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Mobile phones, gender, and female empowerment in sub-Saharan Africa: studies with African youth

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ABSTRACT



Data from qualitative and survey research with young people in 24 locations (urban and rural) across Ghana, Malawi, and South Africa expose the complex interplay between phone ownership and usage, female empowerment, and chronic poverty in Africa. We consider gendered patterns of phone ownership and use before examining practices of use in educational settings, in business and in romantic and sexual relationships. While some reshaping of everyday routines is evident, in the specific context of female empowerment we find little support within our sites for the concept of the mobile phone as an instrument of positive transformative change. The phone's application in romantic and sexual relationships demonstrates particularly strongly the way phones are complicit in constraining women's empowerment and points to potential wider repercussions, including for educational and entrepreneurship trajectories. Women's agency is still mired within wider structures of patriarchy and chronic poverty: existing inequalities are being re-inscribed and reinforced.

KEYWORDS

Ghana; Malawi; South Africa; patriarchy; education; entrepreneurship; sexual relationships; poverty

Introduction

The study of mobile phone usage exposes a plurality of sites where material systems (and their failures) are entwined with social relations and a complex interplay of structure and agency prevails (Wilson, 2016): nowhere is this better exhibited than through research with young people in sub-Saharan Africa. Today, in 2018, the mobile phone offers these 'digital natives' the potential to connect not only to friends and family in town but to friends, family, and strangers across the globe; complex reverberations may ensue. Penetration of mobile phones in sub-Saharan Africa in 2016 was estimated at 44% and mobile internet penetration at 28% (GSMA, 2017), but ownership figures provide only a partial picture – phones are borrowed and shared widely as circumstances require, especially among young people (Porter et al., 2015). So what does this mean for young lives and life trajectories? Over the last decade, the potential of the mobile phone to improve the lives of poor people in low income countries has been both lauded and queried in diverse contexts, from health to micro-enterprise, education to governance and migration. Its potential to improve the lives of women and girls, securing their greater empowerment, is a common thread in such debate, especially among International NGOs and donors. Kathy Colvin, CEO of the United Nations Foundation, reporting a visit to Kenya, for instance, observed somewhat euphorically

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Even more important than the ubiquity of mobile phones is how they're being used: to empower women. Mobile technologies put a world of information in the palm of a woman's hand — and with information comes power to increase learning, make informed choices, connect to the broader world, and pursue jobs.¹

Academic literature on this theme (discussed below) is more critical, but empirical work has usually been limited in scope to individual sites, with evidence gathered either through ethnographic or quantitative methods, depending on disciplinary perspective; most has focused on adult women. We contribute to ongoing debate through an interdisciplinary, mixed-methods study focused on African girls and young women aged 9–25 – years critical for the garnering of social, economic and other, less tangible, assets that can help generate transformative life trajectories. Our argument builds from extensive research across 24 sites in 3 diverse countries, albeit all relatively low on UNDP's 2016 Gender Inequality Index²: South Africa is ranked 90th of 159 countries, Ghana 131st, and Malawi 145th. Triangulation across qualitative and survey data sets allows comparison between years and different types of information, thus enabling us to provide a stronger picture than has been available hitherto, for an age group among whom phone-related empowerment processes are largely unknown.

We center our discussion on ways in which girls' and women's relationality with men – especially boyfriends and partners – can fundamentally shape whether and how they use phones and to what effect. Their phone use, embedded within a broader context of social connections, norms and responsibilities, intersects with themes extending from education and entrepreneurship to sexuality and safety. Better understanding of all of these aspects of young lives is highly pertinent to addressing Sustainable Development Goal 5: *Achieve gender equality and empower all women and girls*.

Female empowerment and mobile phones: observations from the literature

Empowerment is a word with the allure of optimism and purpose: it is also a difficult, highly contested concept which, even before the turn of this century, had become 'much abused' (Eyben & Napier-Moore, 2009). It is not simply about economic or legal improvement and measurable outcomes, but about expanding horizons of possibility and social transformation while respecting women's own perspectives. It means women having better control over their own lives, and understanding of the political mechanisms to achieve that.

Mayoux's (2001) definition of empowerment as 'the process through which those who are currently disadvantaged achieve equal rights, resources, and power' is appropriate to the ensuing discussion, because it centers on the transformation of power relations. Cornwall and Edwards (2014, pp. 2–7) point to various key attributes of empowerment which will also need referencing in this discussion: its essence as a (non-linear) negotiated process; the fact that external actors cannot bestow power on others, though they may help remove obstacles and offer signposts; and – most importantly of all – that empowerment is relational. It concerns present and future relations of power, with potential for complicated intersections with age as well as gender (see Kea, 2013): it is thus contingent, contextual, and unpredictable!

If we look to the areas where mobile phones have been perceived likely to be particularly significant in the process of female empowerment among Africa's poor, the focus tends towards the economic arena (since income-generation and access to micro-credit are often women's key expressed needs, albeit potentially leading to heavier burdens). This suggests significant benefits such as coordination, space-shrinking and time savings (Overa, 2006), the phone's utility in 'enlivening trade networks' through intense contact with suppliers and customers and smoothing social relationships with key market actors (Burrell, 2014, p. 584 regarding Ghanaian market women), even the safeguarding of funds (Morawczynski, 2009). Other studies, however, point to the difficulties that women still face, in job search and building businesses, despite phones, due to a mix of male control and intense market competition (Abraham, 2009, for urban Zambia, Burrell, 2010, for rural Uganda, Tawah, 2013, for north-west Cameroon).

The potential for mobile phones to help women enlarge their sphere of interaction, build social networks to mitigate their vulnerability and cultivate opportunity, is a linked theme (Aker & Mbiti, 2010; Jagun, Heeks, & Whalley, 2008; Ling & Horst, 2011; Souter et al., 2005). Some young women have repositioned themselves – or become repositioned – as family information hubs because of their phone expertise, when elders in their families lack these skills and there are no resident young men (Porter et al., 2015). However, this is likely to benefit only a small segment of women, so a significant shift in gendered power relations looks unlikely. In Zambia, meanwhile, Abraham (2009: 97) observes a ‘virtual mobile divide’ among women entrepreneurs that utilize mobile networking in women’s advocacy groups: ‘low-income-earning women who are part of the women’s empowerment mobile-phone-sustained virtual network begin to lose their “voice.” They become silent listeners and simply recipients of texts and alerts from more financially empowered members ... the mobile phone virtual network’s “lower classes”.’

Beyond specifically economic contexts for empowerment, there has been some focus on the potential for phone access to benefit girls and women in areas like health and education information (where impacts can also be cross-cutting, as between education, health, and employment). There is some positive evidence from the health sector: mHealth initiatives may enable women to have better control over their own lives, through increased autonomy in seeking health information and services, particularly around sexual and reproductive health, and also increase health-related cooperation among couples (Corker, 2010; L’Engle et al., 2012). However, there may also be disbenefits, if there is a backlash with harmful consequences for women within conjugal relationships as a result of women’s mobile-enhanced autonomy and decision-making ability (Jennings & Gagliardi, 2013) or if the information accessed is misleading, inappropriate, even potentially dangerous (Hampshire et al., 2015). In the education sector, similarly, while phones can bring new knowledge into constrained resource settings, including helping females acquire basic literacy skills (UNESCO, 2015), or supplementing school-based knowledge at, or during, absences from school, they may also distract girls from more productive use of their learning time (Porter et al., 2016; Zelezny-Green 2014).

The relational nature of female empowerment is interwoven through the research reported above and through much of what follows in this paper. In particular, relationships with male partners, and the role that mobile phones play in mediating these, may significantly complicate and reduce women’s potential for economic advancement and wider well-being. Any expansion of female autonomy, whether this entails a business venture, education, or health decision, can pose a potent threat to husbands and boyfriends who have been conditioned by traditions of patriarchy to expect total control in the relationship: male vulnerability in contexts of chronic poverty reinforces such concerns (Silberschmidt, 2005). Keeping control of a wife’s mobile phone communication is a regular male endeavor in many households (see Burrell, 2010, for rural Uganda). With expanded phone ownership this has become harder, but surveillance of wives’ and girlfriends’ phone contact lists and calls, and use of the phone as a ‘digital leash’ to check their whereabouts, appear to be growing features of the cat-and-mouse tactics and associated conflict that characterize many relationships (Archambault, 2013; Ling, 2008; Stark, 2013). In other cases the phone has been used as a lure, including by sugar daddies seeking cross-generational relationships with young girls (Burrell, 2010; Porter et al., 2012). When mobile phones are socially and culturally embedded in sexual relationships, this inevitably complicates the potential for female empowerment, offering both opportunities (such as rewards from the expanded potential for covert transactional sex) and hazards (not least STDs).

Much of the female empowerment-related phones literature referenced above makes little distinction between age-groups. Other literature examines the role of phones among youth, without paying much attention to gender (Afutu-Kotey, Gough, & Owusu, 2017; Kibere, 2016; Porter et al., 2016). However, interest in the specifically gendered challenges that young people face in the mobile phones era is growing (Archambault, 2012; Geldof, 2011). In the ensuing discussion we consider youth phone usage and empowerment through a specifically relational gender lens. Cole (2004, p. 576) observes, in a Madagascan context, that youths’ structural liminality, arising from the fact that they are less embedded than older people in established networks of patronage and exchange,

makes them 'uniquely poised to take advantage of new social and economic conditions': the implications for female empowerment are still unfolding.

Data collection

The core data were collected in 2012–2015 in 24 poor communities: one high density urban neighborhood (U), one peri-urban (PU), one rural with services (RS), and one remote rural (RR) in each of two agro-ecological zones per country (Malawi's Lilongwe plains and Blantyre/Shire highlands; Ghana's coastal savanna and central forest zones; South Africa's Eastern Cape and Gauteng/North-West Provinces). The locations match those of our earlier research into child mobility (2006–2010), when we worked with a more limited 9–18-year age group. That study first drew our attention to the significance of the virtual mobility afforded by mobile phones for young people's daily mobility practices and suggested the need for further research. Extension of the age-range through to 25 years in 2012–2015 reflects our desire to follow our older cohort 6 years on.

Data-collection in 2012–2015 commenced with in-depth interviews with young people about their phone experiences. Using a story-based approach, we gathered information on diverse themes, from education, healthcare and inter-generational relations, to livelihoods, religious and political life (Hampshire et al., 2015, 2016; Porter et al., 2015, 2016, 2018a, 2018b). Separate 'call register' interviews focused on the mostly more mundane arena of phone and sim card contact lists, and recent calls, texts, missed calls, and interactions on social network sites. There were also focus groups with young and older people and in-depth interviews with selected key informants (community leaders, parents, teachers, health-workers, phone-business operators). A questionnaire survey was subsequently administered to c. 1000 9–18-year-olds and c. 500 19–25-year-olds per country (c. 190 per site, along randomly selected transects, with tallies towards the conclusion of each site survey to ensure approximate gender and age balance). In total, we gathered 1600+ qualitative interviews and 4500 survey questionnaires. An important feature was the contribution of female and male peer researchers – some of the 'young researchers' we had initially trained in 2006 as school-pupil co-investigators (Porter, 2016), plus young academic research assistants.

Acquiring a phone of one's own

The varying significance that women and girls attach to having and using a phone is best appreciated through our qualitative research data, but basic survey data from 2007/8 and 2013/14 provides useful context. Because we only surveyed 9–18-year-olds in 2007/8, however, we are limited to comparisons with this age cohort in 2013/14.

Overall levels of ownership (Table 1) reflect relative wealth status of the three countries. In 2007/08, those in the 9–18-year age group (mostly those 15–18 years) fortunate enough to possess a phone, had usually been given it by an older sibling or parent resident elsewhere (commonly in urban areas), as a means of keeping in close touch. Unsurprisingly, in Malawi and Ghana, given girls' low status, far fewer were in this position than boys. In South Africa, where there was a surprisingly high level of ownership among pubescent girls, this was often reported as matter of concern by impoverished elders who suspected their acquisition was payment for sex (Porter et al., 2012).

Table 1. Phone ownership.

	9–18 years, own phone 2007/08 (%) N = 2943		9–18 years, Own phone 2013/14 (%) N = 3085		19–25years, Own phone 2013/14 (%) N = 1540	
	Female	Male	Female	Male	Female	Male
Malawi	0.4	0.9	6.2	10.4	30.7	48.0
Ghana	1.9	3.0	12.9	18.8	59.8	79.7
South Africa	23.7	17.3	50.8	50.9	92.1	85.7

By 2013/14, following a reduction in handset costs and network expansion, boys' ownership in the 9–18-year group had reached parity with girls in South Africa, but in Ghana and Malawi girls still lagged behind boys. Ownership in 2013/14 in the 19–25-year group was higher than among 9–18-year-olds throughout, as might be expected, but ownership among 19–25-year-old women only exceeded men in South Africa. In all three countries, the vast majority were basic phones, with internet-enabled phones mostly limited to urban areas.

There were also variations between rural and urban sites. Girls in rural Malawi (where only around 1–2% of under 19s owned phones in 2013/14), commented how their slightly better provisioned male peers (around 5% of boys) proudly carried phones, pretending to answer calls in the street, whereas if a girl owned a phone she could be labeled 'prostitute.' Precarity here was such that ownership remained relatively low in the 19+ age group and, while male ownership was higher, both genders often resorted to selling their phones, especially at the start of the planting season. One young woman farmer explained how she even had to sell her phone to buy soap: 'I literally had nothing in my pocket' (Malawi, RS). However, as phone ownership increases, disadvantage through its lack grows, socially as well as economically. Thus a 20-year-old volunteer teacher admitted her jealousy of phone-owning friends who could talk to each other and were thus 'more precious than I.' In rural Ghana a similar perceived association between young girls' phone ownership and prostitution prevailed. Sixteen-year-old Patience observed: 'If you happen to be a young girl and you own a phone, people perceive you as a bad girl.' Fewer than one in 10 rural Ghanaian girls aged 9–18 owned a phone. However, by their late teens, nearly half of women aged 19–25 in Rural with Service (RS) settlements owned a phone, reflecting its perceived importance as an economic tool.

In urban areas of Malawi and Ghana, ownership was substantially higher than in rural locations, for both genders and across age groups. Ownership had reached nearly one-third among 9–18-year-old girls in urban Ghana in 2013/14, but was still only 13% in Malawi: 'it made me crazy in the first month ... I wanted everyone to know ... I could walk holding it when going to the market so that everyone sees' (girl 17 years, Malawi U). Many urban girls had parents who were reluctant to let them own phones; discourse linking phone ownership with teen-pregnancy was widespread. However, the likelihood of being side-lined at school and in girls' friendship networks for those without a phone was high: one 13-year-old Malawian talked of her friends with phones behaving 'pompously: one of them said to us that those who do not have phones are poor and ... backward.'

Among older urban women (19–25 years), ownership was far higher (63% in Malawi; 85% in Ghana). Some talked of how they save for a phone, but there were also references to girls obtaining phones from older men in exchange for sex. Even so, in urban as in rural Malawi, it was not unusual to sell phones in order to buy soap or pay school fees; the husband of one 20-year-old had sold hers to pay for food and rent.

Ownership across all the South African sites was extremely high, with half of 9–18-year-olds of both genders and around 90% of 19–25-year-olds owning phones. In rural South Africa, phones were often purchased by absent parents working in town, but young boys were far more likely to talk about 'pestering' their parents for a phone than girls. Some girls, by contrast, were sufficiently concerned about the perceived link with prostitution (as in Malawi and Ghana), that they said they preferred not to own one: 'I am still too young ... my mother keeps on telling me that a phone causes young girls to start dating' (schoolgirl, 15 years, RR); 'my father told me ... phones make girls bitches' (schoolgirl, 13 years, RR). Others, however, talked of how being phoneless marginalized them in their friendship groups (as in Ghana and Malawi). In rural with service (RS) settlements, just over half of girls aged 9–18 and over 90% of women aged 19–25 owned phones. The phone is increasingly seen as essential for the conduct of everyday life – job hunting, networking with family and friends and, as discussed further below, negotiation of romantic and sexual relationships. In urban South Africa, where female ownership was similar to rural areas, similar stories prevailed around early ownership and promiscuity, phones' role in supporting family networks and their crucial importance for the conduct of romantic and sexual relationships.

Across all three countries, many women reported offers and purchase of mobile phones by boy-friends: Cindi, an unemployed but self-confident 24-year-old woman in remote rural South Africa was explicit about her requirement of gifts in exchange for sex: ‘I give you something, you also give me something in return ... you cannot be in a relationship with someone (and) expect not to play your part ... I do not date beggars.’ All her phones had been purchased by boyfriends. Similar sentiments were heard elsewhere, albeit less blatantly stated. This is arguably unsurprising, given the few bargaining chips that most women have available to them.

Pleasures and pressures of using a phone

Phone usage far outstrips ownership, due to the widespread prevalence of phone-sharing between family, friends, and neighbors. Sharing relates not only to lack of resources to purchase a phone but also to issues like battery failure. Comparison of survey data for 2007/08 and 2013/14 (Table 2) shows the massive expansion of usage among both males and females aged 9–18 years. In Malawi (the country with lowest ownership and usage), female usage had expanded by 275%, male usage by 254%; in Ghana female usage expanded by 95%, but male usage by 206%; in South Africa female usage expanded by 24%, male usage by 51%. Overall, Malawi retained the higher male usage prevailing in 2007/08, but in Ghana male usage expanded far more dramatically than female usage, consequently outstripping it, while a more rapid expansion of male than female usage in South Africa brought usage parity by 2013/14 (as opposed to earlier female dominance), mirroring ownership parity there. Marked usage expansion among Ghanaian males was possibly partially due to increased availability of smart phones with internet access; 15.5% of boys had used a social network site in 2013/14, but only 5.7% of girls.

Table 2 also shows that in all countries, and for both genders, usage is far higher among the 19–25-year cohort. But what does usage (or its lack) mean for female empowerment and autonomy? Three strands are selected for detailed examination: gendered practices of phone use in educational settings, in business, and in romantic/sexual relationships.

Phones in educational settings: bullying, pornography, sexting

We have examined broad patterns of phone usage in education elsewhere (Porter et al., 2016) and focus here on gender aspects alone. Many girls who own a phone, like boys, will take it to school whether their school allows this or not (with no significant gender difference, according to our survey). However, our data suggest that educational benefits of phones (mostly calculator use and limited Google information searches) are currently significantly outweighed by costs (class disruption from pupils’ and teachers’ phones; lengthy late-night calls when call charges are lower; bullying/harassment; pornography, etc.). In each country, survey responses suggest girls and boys suffer to a very similar degree (i.e. no statistically significant difference), regarding reduced classroom learning and social pressures associated with owning/not owning a phone, harassment, and bullying. However, qualitative data shows that some girls have faced challenges that are potentially extremely damaging, not least propositioning from male teachers by phone, reported in all three countries (Parkes

Table 2. Phone usage.

	9–18 years, phone use in previous week 2007/08 (%) N = 2895		9–18 years, phone use in previous week 2013/14 (%) N = 3085		19–25 years , phone use in previous week 2013/ 14 (%) N = 1540	
	Female	Male	Female	Male	Female	Male
Malawi	8.9	10.2	33.4	36.1	49.3	61.7
Ghana	19.1	14.7	37.2	45.0	75.0	85.6
South Africa	62.1	51.2	77.1	77.4	98.0	92.0

et al., 2013).³ The pressures to accept such advances are obvious. A 13-year-old Ghanaian girl from a northern migrant group, for instance, received a call from her teacher (who had her number purportedly for organizing extra classes) saying, ‘he loves me and will want to go out with me,’ while the sad account of an 18-year-old as to how a teacher’s call to come to his house led to rape is unlikely to be unique.

Pornography and sexting meanwhile are growing problems in school settings, from upper primary onwards, especially in Ghana and South Africa. Many schoolboys referred to viewing pornography on phones (downloaded elsewhere, if internet was unavailable), and there was clear discomfort among the girls who encountered it, such as the South African schoolgirls who had received pornographic material through MXit. Information from one of our peri-urban sites in Ghana illustrates the scale of the problem. Upper primary boys (12–14 years old) in a focus group here had all seen pornographic pictures on (mostly older brothers’) phones. In a matched focus group with girls, there was initial reluctance to say anything about this issue, but then 13-year-old Essie⁴ recounted how, on her way to choir practice, she and a friend, Mary, were accosted by a young man, about 20 years old, who has since left the village:

he had a screen touch mobile phone – he was taking pictures of girls ... when a young girl passes by he’ll propose to you to be his girlfriend. If you don’t agree ... he’ll take a picture of you and then use his hand to touch the screen of the mobile phone and your dress will fall away and you’ll see your nakedness ... he called, “Mary let me show you this”. – So I also got to see the picture ... I was upset (and) told my friend to be very careful.

A woman trader independently raised this issue of boys’ widespread uploading of pornography as ‘a canker in this community ... a terrible situation we have to deal with on a daily basis’. A woman teacher at a nearby urban secondary-school, where mobile phones are banned, following many cases of pornography on pupils’ phones, reported how during an unannounced swoop,

I personally seized a girl’s phone. On it there was a picture of a man’s erected penis and the message attached to it was “this is my gift to you” ... that picture was sent by another student of this school to the girl who apparently was his girlfriend. In another incident a girl of this school took a picture of her bare upper body and including her breast but excluding her head and sent it to another boy and the pictures started making rounds in the school. So you understand the situation we have to deal with here.

Given the negative effects associated with girls’ and women’s objectification through pornography – with its potential to impact on their identities, their relationships with men, and associated reinforcement of sexist attitudes among males (Shaw, 1999) – the proliferation of phone-based pornography-viewing among young boys across our research sites raises concerns. As Ringrose, Gill, Livingstone, and Harvey (2012) observe in a UK schools context, young people of both genders are legitimately interested in their developing sexuality, but respect, consent and reciprocity in sexual relationships are crucial. In sub-Saharan Africa, as in the context they describe, young people’s legitimate opportunities to develop and express their sexuality in privacy and dignity need to be supported by policy and practice interventions that are gender and culturally sensitive, proportionate and targeted.

Phones empowering livelihoods?

Empowerment literature commonly focuses on phones as tools for female entrepreneurship. Our survey data (Tables 3 and 4) indicates that, in essence, men are somewhat more likely than

Table 3. Percentage of those 9–25 years no longer enrolled in education who had some livelihood activity within the 12 months prior to survey 2013/14.

Malawi (N = 585)		Ghana (N = 500)		South Africa (N = 296)	
Female	Male	Female	Male	Female	Male
87.0	94.6	73.5	80.5	54.3	50.0

Table 4. Percentage of those 9–25 years no longer enrolled in education who used a phone in 12 months prior to survey in their efforts to find work ($N = 1250$).

Malawi		Ghana		South Africa	
Female	Male	Female	Male	Female	Male
14.1	23.8	15.6	34.2	52.3	40.7

women to identify themselves as having a livelihood activity in Malawi and Ghana, whereas the reverse is true in South Africa (where more young people are still in school and overall employment opportunities are much lower; Porter et al., 2018a).⁵ Formal sector employment is stronger in South Africa than Malawi and Ghana, whereas informal sector employment dominates in the latter countries (Filmer et al. 2014).

Survey information also shows the gendered use of phones for finding work (Table 4).

Since obtaining a job is one of the most critical events in post-schooling transitions, and we surmise that phones could play a critical role in learning about opportunities and contacting potential employers, why are females using phones for this purpose less than males in Ghana and Malawi? Spatial constraints on women's mobility for work, and persistent gendered inequalities in the division of domestic labor, are probably significant elements in the equation (Porter, 2011), but less access to phones presumably also plays some part. In South Africa, by contrast, where women are more likely than men to use a phone to find work (and are seemingly slightly more successful than men in the jobs market; Table 3) we can attribute this, at least partially, to women's longer standing access to and expertise with phones (Tables 1 and 2). Even so, jobs are hard to find because the informal sector is so small (an apartheid legacy) and formal sector employment remains low for a range of structural reasons.

Of those who had managed to set up their own business or were self-employed, in Ghana just 29% of women and 35% of men said that the phone had played a role in this process; comparable figures for Malawi were 8% women and 29% men. (Under 30 respondents were in this position in South Africa.) The statistically significant gender difference in Malawi is a likely factor of women's very small scale of business and low phone ownership. Our qualitative data, however, suggest that, for women who have been successful in obtaining employment or setting up in business, phones can play a significant role.

Ghana provides particularly strong examples of young women entrepreneurs using phones, especially in urban areas. Although their direct employment in phone-related businesses is usually restricted to lower end high-competition areas such as airtime sales (while better resourced men set up higher value enterprises selling hand-sets, repairing and charging phones, etc.), this can provide women with the resources for learning a new trade. One young hairdresser, for instance, who had sold airtime for one of the major suppliers in her village found sales restricted because 'there are so many sellers on this line', but over time she built a small surplus and 'used all the money in the phone-credit business to start a life at (city).' Others hoped to earn enough to attend teacher-training or nursing college. Occasionally, calls to family overseas help, as with the Ghanaian woman whose sister in Holland provided funds to establish her cooked-food enterprise (though men seem to benefit more from overseas contacts).

For women who manage to set up a trading or service enterprise, the value of a phone for organizing consignments, appointments, and transport is often said to be substantial, but the precariousness of many women's businesses is also evident from comments regarding sacrifices required to 'feed' the phone. This was the case for a 22-year-old Ghanaian who needs her phone to order supplies for her building materials business but also remarked on the importance of occasional social calls to suppliers, as a customary part of maintaining good relations (though this sometimes requires her to buy airtime instead of food). Such contact is especially important when face-to-face interaction reduces because of phone communication. Occasionally, there were also stories of skills being imparted by phone: 20-year-old, Mariama, an apprentice dressmaker, is in close contact with her friend Ella, apprenticed to a less satisfactory 'madam' elsewhere:

We often encourage each other to learn the job very well ... if we, those who have not been to school, want to succeed in life, we need to work hard ... When she called yesterday, I briefed her about what we have learnt and took her through the process of sewing such a dress.

Outcomes, however, may be disappointing in the longer term. Mary, a 25-year-old second-hand clothes dealer in a remote rural village complained how phone advice from a family member, also a trader, had led her to invest in a bad deal for men's track suits: 'I would not have engaged in this business if not for his phone call.' Another young woman nearby, a 21-year-old bored with village life, kept phoning her sister in Accra to find her work: a supermarket job was forthcoming eventually, but after a month she retreated home because of the constant advances of the owner's married son.

Overall, our data suggest that while many women now perceive the phone as an essential tool for promoting work opportunities, there is little convincing evidence that it has transformed their livelihoods. But how can we expect otherwise, given prevailing intense competition for jobs and business opportunities among women with few skills and little capital?

Phones, romance, and sexual relationships

While the relational nature of female empowerment has threaded the preceding sections, it comes to center stage when we consider how romance and sexual relationships play out in the cell phone era. From their early teens onwards, most girls and boys we interviewed, in all three countries, made at least passing reference to the part that phones play in the conduct of romantic and sexual relationships (theirs or others'). Boys commonly view phones as key to finding girlfriends: 'I am going to have a new phone tomorrow (and then) girls will easily agree to have an affair with me' (14-year-old, South Africa RR); 'if you don't have a phone, you will never win a girl's heart' (17-year-old, Ghana U).

Among the myriads of stories, common themes encompassed random calling, the etiquette of airtime purchases and who calls whom, and the management of relationships with multiple partners, partners' phone surveillance and consequent break-ups (as in Archambault, 2011, p. 2013). These experiences and negotiations bring the multiple, complex barriers to women's empowerment into particularly stark relief.

Phones can play a role even in the initiation of relationships. Many young men, whether simply bored or specifically looking to find a new girlfriend, make random calls, including to totally unknown people (as in Stark, 2013). The story of Zani, an unemployed 21-year-old woman in rural South Africa, is not untypical: a stranger kept calling her number, apologizing for the wrong number, then continued to call: 'He later started saying he is interested in my voice, and I also developed an interest in him until I decided to meet him ... we met at (a) taxi rank.' They have been together for 4 years.

Once courtship is in progress, established etiquettes of calling and airtime purchase come into play. Phone communication gives regular reassurance of the partner's love and desire, while perhaps also facilitating covert meetings when parental or partner obstructions are anticipated. In Zani's case, her boyfriend contributes most of the 60+ Rand per week she spends on airtime. Since males are generally perceived as better-resourced, women commonly expect to have their communication funded in this way so that they can respond to boyfriends' calls. Particularly in our urban field sites, girls from their mid-teens referred to male friends and husbands buying them airtime, sometimes almost as a right: 'My boyfriend bought this phone for me (and) also sends credit. He is not working. He is just a caring man' (18-year-old girl, Malawi PU JSS pupil). In urban Ghana, a woman airtime seller emphasized how rare it is to see women buying airtime: 'it has virtually become a tradition for women to ask men to buy them credit. If you see a woman buying a credit, it means that she is really in need to send an urgent message.' A 22-year-old tailor meanwhile ruefully observed, 'in a relationship you tend to spend much credit' – he has halved his credit expenses since he split from his girlfriend.

For boys, phone transfers of airtime credit to girls are a common preamble to requests for a sexual relationship, as 16-year-old Ghanaian secondary school pupil Afua recounted. Afua, who 'starves' herself for credit, receives airtime from two boys, one of whom, Simon, has been sending this regularly twice each month. When Simon then texted her, asking for a relationship, she declined: 'it's not good because, if I become pregnant, he will continue with his education while I will suffer. Even then, Simon continues to send me love texts' (six the previous week). The gift of a handset, meanwhile, often seems to be directly associated with the onset of sexual relations, sometimes with unsatisfactory outcomes, as a 13-year-old nursing mother in rural Ghana ruefully observed: seduced by a phone-seller when staying with her aunt in the city, she now vows, 'I won't just fall for anybody because of phone.'

In order to keep communication costs down, young people widely employ a practice variously known as flashing, beeping or buzzing (i.e. calling a number, then cutting off before it is answered). This may be simply a greeting which does not need answering, or a request for contact (when etiquette requires the more resource-rich to call back). In romance, as in other arenas, this mostly means males being expected to respond to female beeps, but not vice versa (as also in Mozambique, see Archambault, 2012). Comments to this effect were particularly common in urban Ghana. Here, for a boy to beep a girl, when they expect a call back, 'means that the guy doesn't love the lady' (girl, 14 years). Gladys, an orange-seller in her mid-20s similarly observed:

I will never call back a number that has flashed me if I know it is a man; because as a lady, no matter how rich you are, it is a man who tends to look after you and for the man, he will always have enough for himself.

Similar conventions operate in Malawi and South Africa: 'I have heard how my female classmates talk about boys who send call-back. Even if the boy comes from a poor family they expect him to have money to buy airtime' (girl, 16 years, South Africa U). Only in well-established relationships will boys buzz girls to request a call-back without causing offence.

While women may seemingly benefit from calling etiquettes, gifts of airtime and handsets, these are generally predicated on their relative lack of resources. Conditioned by traditions of patriarchy, men typically expect to gain the upper hand once they have cemented their relationship through such gestures (which may also involve gifts of expensive consumer items – cosmetics and jewelry, for instance). However, this will not necessarily allay their fears of being two-timed and, having funded a partner's phone communication, men often feel justified in controlling phone contact lists and calls (Ling's 'digital leash'), even while admitting maintaining multiple relationships themselves.⁶

My boyfriend bought this phone for me ... (but) he is a jealous man. And when we meet he is fond of checking my contacts ... He called me this morning just to say hi ... We just love listening to each other's voice. (Junior Secondary pupil, 18 years, Malawi PU)

My boyfriend (father of my daughter) bought it (phone) for me ... he said he must get me anytime when he calls and I must not store other boys' cell numbers except my family. (Unemployed woman, 23 years, South Africa RS)

Such efforts to control women's sexuality may initially seem flattering, but resentment often sets in:

Sometimes I feel that he (builder husband) just takes (the phone) with (him) just to prove that he is in charge. (Farmer cum trader, 18 years, 2 children, Malawi RS)

Once they buy you things they start to think that they own you. (Woman, 24 years, South Africa, RR)

In some cases intense arguments, even physical attack, have ensued when (potentially) incriminating evidence is uncovered:

I receive and make calls a lot (with male friends) ... Anytime I tell (boyfriend) I am travelling or going somewhere, he can call me countless times (because) I might be with my new boys.. There was a day he spotted me in town and decided to call me on my line and I lied to him that I was at home. He asked me if I was sure and demanded to talk to my kid sister. Before I knew it he came out of hiding and gave me a dirty slap. (Hairdresser, 20 years, Ghana U)

Someone whom I do not know sent me a love message ... (my husband) saw the message and got furious ... To make matters worse this guy started calling me at night while we were sleeping. My husband chased me, he wanted to divorce me (but) ... it turned out that this person was calling someone who had given him a wrong number. (Woman, 20 years, Malawi PU)

While many women just accept surveillance, others respond with the same tactics:

One day I asked to have his (ex-boyfriend's) cell-phone, then when I paged it I saw a lot of contacts of girl and I also checked his messages. There were so many messages from different girls that I decided to break up with him. (Student, 19 years, South Africa PU)

She waits for me to fall asleep ... any contacts that she suspects she just take them and call (and shouts at them). (Security guard, 24 years, multiple partners, South Africa RS)

Both men and women said they resort to hiding love interests with false names of the opposite gender or other codes, in order to try to circumvent partners' surveillance, but in contexts of mutual suspicion, arguments regularly arise, whether caused by actual partner cheating or genuine miscalls. Such cases can escalate, as when one 25-year-old urban Malawian woman, hounded by another woman who thought she was chasing her husband, received a knife threat (revealed by subsequent police investigation to be a matter of miscalls!) Another Malawian girl, a 19-year-old, resolved the dilemmas of mutual mistrust by selling her phone (necessary in any case to pay her school fees): 'My boyfriend (a truck driver) was the only person responsible for buying me airtime ... If I ran out of units, my duty was just to flash ... I find my peace because ... whether my boyfriend cheats on me, only God knows now.'

Phones have clearly substantially complicated the conduct of sexual relationships, through access to a wider network of potential partners and increased opportunities for concealment. While young women may gain short-term advantage from what often amounts to transactional sex, it is difficult to identify longer term benefits.

Concluding review and prospect

As Wilson (2016, p. 247) aptly observes, 'infrastructures are involved in social relations and, in many cases, shape the conditions for relational life.' Specific features of the mobile phone facilitate this affective agency through the embedding of intimate relations in 'unpredictable junctures of material and symbolic power.' While a handset (whatever its make and functionality) suggests the potential power of connectivity, airtime brings those connections to life. Together these two elements can offer seemingly untold opportunities: the potential for new socialities and support, information, and wealth creation, the latitude of virtual intimacies, even a new identity. The very ability to reveal or obfuscate identity, locations, and intentions suggests that communicators may be able to subvert practices of power and control across diverse arenas.

Data from our research sites offer ample evidence of the complex ways in which handsets and airtime use are intersecting with gender and gender relations to shape the trajectories of young lives. While some reshaping of everyday routines is evident, in the specific context of female empowerment we find little support across any of our sites for the concept of the mobile phone as an instrument of positive transformative change (though precise impacts vary with location). Mobile phones may be helpful to women in some ways, but this is not enough to undo an entrenched system of power that enables male entitlement to women's labor and bodies.

Too often, the promise suggested by a handset and a small quota of airtime sours rapidly, because lack of resources forces excessive dependence on male munificence, set within a wider patriarchal environment militating against change. A veritable Pandora's box may open at school, if powerful male teachers use the phone as a propositioning tool, while pornography and sexting sully pupil communications and put young girls, in particular, at risk of emotional and physical abuse. In the workplace there is more evidence of women benefitting from phones: especially in South Africa, women's phone expertise (built up through access to phones over a lengthier period than elsewhere)

seems to be enabling a few women to strengthen their opportunities in the job market. In Ghana and Malawi, women disadvantaged by lack of resources have been slowly building up small funds through airtime sales towards entry into business or training opportunities, though excessive competition in areas such as petty trading and hairdressing inhibits progress out of poverty there. It is in the arena of romance and sexual relationships, however, that we see at closest hand the way phones are complicit in constraining women's empowerment – and how this impacts other elements of their lives such as schooling and entrepreneurship. Male access to resources (even in chronic poverty contexts) and confidence in their patriarchal rights (assumed or actual) enables them to call the tune in relationships, whether proffering airtime or buying a smart handset. Once they have 'caught' the girl, careful surveillance of her contact lists and calls to confirm her (appropriate) location and continuing devotion may be required, especially given the financial pressures that courtship imposes. Both men and women in their late teens and 20s, especially in our urban sites, talked about discrete multiple relationships supported by phone communication, but while, for a few women, this could be about demonstrating sexual independence and choice, for most it is evidently a strategy to expand resources. Archambault (2011, 2013) similarly observes Mozambican women navigating intimate networks to avoid uncertainty and enjoy the benefits of economic emancipation. However, the potential for such practices to redraw gender hierarchies in the longer term is less clear; early pregnancy, early marriage and consequent intergenerational transmission of female poverty are common hazards (Stark 2013).

Returning to the conceptualizations of empowerment outlined at the outset of this paper, we have found women with expanded horizons of possibility, such as those contemplating new training or businesses funded by small proceeds of airtime sales, or using phones strategically in the pursuit of pleasure and leisure (calling home to family, talking with friends, exploring potential romantic interests or sexual opportunities). However, closer inspection suggests that while pre-existing gendered power structures may *seemingly* become rearranged (with etiquette which requires men to buy airtime and call their girlfriends, or girls accessing their boyfriends' phones to check contact lists) they look disturbingly stable in the long term (Ling and Horst 2011, p. 363). Signs that girls and women in the impoverished communities that we surveyed are on a trajectory to achieve equal rights, resources and power, are depressingly sparse – their agency is constrained by the limited resources and opportunities available to girls, still mired within wider structures of patriarchy and chronic poverty: existing inequalities are being re-inscribed and reinforced. While young people are less embedded than their elders in established networks of patronage and exchange, and young women strive to enjoy life, the benefits that men accrue through patriarchy will not be relinquished willingly, especially when precarity prevails. The scale of evidence presented here demonstrates not only that there is an urgent need for programs promoting responsible phone use in schools, but that such programs need setting within much broader endeavors to nurture gender equality at all levels of education across Africa.

Notes

1. http://www.huffingtonpost.co.uk/kathy-calvin/more-than-a-phone-mobile-empowering-women_b_4849761.html (26/04/2014).
2. This measures gender inequalities re reproductive health, measured by maternal mortality ratio and adolescent birth rates; empowerment, measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education; economic status, expressed as labor market participation and measured by labor force participation rate of female and male populations aged 15 years +. The empowerment measure does not reflect the wider interpretation we take in this paper.
3. Though our survey data indicated no significant difference in proportion of teacher calls to girls and boys.
4. Pseudonyms are used throughout.
5. Few young people reported as employed were under 13 years.
6. There were a few cases of same sex relationships where similar issues around phone surveillance emerged, but we have insufficient data for further discussion.

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