be afforded if the individual is able to do so, which makes the notion dependent on actor's capabilities. On this basis Norman (1988), introducing affordances in information systems, views them as the *perceived and actual* properties of the object, primarily the essential ones that determine just how it could possibly be used. Affordances hence have a material as well as a perceptual component, which makes them predicated on the actor's subjective capability to use an object for a certain purpose.

Drawing on Norman, Donner (2015) presents six core affordances both in terms of materiality (1-3) as well as perception (4-6) of the mobile Internet:

1. Inexpensive devices. As of Donner's previous work (2010) and existing economic analyses (Qiang and Rossotto 2008, Vodafone and ICRIER 2009), mobile phones on the whole are cheaper than desktop computers. The global spike in mobile ownership is largely due to this, as lower costs of production underpinned the diffusion that made mobile ubiquitous in developing nations. This makes mobile Internet experiences possible on more affordable devices: accessibility increases as a result, which is highly significant for communities below the poverty line or experiencing conditions of vulnerability.
2. Usage-based pricing. Usage-based pricing allows customers to pay as they go, without the need for fixed assets – a bank account, a stable address – that are still not available to many of the world's poor. Metered pricing is the norm for data - a fixed price for monthly data, or top-up cards - (Donner 2015), meaning that financially challenged customers can plan ahead on the cost of adopting mobile Internet. This flexibility also has implications for those with an unpredictable income, such as many women in resource-constrained settings.
3. Wireless connections. Increasing wi-fi may in theory lower costs, where users can access more data intensive content without using up their bundles. Second, wireless has allowed what Donner (2015) refers to as a "shift from place-to-place to person-to-person", making interactions increasingly avulsed from location. The disassociation from location has implications for women who may in theory be able to communicate unhampered.
4. Personal. Mobile phones are designed for portability, and their use is to be re-imagined on the basis of individual experience. This is what makes it hard to establish general theories as to how mobiles are used (Srinivasan and Burrell 2013). The individual experience of the mobile is in itself an affordance, which users reimagine and reconceive according to their own needs and priorities. We return to this in discussing Cornwall (2016) below.
5. Universal. The ubiquitous character of mobiles provides network externalities that constitute massive interactional affordances for users. Network externalities have fostered the uptake of this type of device (Qiang and Rossotto 2008), to a point that mobile is the only ICT whose ubiquity makes it close to universality (World Bank 2012). As in the standard economics of externalities, the value of the device increases with the number of its users: the interactional affordance of mobiles, on the rise since the first global wave of adoption, maximises the value of using mobile Internet and the potential commercial value of doing business through this channel.

6. Task-supportive. Another affordance confined to mobiles relates to apps, which are “task supportive” on small screens and allow specific functions to be performed (Donner 2015). The functional simplification implicit in this makes it possible to operate relatively complex tasks in simple ways, which connect users directly to the specific microcosm to which the app relates. This, coupled with the ease to purchase and update apps through dedicated stores, enables affordances that were not there before.

In theory, then, the affordances of a mobile phone should provide a rationale to conceive the mobile Internet as a viable, and potentially empowering source of income generation. Yet, as we will see, Cornwall’s matrix problematises this.

Conceptualising empowerment: Cornwall’s matrix of change

In gender theories of empowerment, resource ownership is emphasised in terms of the link between possession of assets and assurance that women are and feel empowered. This link is reflected in the literature on ICTs and development: resource ownership, it is argued, is critical for women to be in control of technologies, and exploit the affordances that these retain. Indeed, the possession of assets yields effects that go beyond control of resources, and is capable of influencing the status and public perception of female owners in society (Handapangoda and Kumara, 2013).

However, recent literature shows concern about deterministic, simplistic interpretations of such a link. Contextual dynamics, in which subjects and their assets are embedded, may make the cause-effect relation more blurred than it seems, and result in the apparent paradox of resource ownership increasing dependency of women on their male counterparts. Besides, what is conceived as side effects (for example, shifts in women’s societal status) may actually be the core of the matter, resulting in deep transformation of gendered power structures (Oreglia and Srinivasan, 2015).

This led us to Cornwall’s (2016) revisitation of foundational feminist work, looking to reinterpret the notion of empowerment through its etymological meaning as shifts in power. It is the very notion of power that Cornwall problematises in the first place: drawing on Gita Sen (1997, p. 2), the dimensions of “control over resources (physical, human, intellectual, financial) and control over ideology (beliefs, values and attitudes)” are discriminated from each other. The distinction becomes relevant when theorising empowerment, as control over resources *per se* does not determine sustainable increases in women’s control of their lives: this has to be accompanied by shifts in consciousness (male and female), which determine women’s ability to maintain control.

Far from being reduced to resource ownership, empowerment is hence conceived by Cornwall as involving transitions in consciousness, as well as in the formal laws and cultural norms that regulate people’s lives:

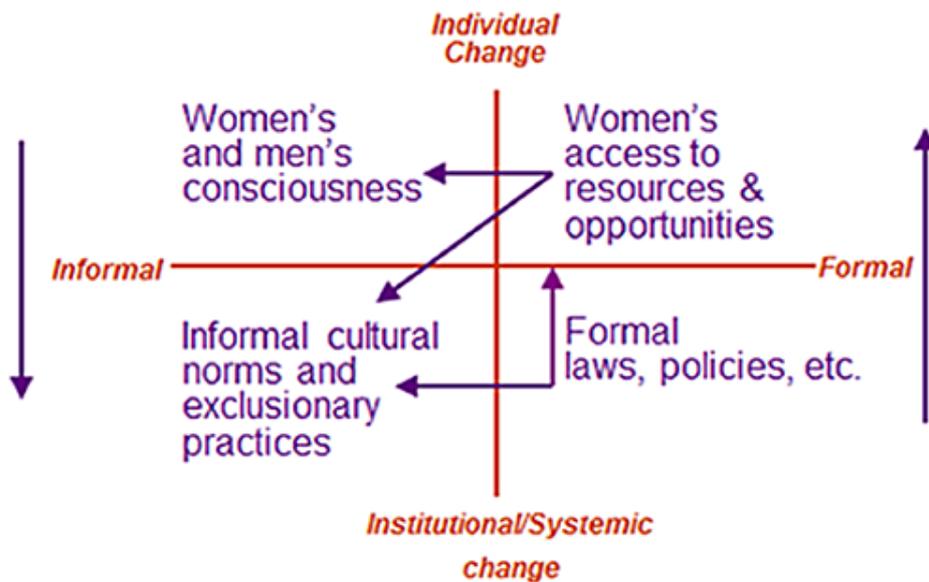


Figure 1: Cornwall's matrix of change (Cornwall, 2016)

Through Cornwall's matrix, we conceive income generation through mobile Internet as embedded in these layers of context, and observe the ways in which the affordances of mobile phones come alive in practice.

Empirical research

Research methods

This paper relies on primary research conducted in Ghana, Kenya and Uganda to understand the mobile Internet uses of first-generation urbanite youth aged 18-25, living in peri-urban areas, with an income of roughly under \$2 a day. In each country, we first undertook 10 focus groups, five with men and five with women, a total of 93 women and 105 men. We mainly draw on female perspectives here unless we bring in a male perspective for contrast. Each of the five groups focused on different themes – news, music, gaming, and two focus groups (oversampling) on skills and job-seeking, but in this paper we will specifically look at income generation. All the recipients had mobile devices (Androids) and access to the Internet (3G/wifi). We transcribed and coded all the focus groups (translating where necessary) and analysed in Dedoose, a coding software. Pseudonyms are used here.

As a particular form of narrative research (Riessman, 2008), focus groups allow the generation of narratives that map themes in response to a research question. Furthermore, in contrast to the standard one-to-one interview, they allow interaction across users, triggering new thoughts and discussions which allow the development of existing themes and the generation of new ones. It is for this reason that we sometimes include dialogue below. In focus groups, claims by individuals tend to be moderated by the group, hence reflecting how participants convert tacit thoughts into assertions made in a social context.

For a process-oriented question like ours, centred on the hows of income generation through mobile Internet, the in-depth interactive understanding offered by focus groups constitutes an ideal method, which allowed the creation of a rich narrative dataset. On the other hand, we also encountered the two biggest challenges of focus groups (Krueger and Casey, 2014) - first, the tendency for discussion and "intellectualisation" (as we will see) and secondly, the dominance of certain individuals, who then set the narrative of the focus group. For example, when we discuss whether men and women share devices or use phones for income generation, we cannot be sure that the discussions reflect actual behaviour because the

context may mediate the answers. However, for a broad insight across a large sample, focus groups were deemed most suitable and efficient yet insightful, as opposed to either one-to-one interviews or at the other end, a survey sample.

Findings

Affordances

Task-supportiveness, universality and personal use

Returning to Donner's (2015) framework, we first discuss the affordances of task-supportiveness, universality and personal use in terms of our focus group data. First and foremost, we saw clear awareness of the task-supportive nature of smartphones and mobile Internet. 20 year old Kwagala (female) in Uganda says: "smartphones help in terms of business; you can create a website and be able to get customers on that website. You can get your website and market your business. You can also communicate with people in different countries; those who are far. For example if you are here in Uganda, you can talk to someone who is in South Africa through WhatsApping. Yes, it is easier." Georgina, a 23 year old student in Ghana, says "you can develop websites and sell", while in another Ghana focus group, this conversation ensued:

Facilitator: What kinds of work might you do on your phone?

Ester: My mum uses her phone in contacting people to transact business with.

Patience: When I was in school, my mum used to send me money on my phone and I use it for transactions.

Ester: You can print out web pages that are useful to you work from your phone. Also, one can make a list on their phone.

Becky: You can also download useful information from the net like food recipes with your phone.

Becky: Some people use it to sell airtime to their friends.

Gifty: At times it is free

Afi: Some even become mobile money vendors using their phones.

Transacting in mobile money, becoming mobile money agents, task management, downloading information, are a diverse range of activities possible thanks to the nature of the mobile device.

However, there is one particular task which emerges as most popular in terms of income generation, which is advertising. 19 year old job-seeking Namugga (female) in Uganda says, "maybe I can advertise for you and you give me money".

Facilitator: Advertise?

Namugga: Yes and you give me money.

Namugga: Like in a way that if you are my boss and then you tell me that you know what Namugga, I want you to go and try to ask people to rank our bread. May be they join us and I am the one to do that.

Namugga: I can help do that for you and you give me money. Yah.

In Kenya, 23 year old Melanie, a hairdresser, says "I was thinking about arts and design, you can advertise your products online and if the designs are liked by people they are bought online".

The male respondents echoed this. For example, 23 year old Nampala in Uganda says "if you want to sell mineral water, you just take a snap and send or share, you can even have groups that you administer yourself, you know, you just send to your group members and say, guys am here selling mineral water, Rwenzori [brand name], it will be.....like at this place, you know, but using the other phones you have like tell them, halo, 'ndiwanontunda amaadi (I'm selling water)', box 'ya(Is)' this amount, you know". In the same focus group in Uganda, Kisame agrees: "like sharing information on WhatsApp is easy, like if am selling Rwenzori,

and someone asks for the sample, I just take a snap, after then, I send, which ...you can't do on these ordinary phones". Similarly, 24 year Azam, a Ugandan male says: "my auntie, she is a photographer, she can do video coverage, but she uses WhatsApp to find jobs. She takes a pic, any good pic, edit it, do everything, she sends it to the group and she can say, I do editing, I do video coverage, like on functions, weddings, introductions, birthday parties, like meetings, yeah she uses that, to get what, jobs".

In Donner's framework then, it is both the task-supportive and universal nature of mobiles and mobile Internet that makes them a good investment. Donner (2015) talks of "near-universal human needs and desires" - earning enough money to survive is the core of these, but this is entwined with "playing games, communicating, building business, taking photos, watching cat videos. The technologies [in mobile Internet] afford coordination (making calls, sending texts, participating on social networks), as well as consumption of media in the form of images, text, sound, and video (from cats and cricket, to pornography and pirated movies, there is something for everyone in mobile media)".

On the other hand, the focus groups also showed a discrepancy between potential and actual use for income generation. This echoes Donner's affordance of "personal" use. If we talk about individual user experience in the personal affordance, it seems that the male respondents had more direct experience of income generation use. In Ghana, male respondents referred to using mobile Internet for "pakapaka" and in Uganda for "byeyo", both meaning small jobs. Simon (Uganda) speaks of his experience advertising houses:

Simon: "With that, you get a sample of some houses you have and then put them on display on the Internet. So with that, people can have a look at them. For us we used Facebook some time when we were selling an apartment in dollars or Shillings. Yes. And if anyone wants a house, this is the contact. So people connect with you".

David in Uganda says "if I am dealing in cars and my customer is in Jinja, so I have to send to him a memo and other things like price of the car. Since I am using a smart phone, the message goes and I get an instant feedback. The negotiations will be done on phone".

Similarly, Senanu, a 19 year old job-seeking graduate, says: "I am into like this video editing ... wedding programs, wedding invitation, I do it for them like it's in a form of video so I use my mobile phone. And I have this app, I have [put] some of the jobs that I do like the video editing on OLX so that is where people call to find out how I go about it".

These narratives reveal diverse implications of mobile Internet in income generation, to be connected with Donner's affordances. In particular, universality (allowing to reach a big number of potential users) and the task-supportive nature of mobiles (using apps to deal with specific tasks) are integral part of how income generation occurs.

On the other hand, women see the potential, and substantiate it in their discussion. But in the data collected from the focus groups, there is less evidence of use of mobile Internet by them, either to earn a living or to find work:

Kenya female facilitator: Okay, someone else do you know other people who use digital technology, to find work? Linda?

Linda: No.

Kenya female facilitator: You don't know of people or friends who use digital technology to find work?

Linda: I do but I don't know how they do it.

There could be diverse explanations to such discrepancy. For example, it is possible that there is some confusion about the use of Internet, even though use of social media could relate to job-hunting more indirectly. Kirabo, a 19 year old job-seeking woman in Uganda says: "now like my life, you find that I take very long to load airtime to make a call. It is very rare. You are going to find that in most cases me I just load MBs and I am going to go to Facebook, I am going to be on WhatsApp and all over, [participants laugh] You are going to be on Facebook as you go to Internet and you are going to find that there are people

advertising jobs, you are going to see those groups and may be you like them and may be they help you get the job. Even our own friends, yah. You can chat through WhatsApp like; “What are you doing? What?” and then they can help you”. This goes back to Donner’s point about the blurring of “lives” and “livelihoods”.

Income generation therefore may be a lengthy process, preceded by online acquaintances and friendships first. The Kenyan facilitator asked the female group: “How is technology helping you and other ladies find jobs and skills enhancement? Is technology in any way helping you enhance skills and find jobs?”

Nyambura: Maybe through experiences of other people in the Internet.

Facilitator: So like how do you get to know about the experiences in the Internet?

Nyambura: You may chat even if you don’t know each other face to face then they may tell you the experiences then you start from there.”

Cost determining use

Cost was mentioned as a concern by all participants but a) considered a necessary price to pay and b) most of the participants had ways to negotiate costs. “Nice mobile phones are expensive, nice smart phones are very expensive” (Nakazzi, a 23 year old job-seeker woman in Uganda). This is one of the reasons cost determines use.

A gendered lens on “personal” affordance

On the topic of the “personal” and portable affordance of phones, Donner (2015) states “while mobile devices can be shared, the norm is that they are not. As mobile devices gained data connectivity, applications and services taking advantage of personal ownership and intimate, private moments of use became common” (Donner, 2015). In our focus groups, we saw evidence of this amongst men. In our Uganda focus group, for example:

“For the torch phone [basic phone], I can give it to my young bro [brother] and he can use it for may be calling and music and full stop. But here [on smartphone], the moment you mess up something, it is gone [stops functioning]”.

Latif: And if I give this phone to a young kid [child], he or she may just delete information.

Facilitator: I am not talking about sharing with kids.

Latif: Yah, sharing with other people.

Another male respondent comments: “in this globe we are living in, we have to grab things before they are taken. You can’t really find time to share a phone with someone”. Sharing the phone, then, means potentially losing an opportunity. It’s the very timeliness, portability and individuality of the phone (it belongs to YOU, a call or email about a job will come through to only you) that makes it precious and perilous to share (and also goes back to the entrepreneurial nature needed).

In contrast, in the female groups, we heard these conversations, where it seemed that women unlike the men, were more willing to share their phones (and therefore potentially less instantly responsive, or did not feel that urgency, as men):

Facilitator: Is sharing devices common within your friends and family networks?

Chorus: Yes.

Facilitator: I mean sharing these devices we are talking about; the phones

Chorus: Yes.

Facilitator: Sure?

Chorus: Yes.

Facilitator: Do you always share them with your friends and family members?

Chorus: Yes (Uganda female focus group)

In this conversation (also in Uganda) we heard:

Nabirye: "For me I say yes. You may find that may be your mum does not own a phone and she has got a problem. Each one of us has people may be to care for, people you care about more, eeh? You may find that may be she is having some person there sick when I am the only one having a phone. There I have to help her with my phone to call those people." This relates back to the argument that women primarily use phones to maintain relationships (Rakow, 1992 cited in Zainudeen et al 2015).

Naigaga: Even me yes, we can share the devices at home because I sometimes do not have MBs on my phone and I say; "Dad, help me with your phone." If he is not using it, he will give it to you. And sometimes when he is not using and he wants the MBs to game, then he just gives you and then you use. Then some other time may be when my brother wants to listen to some music, he can say please give me your phone. Like that. So it is good to share." (Uganda)

However, here, we should also relate back to the caveat discussed in the methods section - speaking in focus groups which may mould a majority narrative.

Empowerment

Returning now to Cornwall's matrix and its quartered lenses, if we start with the top right of the matrix, it is clear that our female respondents in Ghana, Kenya and Uganda had access to devices and opportunities for income generation. All those in our focus groups were selected *because* they had devices with mobile Internet. In the 18-25 year old bracket, these young, urban women were independent and did not mention restrictions by any males on their use. The majority had heard of those who had earned money by some means, while others had some evidence themselves of doing so, or of using mobile money, which would help in earning an income through mobile phones. Yet while more of the men had used mobiles and mobile Internet to earn money (or stated that they did), the majority of women had not. We could argue that this might be influenced by the format of focus groups where women and men shaped their answers in particular ways, but there were also interesting themes which emerged which we will discuss here.

Moving from the top right - access to opportunities and resources, while this was possible in our groups (although we appreciate that it is not for the majority of women in developing countries) - what we find more problematic is the change in women's and men's consciousness, and the bottom left - informal cultural norms and exclusionary practices. Discussing the change (or lack of change) in consciousness, we encountered quotes such as:

Andrew, Uganda "I have a young sister of mine; when it comes to time of playing games on phone; she even forgets cooking. So, we are like; "tetuulye?" ["won't we eat?"]"

Here, phone use is equated to mainly playing games. Sey and Ortoleva (2014) state that "each medium, as a historically defined media system, generally embodies a myth or series of possible myths and values" (p. 9) - it is of course entirely likely that Andrew's younger sister was playing games, but the challenge is that if the phone or mobile Internet is equated with entertainment (from a historical precedent), job-searching or income generation may not be encouraged or supported.

Another prejudice voiced was that of women not wanting to learn:

Amina: "mostly guys will always like to learn something new on their phones or laptop can do but women we don't mostly explore what can my laptop or phone can do that I don't know but men explore to."

In a male Ghana focus group, when the question was asked if: "do you think technology is helping your female friends get jobs or improve their skills? Your female friends, your sisters, your relatives, do you think technology is helping them find jobs or improve their skills?", the answer was "ladies don't like searching".

In another male focus group, the question was answered with “they are scared of like the typing. Some of the ladies are scared of the typing and the searching. If you give your phone to a lady to search something for you, it’ll take like two hours before she’ll get there”.

A third problematic consciousness blends with exclusionary behaviour potentially being encouraged - in Ghana, Kumian (female) says:

“Even if you are restricted to the kitchen and you can read and write you can make your home a happy place... check out how to turn pineapple and make your husband happy that day. The same with fashion, if you are a fashion designer, you can do a lot”.

Another male respondent states: “some women are very shy hence may find attending seminars and workshops uncomfortable. Therefore they can sit in the comfort of their homes and learn what they want to learn without having to meet people and being under pressure. Beside, having people around can affect how fast you can learn”.

Yet these issues - while optimising Donner’s affordance of the personal and portable nature of mobile Internet, also situate it within the home context, without changing the overall context, as argued by Masika and Bailur (2015) and Thi Hoan et al (2016).

A final “consciousness” challenge is related to the cost and perceived risk of damaging the device:

Millicent: I will say it is expensive for a Ghanaian child to explore because if you explore and it get spoilt where are you going to get money to buy.

Facilitator: But the boys are exploring!

Millicent: Boys do something to make more money but we ladies we mostly depending on our parents.

Georgina: I think for a guy who doesn’t have money, he doesn’t even mind damaging the device for the sake of exploring

Fafa: It’s a culture, women don’t have daring attitude

Millicent: You know when you are at home and you spoil a blender. You mom comes, your mom will ask you are you okay, you spoil, you will see if I will give you money today.

Fafa: The same with the guys

Facilitator: is it that care if they spoil it or not?

Fafa: Guys are not put off by the threats.

All respondents: Yes

Georgina: I think it’s is seriously come down to culture. In Africa as a whole but let me come down to Ghana. The whole society is patriarchal society, the whole society is so much male dominated. Everything is about men. They should school etc. Women are now coming up gradually. For instance me, I’m now trying to break out of that shell.

Amina: Naturally we undermine our ability.

Kumian: Come to think of it women are more inquisitive, why are we not inquisitive when it comes to technology.

Millicent: I will still say when it comes to technology we are still afraid to spoil something

Georgina: The question is why are we afraid?

Kumian: Who will buy it for you again? It's the guy or your mom.

Georgina: Even the guy who doesn't have anyone to buy it for him, is still not afraid. Even if it is thousand times expensive, he don't mind spoiling it. Like my kid brother.

Amina: We don't know the use of some of the devices but we have and we don't want to explore

Kumian: We don't want to spoil it. That is it.

These interactions, particularly Georgina and Fafa's comments on patriarchy and culture ("women don't have daring attitude") show both the individual and systemic challenges. At the same time, we see lack of change for formal laws and policies - for example, subsidised phones, free or subsidised courses encouraging women to earn through phones, or other.

In conclusion, then, comparing and contrasting Donner and Cornwall's frameworks, we find that while the affordances of mobile device exist for both men and women, translation to empowerment is more problematic. Notwithstanding the discussions in literature so far on skills, literacy, digital literacy and so on (which we do not underestimate here), there are also challenges to women's and men's consciousness as well as informal (sometimes self-generated?) exclusionary practices.

Discussion

Our analysis has shown that affordances of mobile Internet for income generation exist for both women and men in our sample groups in Ghana, Kenya and Uganda. However, firstly there is a difference between awareness and actual evidence (compounded by the research method of focus groups - observations of use would have helped clarify this). Secondly, this does not directly lead to empowerment for the young women in our focus groups. Articulating the analysis along Cornwall's matrix, we have observed that change does occur with respect to access, but this does not translate into change on formal laws and policies or internal consciousness - both for men or women. Some limited change is built around informal norms and exclusionary practices, but that seems not enough to achieve the structural change that Cornwall finds as the basis of empowerment. This echoes the arguments made by Masika and Bailur (2015) and Thi Hoan et al (2016) around adaptive preference and patriarchal bargaining - the limited agency which is negotiated to navigate patriarchal systems.

Traces of essentialisation emerge in our findings - as also seen by Thi Hoan et al. in the Vietnamese new wives living in Singapore and by Masika and Bailur (2015) in Uganda and India - reinforcement of cultural stereotypes by women and men - that women don't like searching online, or are afraid to learn in public. A third issue is with the technology itself - as in Sey and Ortoleva (2014), "each medium embodies a series of myths and values". These can be plied to the objectives of the dominant groups in a society - hence limiting the actualisation of affordances implicit in the mobile Internet.

The paper hence makes a twofold contribution, which is both explanatory and normative. On the explanatory side, it provides one possible rationale for the gap between access to mobile Internet and lack of empowerment. Narrative data (Riessman, 2008) from focus groups allowed us to unpack this: the narratives we have analysed reveal (in the focus group context) the construction of stereotypes around mobile usage, and their contestation in the interpersonal space. They also reveal the inaction so far of governments on formal laws and policies on gender and mobile Internet access and use and lack of training on behalf of private companies. As 23 old Winston said in our research "not everyone can be able to operate a mobile phone, there are some who have never used at all, so when it comes to the smartphone it's expensive for them to buy so for the future I think the companies can be able to provide education sessions for people who can't operate the phones". All these elements are building blocks of the answer to why affordances of mobile phones are not translated into empowerment.

Limitations, Further Research and Conclusion

In their introduction to the GRACE project - cross-national gender and ICT research across Africa - Buskens and Webb cite Amartya Sen: “nothing, arguably, is as important today in the political economy of development as an adequate recognition of political, economic and social participation and leadership of women”. At the same time, they cite his words: “the extensive reach of women’s agency is one of the most neglected areas of development studies, and most urgently in need of correction” (1999, p. 203, cited in Buskens and Webb, 2009, p. 7). Technology today, particularly mobile phones and mobile Internet, has great potential for women as we see in Donner’s affordances (2015), but not being gender-neutral, cannot itself guarantee empowerment in the way Cornwall (2016) perceives it and in fact can reinforce existing male-dominated socio-cultural structures, internalised equally by women (Chib and Chen, 2011). While we did not hear of outright restriction of devices by men in our sample groups, what we did see was lack of knowledge and lack of belief by women in terms of income generation. With increasing access to devices, cheaper access, wi-fi as well as more integration of mobile money, women have many opportunities to use mobile Internet for income generation. Sources of income clearly remain non-digital for the majority of the world, but this may be changing for a young, entrepreneurial, newly urban demographic who in terms of technology are either mobile-centric or mostly-mobile such as our sample.

We recognise there are many limitations to our study. First, methodological - as mentioned above, in focus groups, we could not probe deeper into respondents’s specific answers and their rationale. We also did not know more about the respondents’s background other than gender, age and self-reported employment status, which would have helped contextualise their comments. We did not analyse the difference *between* countries - was the path from affordance to empowerment shorter or longer in Ghana, Kenya or Uganda? We are also mindful of Currie and Vernoooy’s (2010) point that gender is relational, and interlocked with class, caste, race, ethnicity, and other hierarchical relations. We did not here discuss the difference *between* the women we talked to. As Asiedu (2011) states “when gender issues are defined in terms of male/female, it is assumed that barriers to ICTs faced by women have to do largely with their gender rather than their gender intersecting with their class, ethnicity and social position (p. 1206). A follow-up research method would interview these women in their families and networks. Finally, observation and/or participant observation would have triangulated responses - were some respondents actually using their phones for income generation but not mentioning it in the focus groups, and vice versa, were some mentioning it but not active themselves? All these points should be explored in further studies.

This leads to the immense possibilities for further research in gender and income generation through mobile Internet. What are the kinds of jobs that are carried out through mobile Internet by women who are mostly-mobile or mobile-centric? What kinds of income ranges do they lead to? What protection (legal, financial) do these women have? Should income generation through mobile Internet, e.g. social media, be regulated and in fact, can it be? Regulation may stifle innovation and creativity, and income in most cases is likely to be sporadic and small, and women would want to keep this money for themselves. What is the relationship between mobile money and income generation through mobile Internet only (i.e. women who cannot afford desktops or do not have an office job). What does a women’s Digital Day (borrowing from Caribou Digital, 2015) look like - what mash-up of devices, networks and tasks are being executed throughout the day in lower-income countries? This would be especially interesting in terms of the peak times of use for income generation by women – is it when the children are at school? Early morning? In addition to being a useful insight in itself, how can these data be helpful and to whom (to NGOs but also advertisers for example)? Other questions abound - given that the “mobile web” is likely be more image rather than text-centric, restricted by screen size and on screen keyboards, what implications will this have for women earning money? Donner (2015) voices his concern that the mobile-centric or mobile-only web may be a “restricted production scenario” where consumption is the focus rather than production. What implications might this have?

We therefore see our research as initial and exploratory, but with three major contributions. First, in juxtaposing lenses of Donner’s affordances of mobile Internet and Cornwall’s matrix of empowerment to gender and mobile Internet. Second, in doing so through focus groups,

which notwithstanding limitations, illustrate how narratives (and stereotypes) are co-created and contested, and feed into the non-translation of access into changes in consciousness. Third, we introduce and analyse as yet scarce empirical data on mobile Internet use by both young, newly urban men and women living under \$2 a day in Ghana, Kenya and Uganda. While we cannot purport to generalising from this data, we do think they provide interesting insights which illustrate that affordance itself is insufficient for empowerment. Yet, we end with Mosedale's point "empowerment is an ongoing process rather than a product. There is no final goal. One does not arrive at a stage of being empowered in some absolute sense. People are empowered, or disempowered, relative to others or, importantly, relatively to themselves at a previous time" (2005, p. 244). With increasing mobile and mobile Internet access, it may be that women have the opportunity to empowerment "relative to others or ... relatively to themselves at a previous time" thanks to the affordances of mobile Internet (Donner, 2015) but only when all quarters of Cornwall's (2016) matrix are addressed.

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