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DO MOBILE PHONE-ENHANCED NETWORKS EQUALLY BENEFIT MEN AND WOMEN?

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Abstract

Mobile phones present opportunities to expand engagement with wider social, economic and governance networks, in the context of broader development aims. Networks in themselves represent flows of information, socio-economic interactions and transactions increasingly mediated by ICTs. But do they present the same opportunities and benefits to men and women? What inhibits and enables effective engagement? This paper addresses these questions in relation to urban street traders in Kampala, Uganda, exploring their perspectives to establish the extent to which networks expand opportunities for poor women. It looks at their potential and argues that situational and contextual factors rooted in individual circumstances and choices, multi-dimensional forms of poverty, and historical, socio-political and economic conditions, shape outcomes in complex and contradictory ways.

Keywords: gender, capabilities, networks, mobile phones, entrepreneurs

Introduction and background

Mobile phone-enhanced networks are an important research area for scholars interested in mobile technologies and their social impacts, as evinced by continuing scholarship in the area (Carrasco, Hogan, Wellman & Miller, 2011; Smith, Spence & Rashid, 2011; Donner & Escobari, 2010; Abraham, 2009; Overa, 2006; Horst & Miller, 2005). Mobile phone-enhanced networks encompass a range of relationships with structural, relational, technological and socio-cultural properties framing transactional benefits and opportunities to expand engagement with wider social, economic and governance systems, in the context of broader development aims of greater equality and poverty alleviation. Yet inequalities in the dynamic processes of these networks and their implications for different groups are still poorly understood.

Ubiquitous mobile phone-enhanced networks provide a useful reading of evolving digital realties as the expansion of mobile phones in African countries has been remarkable in terms of speed of adoption and spatial penetration (Porter, 2012). Convergence of information and communication technologies (ICTs), such as radio, TV, computing and mobile telephony means that mobile phones have provided low-income groups access to electronically mediated information and communication (Ling & Horst, 2011). Mobile phones offer a technological platform for new modes of interaction that build new or enhance existing networks, but are also iconic of a larger socio-technological shift towards a new personal communication society (Campbell & Park, 2008). This shift is a consequence of mobile phones' symbolic meanings, new forms of coordination and social networking, personalisation of public space and emergent mobile phone cultures and practices (*ibid*). Studies have shown that mobile phones practices can facilitate the evolvement of new habits and attitudes that blur gender differences (Lemish & Cohen, 2005) and advance new freedoms for women (Murphy & Priebe, 2011).

Attention has turned to mobile phones in emerging countries because of the promise of economic and social transformations of poor countries and individuals and investments in mobiles for development are an increasingly important part of development initiatives. Studying socio-technological practices to develop knowledge about social institutions, structures, activity, processes and functions embodied in m-development provides useful insights into how development can harness the benefits of mobile phones. In what is increasingly referred to as the digital age, new, variant and diverse digital identities - the construction of self and ways of engaging with others through digitised media - are emerging that are not fully understood and theorised. These reworked identities and ways of engaging warrant further investigation.

Observing agency and capabilities (Sen, 2010; 2009) with mobile phones provides a normative conceptual reading of what people can be, do and achieve. An investigation of the mobile phones, agency and gender relationship establishes the extent to which men and women benefit from networks enabled by mobile phones. Informed by a critical social theory stance, the capability approach deepens understanding of mobile phone practices. Particularly, critical social perspectives on values, identities and emancipation from restrictive norms that illuminate social practices. Critical social theories encompass a range of perspectives (Foucauldian, Gramscian, Marxist, feminist etc.), but in general are concerned with advancing emancipatory outcomes for disadvantaged groups by applying critique and advancing alternative social arrangements. They are informed by a worldview of relationships between social systems and individuals and how they co-produce each other.

The literature to date has thus far viewed the gender, agency and mobile phones relationship from different standpoints with mixed conclusions as to the extent to which mobile phones empower and liberate or subordinate women (Chib & Chen, 2011; Wallis, 2011; Buskens

& Webb, 2009). Development perspectives have focussed on access inequalities, realising empowerment and more equitable development outcomes for women and complex impacts on women (Chew, Levy & Ilavarasan, 2011; Chib & Chen, 2011; Burrell, 2010). Women's reported lower access to and usage of mobile phones, and therefore potential for empowerment in some countries has been attributed to their unfavourable conditions with respect to employment, education and income (Hilbert, 2011). The mutually constitutive relationship between gender and technology embedded within socio-cultural contexts also means that there are no guarantees of empowerment through mobile phones (Wallis, 2011), as has been illustrated by numerous cases studies in Africa (Buskens & Webb, 2009) demonstrating how unequal gender relations are challenged and reaffirmed through mobile phone practices. Thus social construction of technology perspectives (Bijker, 2010) are helpful in having emphasised the social shaping of technology and how mobile phone representations, practices and use disrupt and reinforce unequal relationships between men and women (Wallis, 2011; Murphy & Priebe, 2011; Shade, 2007) and the interpretive flexibility (Bijker, 2010) with which men and women attach to mobile phones.

The research discussed in this paper builds on prior work on gender and mobile phones and contributes to the ICT4D agenda by exposing the complex processes around mobile phone-enhanced networks using data from a survey, focus groups discussion and interviews of street traders in Kampala, Uganda. This paper is structured in five parts. In the first section I discuss network capabilities before introducing my framework. In the second section I discuss my methods followed by my discussion of the research participants' context in the third section. In the fourth section I present and discuss the findings and discuss implications for policy, practice and further research in the fifth section.

Network capabilities

Networks are configurations of relationships. In socio-economic analyses networks are regarded as socio-economic interactions that enable status attainment, coping strategies, social capital and collective action (Meagher, 2005). Benefits of networks are well understood; they present opportunities for connectedness, cooperation, social exchange and accumulation (Palackal et al; Meagher, 2005); and are increasingly mediated by ICTs. Socio-economically oriented network analysis in the digital age describes the structure and patterns of relationships, and seeks to understand both their causes and consequences. Generally, networks have four broad types of characteristics: structural and dynamic, relational, technological and socio-cultural properties.

Structural and dynamic properties of networks entail structural typologies such as boundaries, social connectivity and social units. Structural facets comprise actors called nodes (individuals or organisations) and ties (relationships between nodes). Networks such as family systems, friends and work teams have clearer boundaries and are referred to as proximate networks in this paper. However they are also embedded in wider webs of social relationships within broader social, economic and governance systems (Smith *et al*, 2011) which I refer to as wider networks.

Networks have relational properties that reflect the nature, importance and significance of social relationships embodied in the linkages and ties. Social relationships are behaviours and actions between actors with inter-subjective meaning, expectations and transactions. Transaction content typically includes resources (material goods, socio-economic interactions, people and services), information (descriptions, opinions, ideas and facts), influence (power, prestige, legitimation and advice) and social support (comfort, encouragement, inspiration and

strengthened emotional intensity of ties). Granovetter (1973) considered weak ties to be important structural bridges to effective spread of resources and information. He defined strong interpersonal ties in terms of time and emotions invested in a relationship as well as reciprocity involved between actors (e.g. friendships and familial relationships). In contrast, weak ties have limited investments in time and intimacy (e.g. acquaintances).

Technological properties include platforms and interfaces such as the internet and mobile phone devices that facilitate and enable relationships. They also include technological abilities and skills embodied in their use such as digital and information literacies. Technological properties also exemplify knowledge in so far as know-how, what people do, their skills, methods, procedures and routines and techniques, methods and systems of organization.

Socio-cultural properties of networks encompass socio-cultural patterning of relationships (norms, values, habits, roles and identities). Social networks are composed of the mingling of cultural expectations, identities and social groups that determine the interplay of structure and meaning. Social categories such as gender and cultural groups map and structure social networks (Fuhse, 2009). Gender presents different opportunities that affect transactions directly, by making certain transactions likely and others unlikely (*ibid*).

This paper addresses all four characteristics, but is primarily concerned with socio-cultural characteristics of networks and their implications for two kinds of structural networks, proximate and wider webs of relationships. It focusses onthe social attributes of actors that relate to their attitudes, opinions and behaviours and how interactions (network relations) place some actors in less powerful or unfavourable positions within networks. Typically when proximate and wider networks are facilitated by mobile phones through technological mediation, they may be regarded as mobile phone-enhanced networks.

Conceptualising network capabilities enabled by mobile phones

Network capabilities may be regarded as the real opportunities for being and doing in relation to networks. This conceptualisation draws on Sen's (2009; 2001) notion of capability. Sen (2001) establishes that the evaluative focus of the capability approach is twofold. First, realised functionings relate to what a person is actually able to be, do or achieve with regard to what they have reason to value (valued achievements). Second, capability is the alternative combinations of functionings that are feasible for an individual to achieve (real possibilities or opportunities). Capability is conceptually associated with freedom, choice, skills, abilities, and resources. Network capability implies the exercise of agency in pursuance of valued goals. "Sen argues that agency - a person's ability to act upon what he or she values and has reason to value - is intrinsically valuable, instrumentally effective in reducing poverty, and of central importance" (Alkire, 2008 p.2).

ICT-enabled networks are seen as altering users' capability sets through changing their positions relative to accruing development resources in two ways (Smith *et al*, 2011:78): "increased access to timely and/or relevant information, and expanded possibilities for connectedness between people". Network capabilities are important for both the resources embedded in them and as a pathway to benefits of wider networks. Smith *et al* (2011, p.78) usefully categorise these wider networks as: (1) social networks, vital towell-being, survival and security, particularly for the poor (2) economic networks, including those connecting citizens and financial institutions, expanding market boundaries and improving supply chains, and (3) governance networks that increase access to government services, political mobilisation, election monitoring, early warning systems and crisis management, which include voice, political participation and civic engagement and which I reframe as political and governance networks.

Scant attention is paid to network capability processes and dynamics that underpin participation in mobile phone-enhanced networks and the extent to which inputs and outcomes of this engagement are gendered. Sen's capability approach provides a useful starting point for conceptualizing and examining these dynamic processes, but is insufficient for exploring the gendered social construction of values, identity and emancipation from restrictive norms that are important for evaluating the extent to which mobile phone-enhanced networks are gendered.

The framework

Drawing on the capability approach and a critical social theory stance on capability, I developed a novel analytical framework of the contextual and situational elements of network capability (see Figure 1) to explore the dynamic processes of mobile phone enabled networks. Four interrelated sets of dynamic elements differentially influence men and women's engagement with, use of and benefit from ICT-enhanced networks: resources, capabilities, agency and functionings.

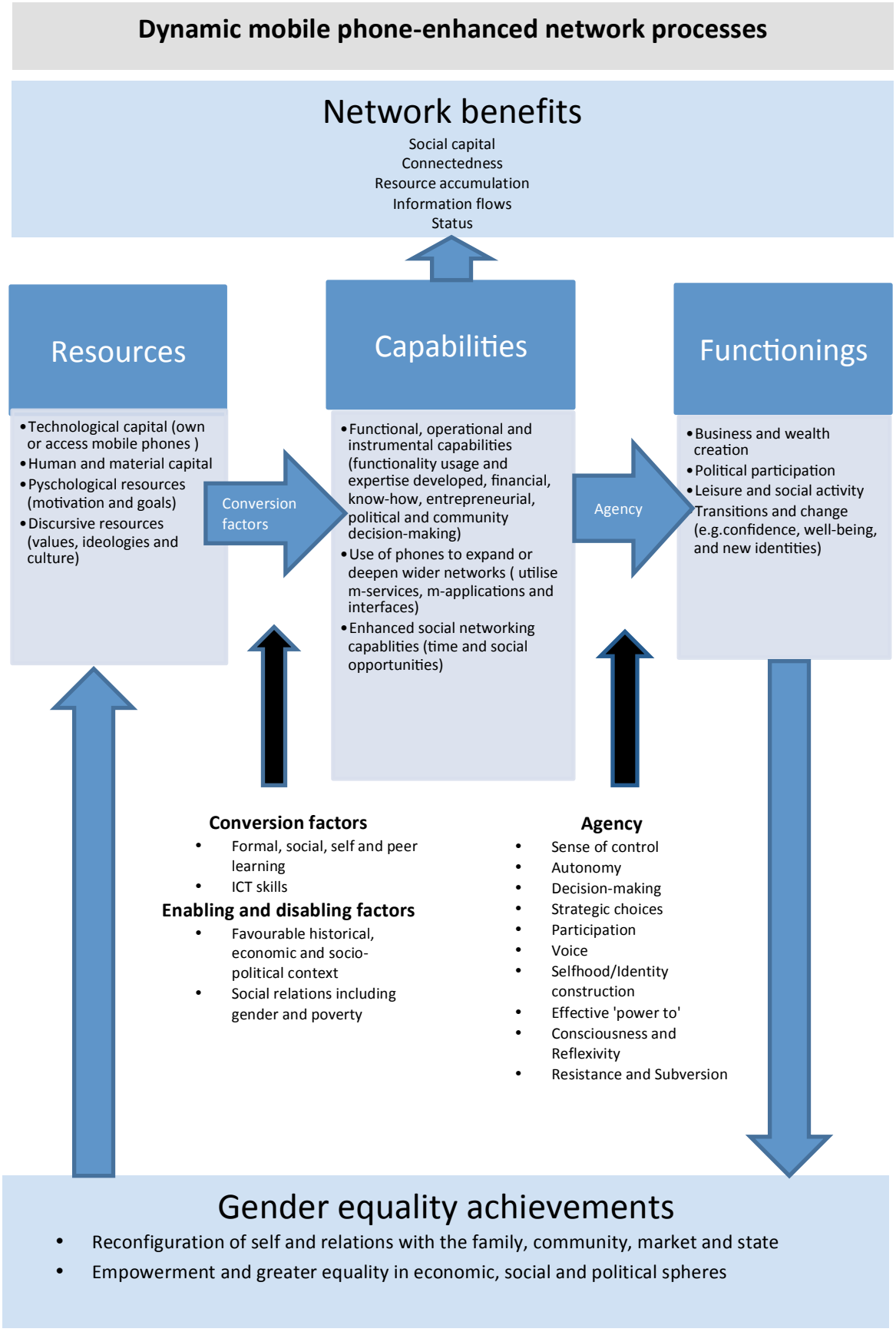
Network resources are precursors to network capabilities. They include technological (ownership and access to mobile phones), human and material (education and financial (cash, savings and access to credit), psychological (motivations and goals[1]) and discursive (culture, ideologies and values) resources that frame access to and effective use of mobile phone-enhanced networks. Values draw attention to the meaning and construction of networks and how gender ideologies and discourses embodied in cultural practices are part of the "deep structures [that] operate behind the backs of actors influencing their views and preferences" (Geels, 2010, p.497) of networks. Values underpinned by identities frame individuals' goals and motivations

[1] Psychological factors may be regarded as the perceived characteristics, popularity and need for mobile phones (Wei and Zhang, 2008) and the networks they enable.

for network mobilisation. Identities – constructions of self through self-positioning and self-concept – are inflected by gender (Baston-Savage, 2007; Ling, 2001) framing the terms of engagement within networks and the nature of transactions involved. Positionality emphasises gender as a construct shaped within particular discursive contexts that give rise to a fluid matrix of practices that form an individual's gendered subjectivities. Thus a woman's position within economic, cultural, political, and ideological networks will shape her understanding of herself as a woman, her ability to exercise autonomy and agency (Wallis, 2011) and her real opportunities to convert resources into capabilities and benefits (Grunfeld, Hak & Pin, 2011; Robeyns, 2005).

Network capabilities refer to functional, operational and instrumental capabilities of individuals associated with network involvement, rather than how the term is used by technologists to refer to the technological functionalities, instruments and operations of networks. They cover ability to use mobile phone functions and applications, skills, financial capacities and enhanced capabilities afforded by mobile phones such as business, political and social networking capabilities. They present opportunities for individuals to realise what they value through networks.

Figure 1: The Framework



Agency here refers to Sen's (2009) notion of agency freedom as an individual's ability to bring about change and those achievements one values. In this context, agency encompasses the ability to use mobile phones and associated networks to advance whatever goals and values a person has reason to advance. Agency takes different forms (Alkire, 2008; 2005; Lister, 2004; Kabeer, 1999) such as choices, voice, participation, manipulation or resistances and is exercised strategically, tactically (practically or pragmatically) or discursively with differing consequential outcomes (transformative shifts in power relations or not). A social critical theory stance illuminates how different types of agency are exercised in relation to positioning and how social relations position women unfavourably in relation to the consequential power outcomes of their agency.

Network functionings are achievements derived from engagement with ICT-mediated networks. They include user-generated functionings, achievements they value and broader achievements envisioned by development policy makers, planners and practitioners such as poverty alleviation and gender equality achievements. Emancipation perspectives advance that dimensions of women's powerlessness are multi-faceted and increasing their freedoms is complex (Green and Singleton, 2007). Dialectical tensions exist in how women are disempowered through their own gendered subjectivities, societal restrictive gender norms and alienating practices within ICT-enhanced networks and how their freedoms are also increased through subjectification[2] processes involved in the creation of new modes of connecting to the self and others and new ways of experiencing enabled by ICTs.

Together these constitute the individualised situational and contextual factors that frame men and women's access, use of and benefits from mobile phone enabled networks. The

[2] Subjectification happens in the ways in which individuals are able to recognise themselves as subjects of a particular discourse or set of practices (Foucault, 1990), such as gender discourse.

framework takes into consideration these contexts in relation to network benefits (social capital, connectedness, resource accumulation, information flows and status), conversion factors (learning and ICT skills) and an enabling environment (favourable historical, economic and social political context). I argue that using this analytical framework drawn from diverse theoretical perspectives provides a conceptual map and more holistic understanding of network capabilities.

Methods

The study aimed to explore differences in men and women's access, use and perceptions of mobile phone-enhanced networks. Urban street traders in Kampala provided a rich study context as they were early adopters of mobile phones providing a reasonable time lag to establish outcomes, and they are prominent on the streets of Kampala where up to 60% of urban employment is estimated to be the informal sector (Skinner, 2008:7) with over 50% as market and street vendors (Stevenson & St-Onge, 2005:xviii). Participants were all street traders working in 3 busy streets surrounding St Balikuddembe market in the central business district of Kampala.

Data was collected 2011-12 applying quantitative and qualitative methods to generate detailed evidence on mobile phone use, capabilities and functionings. Survey method and focus group discussion (FGD), involving both men and women, and in-depth interviews with six female street traders also survey participants were conducted for this study. A sample of 102 street traders was randomly selected, applying systematic criteria of every 3rd male and 2nd female selected. Questions solicited socio-demographic information and also covered access and use of mobile phones, values and benefits, participation in social, economic and political mobile-

phone enabled networks, outcomes of use and its gender impacts. The FGD and in-depth interviews served to illuminate individuals' mobile phone use and their perceptions of men and women's use more generally. The survey, FGD and interviews were conducted in Luganda and translated and transcribed into English.

Quantitative and qualitative data were integrated through conceptual theme mapping corresponding to the elements of my analytical framework which had been informed by a pilot study, key informant perspectives gathered during visits prior to the main fieldwork and relevant literature. Data were initially analysed in an explorative, iterative and dynamic manner. Closed survey responses were analysed statistically (descriptive) and open-ended questions both coded for statistical and thematic analysis. Interviews, FGD and open-ended question data from the survey were coded under the conceptual categories (or elements) of my framework.

Background and context of the research participants

Most research participants (59%) were commuters living outside Kampala. Research participants represented 14 Ugandan ethnic groups and also included one refugee from the DRC. Approximately half were from the dominant Baganda ethnic group. Ethnicity plays an important role in shaping behaviours and ways of life and different ethnicities have different socio-cultural practices and models of gender relations. Within most ethnic groups, women are still regarded as property by their husbands owing to bride price and, men have control over women's lives, including their time, access to information, training and ICTs and participation in politics and social groupings. Preference for sons limits opportunities for girls and deeply rooted socio-cultural attitudes lower the status of women. Kinship based systems are an important traditional social security system through which resources are mobilised where extended families provide

money and material goods (Kasente, 2006), and are organised along historical social relations of production and reproduction that privilege men.

Gender ideologies are illustrated by the traditional exclusion of women from owning land (Lange, 2003) and assumptions that women cannot do what men can which are entrenched by traditional customs and norms. While statutory laws make provisions for women's inheritance and ownership of land and other assets, customary practices pervade and many women are unaware of their rights, and so lose out. Cultural practices, lack of access to formal financial institutions, and time constraints because of family and household responsibilities are key barriers to women's entrepreneurship and productivity (Stevenson & St Onge, 2005). Escaping poverty is harder for women owing to gender inequalities in the household, community and the market which limit women's income-earning options and access to education (Kasente, 2006).

Research participants ranged from those describing themselves as having no education to graduates, with 48% having an education level equivalent to 7 to 9 years of schooling. Historically, the Ugandan informal economy has comprised individuals with low educational attainment, but with the expansion of university education and high graduate unemployment, increasingly more graduates are resorting to street trading. Most of those surveyed (70%) were aged 21-35.

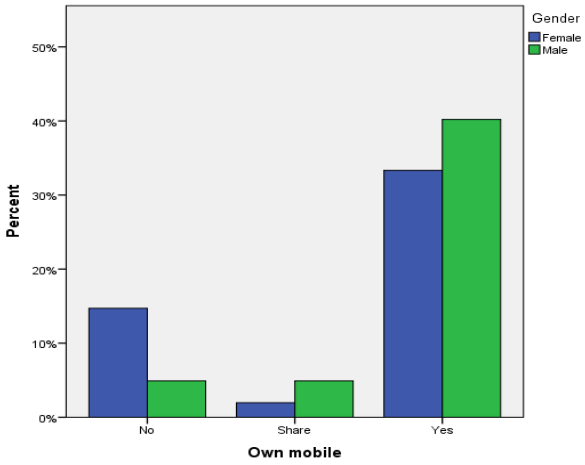
In terms of employment mode, 18% of the research participants were peddlers and 82% stationary roadside sellers. The main trading activities of the participants were electronic, non-consumable and perishable goods, services and transportation. Transportation services were only provided by men (31% of men's activity), and largely women dominated the sale of non-consumables (see Table 1). Street-trading activities are still largely gender segregated, but women are entering sectors formerly dominated by men and some men are entering previously

female domains such as preparation and sale of food and hair styling (Lange, 2003:1). Generally, female traders have fewer available sources of capital, start with very small amounts of capital, and are more motivated by generating income to meet their family responsibilities than by the commercial potential of the enterprise (Synder, 2000). Most women-owned enterprises are informal and unregistered (Stevenson & St-Onge, 2005). Women are more likely to be involved in trade-related rather than manufacturing-related parts of the informal economy because trade requires less capital than manufacturing. Trade sectors that require high amounts of capital are male dominated, for example, wholesale outfits (Lange, 2003).

Table 1: Street trading activity	**Female % of women**	**Male % of men**	**Combined**
Electronics (including mobile phones sales & services)	14	8	11
Non-consumables (e.g. hardware, household items, clothes, shoes, beauty products, newspapers, utensils & handicrafts)	63	49	56
Perishables (e.g. confectionary, fresh and cooked food & local alcohol)	23	4	14
Services (shoe shiners, carpentry & hairdressing)	0	8	4
Transportation (motorcycle people transportation services, vehicle parts)	0	31	15
Total	**100**	**100**	**100**

There was a gender gap in ownership of mobile phones among the participants with a gender breakdown of 80% males and 67% females owning a mobile phone and 10% men and 4% of women sharing a phone (see Figure 2). Women (29%) were more likely not to have access to a mobile phone, compared to men (10%) excluding them from the benefits of mobile phone-mediated services.

Figure 2: mobile phone access



An enabling policy environment has brought mobile phone access and services of benefit to street traders. Initially directed towards access, new initiatives are focussed on value added services encompassing m-development services, applications and content, including m-banking, m-governance, m-education, m-health, m-entertainment initiatives and m-content related to business, agricultural and lifestyle activities. M-banking services like Mobile Money are provided by most mobile phone operators in partnership with commercial banks. M-governance initiatives include election monitoring, political parties' mobilization of voters and connecting citizens to elected representatives and public officials; important social accountability, transparency and anti-corruption tools. Citizens have also used mobile phones to engage in political activities that include politicking and organising riots. M-education initiatives have included provision of results via mobile phones, reading lists and information in schools and universities and m-learning. A number of m-health initiatives have also been launched in Uganda ranging from digitizing national health services and community health surveillance and disease control to provision of health information on mobile phones such as Google SMS Tips or health campaigns and reporting fraud in the health service.

Findings and Discussion

Mobile phone-enhanced networks are usually regarded as gender-neutral, but inequalities in men and women's situational and contextual circumstances that include technological, human and material capital, psychological and discursive resources shape their network capabilities, functionings and enhanced agency as illustrated by the gender gaps in reporting these by mobile phone users, presented and discussed in this section.

Network capabilities

Network capabilities represent a range of beings and doings in relation to mobile phone-enhanced networks. In this study, men and women reported differing real opportunities and possibilities for network engagement.

Functional, operational and instrumental capabilities and use of phones

Functional, operational and instrumental abilities are important aspects of network capability sets. My survey suggested that male users (80%) were more likely to have used mobile phone functionalities such as texting than female users (61%) and they were almost twice as likely to have used the internet (11% to 6%) Digital illiteracy and limited know-how were cited reasons and are corroborated by Burrell's (2010) study suggesting women as a group with lower literacy and ICT knowledge are at a disadvantage in making full use of mobile phones' potential. Fatuma (interviewee) demonstrated this when reflecting on her limitations in using a phone beyond voice functions and highlighted her restricted capability to engage with financial networks, although subscribing to Mobile Money. Even if she has shown a desire to use mobile money services by enrolling, she was unable to do so. She said: "*I can't read so I can press a*

wrong button and spoil it…and some people are like me they did not go to school so they don't understand anything". Other female survey participants also stated they were less digitally literate than men i.e. didn't know how to use many functionalities of their phone or how to engage with m-content because of their perceived lack of education.

Education and ICT skills are thus important instrumental pre-conditions and conversion factors for network capability as technological competences enhance further capabilities, the building blocks for change (Sen, 2001). Capability theory frames knowledge and learning as personal conversion factors where capabilities are converted into functionings (Robeyns, 2005). Barriers to effective mobile ICT use have implications for deepening and widening network capabilities as the broader literature on ICTs demonstrates. Increased ICT skills have been shown to increase transformational benefits and increase expanded capabilities for ICT use and enhanced function (Grunfeld *et al*, 2011).

Engagement with wider networks

Mobile phone use has been shown to enable women to engage in networks that place them in a broader flow of information and events, giving them the ability to enlarge their sphere of interaction, consequentially disrupting pre-existing ideas of their appropriate role (Buskens & Webb, 2009; Jagun *et al*, 2008). However, my study found that women were less likely than men to engage with most m-services excluding them from the informational, transactional and empowerment benefits of such networks. Usage of m-services investigated in the survey (airtime transfers, banking, health services, business and technical information) suggests that proportionately fewer women use these services (see Table 2) except for m-health services or information where women (28%) reported a greater likelihood of use than men (17%).

Explanations for the observed gender gaps given by research participants included financial constraints, lack of information, knowledge and confidence on the part of women, and their greater likelihood to be targeted by and respond to health campaigns.

Table 2: M-banking, health, business & technical information use	**Men % of men**	**Women % women**	**Combined %**
mobile phone for airtime transfers	78	64	72
m-banking services	39	22	32
m-health services or information	17	28	22
m-business and technical information	48	36	43

Adequate income is a means to network capabilities. Costs of using mobile phones for low-income groups reduce their network capabilities (Abraham, 2009). Those who cannot finance mobile phones experience further marginalization due to asymmetries of information, capital and power (Wallis, 2011). Fatuma's (interviewee) illustrated the difficult choices women make: *"it is the phone that I can't afford. Because I imagine buying a phone* [to expand her business] *when my children have nothing to eat".* Her partner had given her money for a phone which she spent on her children.

There has been an increasing uptake of mobile money services by women, but proportionately more women are excluded from financial networks. However, as the survey results demonstrate (Table 2) some women are able to participate in wider networks while many more are excluded.

Social networking capabilities

Social friendships are important sources of business opportunity (Donner & Escobari, 2010), mobilising social capital, finding work, informal learning and acquiring new skills, and stimulating political participation and civic engagement. Familial responsibilities, however, constrained the six female interviewees' real opportunities for networking and developing social friendships that can lead to productive possibilities. They indicated that they had little time for networking enabled by mobile phones, because of gender norms related to familial obligations, childcare and domestic responsibilities. Women had less personal time left at the end of the working day as their work carried on at home (domestic and childcare) unlike for men. Fatuma (interviewee) explained these differences:

> *When a man sits down like that, the next thing he does is to settle with his phone and he starts playing with it yet I the woman it can't happen… most domestic chores are for us women…by the time he gets home he is tired that he just has to go straight to bed or sit around playing with his phone as he waits for supper*.

The female traders' experiences demonstrate how social accessibility offers a lens to observe the constraints (Carrasco *et al*, 2008) on their networking. Real opportunities, or lack of them, describe the tendency of people to capitalise on their circumstances and create and reproduce social order (*ibid*, 2008). The types of networks the six female traders accessed, mainly familial and kinship-based (Masika, 2012) did not always help them build the weak ties important for spreading information and resources (Granovetter, 1973) or the right connections with those in higher social strata (Meagher, 2005) that can help them move on in life. The female street traders were positioned less powerfully and beneficially, thus reinforcing gender inequalities in social networking opportunities.

Network functionings

My study found that women report less engagement with and fewer functionings from wider networks in economic, political and social spheres, and that gender ideologies, discourses and norms shape their engagement.

Business and wealth creation

In relation to the economic sphere that covers business, economic activity and wealth creation male survey participants reported a disproportionately stronger inclination and willingness to use mobile phones for business interactions. Men (70%) were more likely to strongly agree than women (54%) that mobile phones had made them more economic active, implying more functionings from mobile phone-enhanced netwoks.

Table 3: Business and wealth creation Strongly agreed that…	Men % of men	Women % women	Combined %
they like to use their phones for business activity	89	77	84
mobile phones have made them wealthier	55	32	45
mobile phones have made them more economically active	70	54	63

Men were more likely to attach greater importance to business networks which interviewees and FGD participants attributed to men and women's different values, goals and roles shaped by the historical, socio-political and cultural context. They suggested that women were more likely to invest in and attach greater value to connectivity with familial and kinship

networks than business as a consequence of gendered norms, responsibilities and divisions of labour (Masika, 2012). The higher value that women attach to family is corroborated by other research in Uganda (Burrell, 2010). Women prioritise expenditure on children's needs rather than investing in their business (Bakesha *et al*, 2009) and prioritise marriage over business where husbands are threatened by their economic advancement and social independence (Bantebya, 2009). Freda (Focus Group Discussant) alluded to how avoiding marital conflict curtails women's capacity to expand business opportunities and networks:

> *When you get back home after work because of the nature of our businesses sometimes our customers call while we are at home. This disturbs men so much because they really want to know what the discussion on phone was all about. Because you may prioritize marriage over business if you detect that a phone is going to damage your relationship with your spouse. You are forced to choose to abandon it.*

Gender-based divisions of labour, reinforced by breadwinner and nurturing ideologies meant that female traders subordinated their needs and interests to those of their families. Mobile phone-enhanced networks were thus appropriated into existing divisions of labour where men made greater use of mobile phone-enhanced business networks. Gender ideologies in relation to women's positioning within markets such as those about women's work, both local and supra-local, locked many women in less lucrative segments of the informal sector with little need for mobile phone-enhanced business networks.

Men and women's discursive resources for business network expansion differed as a consequence of gendered divisions of labour, cultural context and socialization. The latter framed their psychological resources in terms of goals, motivations and psychological assets such as self-confidence, tenacity, optimism, creativity and resilience for network engagement. Where women's lives are constructed and negotiated through discursive arrangements and

gender roles, it is possible to see why men and women's motivation for network engagement and consequently functionings differ as an extension of their gendered identities.

Political participation

Of all the network functionings, there was least evidence of achievements in relation to the political sphere. Engagement with political and m-governance initiatives while low for both men and women, was comparatively much lower for women (see Table 4). Women (86%) were more likely to disagree that mobile phones had made them more politically active than men (59%). Women (74%) were also more likely than men (59%) to disagree mobile phones had helped them engage with public officials.

Table 4: Political participation and m-governance- Disagree that…	Women % of women	Men % of men	Combined %
a mobile phone has made me more politically active	86	59	71
mobile phone has helped me to participate more in political processes	83	62	71
mobile phone has helped me to participate more in dealing with public officials	74	59	66

A greater apathy towards politics by women was highlighted during the FGD and individual interviews and women were more likely to be disengaged from politics and perceive engagement in mobile phone-mediated political and governance networks as of little value to their lives. For example, Mary (interviewee) stated: *"I am more concerned with upgrading my business, it [*politics*] does not help me"*.

A fear of reprisals discourse, explaining non-engagement, was also evident in other narratives. For example, Prossy (interviewee) illustrated this: "…*where phones are being tapped*

women fear to use their phones like calling radio shows because anything can happen to them if at all they kind of criticise the government". Fatuma (interviewee) also expressed fear about tapping: "*They told us that the phones are tapped and they go to the computer and they follow you up until they get you that is why people hate that thing"*. Jane also alluded to this surveillance: "*…there is a switchboard that records your voice and everything that you say on that phone that when the time comes, it proves what you said however much you try to deny it"*.

A limited understanding of the connections between the role of politics in providing public goods and meeting citizens' needs, the very things they value also explained some women's non-engagement. Joanita stated: "*It* [politics] *is something I don't understand. I don't even like to talk about it"*.

Ideologies of men as decision-makers were observed in women's notions of politics and dealing with public officials. A common thread was their construction of politics, engagement with the state and public officials as no place for women. Men were perceived to have more psychological assets that made them more confident to participate in formal politics and public domains.

Moreover, male privileges, power and gender-specific entitlements assign men and women different rights and resources (Johnsson-Latham, 2010) giving men more discursive and psychological resources to benefit from and more effectively engage with political and governance networks. Gender relations, embodied in gender ideologies and pervasive discourses assign agency and decision-making power (Kabeer, 2003) and shape the way women construct their identities in relation to mobile phone-enhanced political and governance network engagement and functionings.

Leisure and social activity

A complex gender-differentiated picture of network functionings emerged in relation to leisure and social activity. When asked about their likelihood to use their phones for social and leisure activities, both men (59%) and women (60%) showed similar levels of agreement (see Table 5). However, when asked whether mobile phones have made them more socially active women (46%) are more likely to disagree than men (23%).

Table 5: Leisure and social activity	**Women % women**	**Men % of men**	**Combined %**
Strongly agree that they like to use their mobile phones for leisure/social activity	60	59	60
Disagree that mobile phones have made them more socially active	46	23	33

Women reported having little time for leisure or social activities because of balancing domestic and productive work and that familial responsibilities influence their diverse forms of social connections, including social integration (e.g. participation in social activities and organizations), personal networks (e.g. network size, contact frequency, and network composition), and support networks (e.g. giving, received, perceived, and reciprocal assistance relationships).

Christine (interviewee) used her phone to plan and arrange family functions, but did not have money and time to go to other types of social and leisure activities. She explained: "*I don't have time because in Kampala if you relax you don't feed…I work from 10am to 9pm everyday"*.

Yet, Christine also remarked that mobile phones "*have opened our eyes to the world, to understand and to enjoy life"* illustrating the tensions between possibility and constraint.

Gendered norms presented men with more freedoms and opportunities to socialize and engage in leisure and social activities mediated by phones. Men compared to women have non-material advantages such as the right to play and have fun (Johnsson-Latham, 2010).

Women's enhanced agency and functionings

In contrast to women's lower reporting of network functionings, they were more likely to report increased levels of enhanced agency and achievements signalling social transitions and change as a result of mobile phone-enhanced ties and networks.

Network-enhanced agency freedoms

Senses of control over one's life are key proxy indicators of agency (Alkire, 2008; 2005). Most survey respondents strongly agreed that mobile phone interactions enhanced their autonomy, decision-making, voice, learning useful information, opportunities for self-improvement and consciousness about gender issues. A higher proportion of women (85%) than men (69%) strongly agreed that mobile phones helped them become more autonomous (see Table 6). Autonomy was operationalised as freedom to do what you want.

Table 6: Agency as a sense of control	**Women % of women**	**Men % of men**	**Combined %**
Free/autonomous	85	69	71
Making decisions	92	78	84
Voicing opinions	86	80	83
Learning useful information	92	80	85
Self-improvement	83	76	79

Similarly women are also more likely to report mobile phone networks enabling their decision-making in relation to households and family, voice opinions more generally, lead to self-improvements and learn useful information. Mary (interviewee) found mobile phones "*liberating and a useful source of information*", reflecting that mobile phone networks had made women more informed and presented them with opportunities to learn and express themselves in new ways, as she found from her own experiences with social networking on Facebook and texting friends. It opens up new ways of relating that make people say things they would not normally say face-to-face and new ways of inter-subjective reflection where new identities become possible.

Network-enhanced functionings

Street traders' perceptions of functionings afforded by mobile phone-enhanced networks flagged up social transitions and change for women. Women were more likely than men to report that mobile phone-enhanced networks had afforded them more confidence and well-being (see Table 7). This sense of greater confidence and improved well-being is repeatedly mentioned in the survey's free text commentaries on benefits and changes associated with mobile phones, in the individual interviews and highlighted as one of the key benefits of mobile phones for women (Chib & Chen, 2011).

Table 7: Sense of social transition and change	Women % of women	Men % of men	Combined %
More confident	89	84	86
Improved personal well-being	83	76	79
Higher status	70	68	68

There were some important perceptions by men about changes facilitated by mobile phone-enhanced networks that may be regarded as a step towards greater gender equality. Statements such as "*women now look like men in business matters*" (Survey Participant 32, Male) "*women are no longer respectful to men"* (Survey Participant 36, Male), *"family disputes"* (Survey Participant 20, Male) and "*destroying marriage partnerships*" (Survey Participant 19, Male) as reported outcomes of mobile phone-enhanced networks may be indicators of shifting gender relations and women's improved self-concept. Some female survey participants' reported that mobile phone-enhanced networks helped them grow their businesses and enhance their knowledge of business. Others indicated that mobile phone-enhanced networks had empowered them as women, presented them with opportunities to connect with other women and provided the space to discuss issues of importance to women with other women raising consciousness of gender injustices.

Implications for gender equality and development aims

The findings suggest that benefits derived from mobile phone-enhanced networks differ for men and women as a consequence of their gender positioning which signals the merits of holistically understanding women's real opportunities. A holistic exploration can help scholars, practitioners and policy makers:

- Theorise inequalities in the dynamic processes of mobile phone-enhanced networks to illuminate the risks of women's exclusion from, and costs of engagement with ICT-enabled networks so that these are mitigated;

- Understand women's real opportunities and constraints so as to foster an enabling environment for expanding their network capabilities;
- Analyse the policy environment for linkages between elements and enable targeted interventions and stimulate linkages between different elements.

This research highlights three key issues. First, it suggests that mobile phone-enhanced networks present complex and contradictory opportunities and outcomes for women as a consequence of gender inequalities. They expand women's agency by helping them build confidence, improve their well-being and achieve what they prioritise or place most value in relation to proximate networks, for example family, but women do not necessarily reap wider gender equality and development achievements. They also emancipate women in some areas of their lives (for instance, provide a sense of more autonomy, control and consciousness), but present a site for gendered struggle, control and resistance in terms of negotiating gendered values and identities. Deep structures (Geels & Schot, 2007) manifested through legitimacy battles over gender ideologies and discourses structure network participation (Fuhse, 2009). There are still huge inequalities materially and discursively inflected in engagement in mobile phones-enhanced networks. Entrenched traditional gender ideologies create tensions in negotiating new identities (Baston-Savage, 2007; Green & Singleton, 2007) and gendered scripts (Shade, 2007) relating to mobile phone practices are still unsettled, drawing on a range of competing and conflicting discursive resources, ideologies and experiences.

Second, the benefits women can potentially generate from wider mobile phone-enhanced networks are constrained by their relative lower access to mobile phones, limited know-how and capabilities in using the many emergent m-development services. Human capital and material

resources are important considerations in supporting women's engagement with m-services. Education, employment and income are repeatedly cited as specific inhibitors to women's effective engagement with mobile phone-enhanced networks. A global statistical study of mobile phones (Hilbert, 2011) suggests that education, employment and income explain women's lower use of ICTs. When these are equal to men, women are more active users of ICTs. This gives more credence to the importance of human capital and material resources as a means to the expansion of network capabilities. Affordability and technological capabilities are necessary to build network capabilities.

Third, because network functionings operate at multiple levels through multi-dimensional areas in different spheres, there is some mileage in policy linkages in different economic, social and political spheres. The mix of contextual and situational factors, resources and capability sets that frame participation in wider mobile phone-enabled networks demands attention in different areas for which policy linkages in areas such as education, communications, business and governance might serve to expand women's network capabilities, enable them to construct new and more favourable gender ideologies and discourses and reposition themselves more favourably in relation to the self, family, markets and the state.

Further research is needed into structural, dynamic, relational, technological and socio-cultural properties of mobile phone-enhanced networks, for example, the composition of men and women's networks and further exploration why the possibilities of mobile phone-enhanced networks do not translate into wider benefits for women. Social network analysis of men and women's nature of phone contacts would be helpful as would further research into the linkages and intersections between the different elements (resources, capabilities and functionings). Other areas that require further investigation include how mobile phone-enhanced networks enable and

disable trust, as mobile phones both build trust in business relationships and are distrusted in relation to political activity.

Conclusion

My paper has exposed the tensions between possibility and constraint for women applying an analytical network that considers men and women's resources, capabilities, agency and functionings in relation to mobile phone-enhanced network drawing on the capability approach and a social critical stance. Its significance lies in demonstrating (1) inequalities between men and women in engaging with mobile-phone enabled networks (2) that if the risks of exclusion and costs of the terms of engagement for women are not well understood poor women particularly will be the losers in an increasingly digital age. In order for scholars and policy makers to draw a more complete dynamic picture of network capabilities, it is essential that we understand these complex dynamics and processes.

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