YOUTH, MOBILITY AND MOBILE PHONES IN AFRICA: FINDINGS FROM A THREE COUNTRY STUDY

1. INTRODUCTION

The expansion of mobile phone use in sub-Saharan Africa, particularly over the last five years, has been remarkable in terms of speed of adoption, spatial penetration and, not least, the fact that this is an essentially spontaneous development firmly embedded in private sector activity. By 2006 Africa had an estimated 192.5 million mobile phone users, compared with just 25.3 million in 2001 (UN International Telecommunications Union), and it had increased further to 280 million by 2008: currently it is reckoned that four in ten people on the continent have a phone (Versi 2010). Country-level adoption and usage rates suggest that, in many countries, mobile phone use, even in poor households, is rapidly becoming an everyday part of life. Much of this use is based on shared access, rather than ownership, but for millions of very poor children and young people[1] the mobile phone is now perceived as an essential requisite: an object of desire and a symbol of success.

In this paper we examine mobile phone use by young people across 24 sites in three countries, Ghana, Malawi and South Africa, drawing on intensive qualitative and survey research, and relate this to issues of gendered physical mobility. The enquiry developed as one component of an ESRC/DFID-funded interdisciplinary research project on children and young people's daily mobility and access to services. The selection of focus countries was shaped by pre-existing networks and shared research interests in mobility and youth issues among the Ghanaian, Malawian, South African and UK researchers who collaborated in the study. The central aim of the project was to discover the spatial mobility needs and current mobility patterns of young people in diverse locations (from remote rural settlements through to poor, high density urban neighbourhoods) across the three countries and the problems they face in accessing key services (health and education) and other places important to their lives. As soon as we started fieldwork, the extent of mobile phone adoption among young people and its potential implications for young people's lives, including for their physical mobility, became evident and the topic evolved into a far more significant element for our wider enquiry than we had anticipated when we planned the research.

In this paper we examine usage patterns of mobile phones among young people, with particular attention to the way these are emerging in different locational contexts, and explore connections between young people's phone usage, virtual and physical mobility and broader implications for social change. Issues of gender and inter-generational relations are important elements in this account. Mobilities – whether physical or virtual – play a highly significant role in young lives (Porter et al. 2010a, 2010b, 2011) and mobile phones have the potential to dramatically change the mobilities landscape in which young people operate. Control over physical mobility has long reflected and

[1] We use the terms children and young people interchangeably in this paper to refer to the age-group with which we worked (principally 9-18 year olds). Definitions of childhood and youth are difficult, especially in an African context (e.g., Durham 2010).

reinforced power in diverse contexts across the world (Sheller and Urry, 2006). The inter-generational dimension of this power dynamic is highly significant in Africa, where cultural constructions which tend to emphasise the lowly position of young people in family hierarchies, and the importance of respecting and obeying elders, can be set against images of unruly and potentially destructive youth who are vulnerable to political manipulation (van Dijk 1998; Comaroff and Comaroff, 1999; Durham 2000; Abbink 2005; Porter et al. 2010a). Gender is also substantially implicated, in that girls' and women's mobilities are commonly more constrained than those of boys and men, due to concerns around female vulnerability (Porter 2008, 2011; Porter et al., 2010a, 2010b, 2011). As we show below, the mobile phone offers young people – male and female – remarkable opportunities to leapfrog physical mobility constraints and the power relations with which these are bound, with potentially life-changing impacts, some highly positive, others more negative. Christiansen et al. (2006, p. 20) observe that 'youth are especially committed to new techniques of learning, earning and communicating as a way of gaining life chances… such as the mobile phone'. Thus, they note how in Dakar, sending text messages on mobile phones 'opens up new corridors of communication between youth, transgressing gender barriers meticulously guarded by parents and other gerontocratic custodians' (ibid. p. 20, citing Utas 2002). Inevitably, while mobile phones can support beneficial new livelihoods and life chances, they can also encourage provocative mobility performances (enhancing and embellishing the kind that Ferguson 1999, p. 114 observed on the streets of Copper Belt towns) and enable less visible performances of subterfuge and illicit activity: in both of these latter arenas there is considerable potential to alienate elders.

Our findings point to significant variations between the three study countries and between urban and rural locations within them. There is also, of course, variation within individual sites, since the circumstances of young people living in one neighbourhood can differ quite substantially, depending not only on gender and age but also on factors such as family structure and socio-economic circumstances. Nonetheless, some trends can be discerned from this socio-spatial analysis which build on findings from earlier (often single site or single country) studies in Africa: in particular, the growing importance of phones as urban-rural connectors, enhancing resource flows and young people's construction of network capital (e.g., Skuse and Cousins 2005, Slater and Kwame 2005), and concerns about their less positive aspects, not least the potential for encouraging or supporting illicit activities such as robbery or possibly dangerous under-age sexual liaisons (e.g., Smith 2006).

2. BACKGROUND

2.1 Mobile phones in sub-Saharan Africa, their spread and potential development implications

We commence by briefly sketching the context in which young people's mobile phone use has occurred. Prior to the development of mobile phone technology, access and usage of land lines across sub-Saharan Africa had been stymied, in particular, by inadequate infrastructure and widespread corruption in this sector (Versi 2010). In most

locations, phone connectivity and postal services were so poor that the majority of the population was entirely dependent on face-to-face interaction for the conduct of daily business (ibid). Mobile phones have dramatically changed this picture: over the last decade, operator competition has been very positive in terms of provision of incentives to the poor (for instance, prepaid airtime in low denominations, free off-peak minutes, free 'please call me' SMS). Subscriber growth in Africa is reportedly the fastest in the world at over 50% p.a. (Singh 2009). Value-added services such as mobile banking (including M-PESA in Kenya and WIZZIT in South Africa) bring large profits to private providers while delivering substantial development benefits (Duncombe and Boateng 2009). Consequently, there has been rapid expansion both of informal small enterprises and of personal phone ownership even in poor households. This is especially the case in urban and small town South Africa, where spaza shop phones and so-called 'container phones', converted from old shipping containers, bring phone access to the poorest, including many young people (Skuse and Cousins 2005).

A rapidly expanding literature shows how uptake of mobile phones in Africa is already generating economic growth and offers many potential developmental opportunities, in diverse contexts from job search, trade networks, mobile banking and remittance oversight, to health management, m-learning, community development and election monitoring, all with potential implications for young lives (Donner 2008, Duncombe and Boateng 2009, Aker and Mbiti 2010, UNCTAD 2010 provide recent reviews). Nonetheless, it would be dangerous to overstate the positive improvements which mobile phone use can make: in a trade context, for instance, Molony (2008) observes in Tanzania that benefits associated with mobile phone access may be limited for farmers because they are often still tied to traders for credit supply. Another negative theme is the potential for mobiles to enable increased surveillance, possibly thus increasing male suspicion of women and potentially leading to increased gender inequalities (Wakunuma 2007).

There is now much information about broad adoption and usage rates for mobile phones in Africa, but detailed qualitative and ethnographic studies are still relatively rare (Duncombe and Boateng 2009, citing James and Versteeg 2007; Pfaff 2010; Minges et al. 2010). A recent set of ethnographic studies (de Bruijn et al. eds. 2009) is particularly valuable in the insights it offers into the complexities of phone possession, use and associated transformations in diverse social and cultural settings, including among young people. In this paper we aim to add to the current limited knowledge of young people's usage patterns by drawing on both qualitative and survey data and analyzing these within a distinctive spatial frame.

2.2 Research methods

The evidence for this study comes from research conducted between 2006 and 2009 in 24 study sites across our three focus countries (8 per country). In each country the research sites varied from remote rural settlements through to poor urban neighbourhoods, thus providing a clear spatial frame of reference in which to develop our socio-spatial analysis. The research settlement types were as follows: remote rural without services

(i.e., no school or clinic, henceforth RR), rural with services (RS), peri-urban (PU), and poor high density urban neighbourhoods (U): we studied sites representative of these four types in each of two different agro-ecological zones per country. The zones where research took place were as follows: Cape Coast and Sunyani regions of Ghana (i.e., coastal and forest zones respectively); Blantyre and Lilongwe regionss of Malawi (i.e., southern and central regions respectively); Eastern Cape and Gauteng/North-West (henceforth abbreviated to GNW) Provinces of South Africa.

In each site intensive qualitative studies were conducted with (mostly poorly resourced) young people, their parents, teachers and other key informants (in-depth interviews, focus groups, school essays). Respondents of all ages were asked specifically about young people's usage of mobile phones and whether phone use had impacted in any way on their travel patterns. Additionally, we set school essay competitions in some research locations, with mobile phones as one of the topics. When the majority of the qualitative research had been completed, we undertook a questionnaire survey in the same 24 sites, administered to approximately 125 children aged c. 9-18 years in each site (N=2,967; see www.dur.ac.uk/child.mobility/).[2] We based our household selection on cross-settlement transects, followed by within-household random selection. Findings from the qualitative research component helped shape survey questions. The potential of virtual mobility offered by mobile phones which had emerged as a significant issue in the qualitative research thus led to very specific questions in the survey regarding young people's access to phones, ownership, patterns of use, and how this affected their physical mobility.

We utilize the combined results of our mixed-method approach in the discussion which follows, first examining young people's phone usage patterns across the different types of study settlement within our three study countries and drawing comparisons across countries, also considering age and gender differences in access and usage. We then explore usage in greater depth in two highly contrasting locational contexts – remote rural and high density urban neighbourhoods – and consider potential connections between young people's phone usage, virtual and physical mobility and broader implications for social change.

3. YOUNG PEOPLE'S USAGE OF PHONES IN THE TWENTY FOUR RESEARCH SITES

In the survey questionnaire we asked young people aged c. 9-18 years whether they had used a phone in the last week. This provides a useful basic measure of the level of phone use by young people across the three focus countries. In Malawi, 9.3% of our survey respondents had used a phone in the last week, in Ghana 16.7% and in South Africa 55.8%. This contrast in phone use across our study countries is clearly significant and the pattern of difference is probably as one might expect, given their relative wealth and

[2] Our research also had a novel young researcher strand whereby 70 school pupils aged between c. 11 and 20 years undertook their own peer research. This was conducted at an early stage in the project and findings fed into and helped shape the adult academic research questions. Mobile phones became a key communication tool for linking with and supporting the young researchers as they undertook studies in their communities.

developmental status: Malawi is the poorest, least developed country of the three, South Africa the richest and most technologically advanced. Our questions to young people as to whether there was a working mobile phone in their own home produced a similar pattern: in Malawi 23.3% of those interviewed responded positively, in Ghana 29.6% and in South Africa 77.2%. Almost all of the phones used by young people are mobile phones (i.e., in all except 4.6% of cases in Malawi, 1.1% in Ghana and 2.3% in South Africa). This is not only because – as noted above – access to landlines has been highly restricted but also because mobile phones offer far greater flexibility and at very low cost. When we look within each country at differences across settlement types (Table 1), the variation is similarly fairly substantial, and shaped again roughly as one might expect: usage in the week previous to the survey was lowest in the rural locations and rises substantially in peri-urban and particularly urban locations. Only in Ghana is there a slight deviation from the overall pattern of increasing usage from remote rural to urban sites.

Table 1: Young people's usage of phones in last week, from survey data [n=2,905]

	Remote Rural	Rural with Services	Peri-Urban	Urban
Malawi	0.4%	2.8%	13.1%	21.6%
Ghana	3.0	1.6	23.8	35.9
South Africa	43.0	56.4	66.8	67.5

Phone usage X country P (chi-square) =<0.005
Phone usage X settlement type P (chi-square) =<0.005

In our survey we also asked respondents what was their principal reason for using the phone (in the last year). The dominant reason given in all three countries was in the category social/chatting to family and friends. Other stated reasons (emergencies, work-related calls and urgent news) accounted for less than 5% of responses in each country, with the exception of playing games, reported by 10.8% of respondents in South Africa[3].

[3] Among other uses of mobile phones, use for emergencies was only rarely reported, but much valued when circumstances arose such as sickness or serious travel problems: *I used it [mother's mobile] to call my dad who was at work to inform him that one of my brothers was sick. My mother told me to make the call*. [Boy, 12 years, U, Ghana coastal zone]. [15 year old daughter] *has her own mobile phone … she does not use it in class but in case of emergencies like when it rained hard and the bus could not bring them back* [home from school]. [Mother, 45 years, RR, South Africa GNW]. There were also occasional references to use for trade as in the case of an 18 year old girl in Ghana's forest zone urban site who had bought her mobile phone from the proceeds of onion trading and now finds it essential for her trading activities. As Overå (2005, 2008) reported for Ghana, the cost-saving potential is particularly great in organizationally complex, geographically dispersed, commodity chains such as the onion chain, if all network partners have mobile phones.

However, given the fact that social and livelihood/resource networks are so highly interconnected in African contexts, the interpretation of the dominant social/chatting calls category as social *per se* would be incorrect (Molony 2007). As Donner (2008:148) observes, there are 'often- blurred lines between personal and economic relationships' both within and between households. Many young people across Africa obtain work and live off resources provided by social contacts: kin and friendship networks are crucial in this respect (e.g., Chant and Jones 2005 for Ghana and the Gambia; Langevang and Gough 2009 for Ghana; Boehm 2006 for Lesotho; Muto 2009 for Uganda). This requires careful nurturing of social relationships over time and mobile phone contact is extremely valuable (Molony 2009), especially where key contacts are located at a distance and travel costs and hazards (such as high traffic accident rates and check points where bribes have to be paid) inhibit frequent visits. A quotation from one 15 year-old school boy illustrates this point effectively: *I often use [sister's mobile] to communicate with my mother. It saves me from travelling ….. I am able to make all requests through her on the phone. It saves money, time and risks of accidents.* [RS, Ghana coastal zone]. The perceived hazards of distant travel often require young people, especially young girls, to be accompanied. Phone calls between children and distant parents can thus help reduce the number of journeys made by both child and accompanying adults: *[Foster child] calls her father who stays in [distant rural location], once in a while… just to chat…she doesn't have to travel all the way to see and talk to her father, but can call him*. [Grandfather, 70 years, RR, Malawi southern region]

Our qualitative data, especially in South Africa, where usage among young people is most extensive, shows how mobile phones are regularly employed by young people to promote social interaction, connecting them to family (often concerning their need for funds) and to friends, despite common limitations on money available to purchase airtime: *She uses it to call friends and family members who live in Durban. She also calls her mother … for something such as money for school fees and school uniform. ..[or] to call her uncle in Lusikisiki, she asks him to come and pick her [up]*
[Foster-mother of 9 year old girl, 40 years, RS, South Africa Eastern Cape]
I have a mobile phone. I call my friends and my brother in Durban. It has changed my life. …If my brother wants to send us money he just calls and I go and withdraw the money from the bank. [Girl, 18 years, RR, South Africa Eastern Cape]
These quotations illustrate the benefits that mobile phone offer for organizing remittance flows from urban-based family members to young relatives elsewhere. Although respondents tended to categorise such calls as 'social', because to family members they are usually seen as social calls, the underlying purpose is frequently more complex, with resource access a significant element.

Free SMS messages are particularly significant because they offer many young people (especially those in rural locations where funds are commonly particularly scarce) a means to keep contacts alive when funds for airtime are limited: *I use it [mobile phone] to play games and to send a 'Please call me' [free SMS] to people who have airtime. …* [Schoolboy, 13 years, RS, South Africa GNW]. A common practice (in all three countries) is to make contact with family and friends by calling the person, letting the

phone ring once or twice, then disconnecting, as a young man, talking about his rural-based family members, observed: *They just beep and expect a relative or friend to call them back [because]… they cannot afford to buy units*. [Father with one child, 25 years, U, Malawi central region] Known variously as 'flashing', 'beeping' or other local terms, this enables people to assert their presence, stay close to family and friends, track travel progress, and say 'phone me back, I've no units', as Slater and Kwami (2005) describe in a Ghanaian context (see also Smith 2006 re. Nigeria; Donner 2006 re. Rwanda; Donner 2007). Flashing is a way to reduce the cost of maintaining relationships: it reminds distant call recipients of ties and obligations, and with minimal effort; thus it is often employed by young people as a way of connecting to older/richer people whom they hope will then phone them or at least remember they exist. An 18-year old secondary school boy in a rural settlement in Malawi's central region, for instance, described how he borrowed a cell phone to call his former primary school teacher '*to find out how he was faring… I just beeped and I was called* [back]': this is clearly expected protocol. This practice can be particularly important for rural dwellers whose family have moved to the city (and are assumed to be in possession of more resources than their rural relatives), as we discuss further below.

4. OBTAINING ACCESS TO PHONES: OWNERSHIP AND RELATED ISSUES

Our survey shows that most young people do not own their own phone and, when they use one, must beg or borrow it from other people, most commonly a household member (Table 2 below), which often presents difficulties[4]. Young people widely aspire to possession of a mobile phone, but only in South Africa, where young people's overall usage is highest, is personal ownership of mobile phones substantial; here over one-fifth of all young people surveyed owning their own phone.

Table 2: Whose phone do you use? [n=2954]

	Own mobile	Household member's mobile	Other relative's or friend's mobile	Mobile in kiosk/ bureau/ spaza	No phone/ phone rarely used
Malawi	0.6%	9.5%	6.9%	0.9%	76.9%
Ghana	2.4	17.0	134	4.4	60.2
South Africa	21.0	35.3	2.7	3.6	30.2

Own mobile X country P (chi-square) =<0.005

[4] Non-usage sometimes occurs, especially among younger children, in those circumstances where the phone has to be borrowed from family members, but was more often presented as due to lack of resources, or lack of connectivity in remote locations. Deliberate total non-use was not reported in our study.

(This table omits the small proportion of cases where young people access phones from a variety of sources i.e., a variety of access patterns, including land lines. Only main categories are indicated here.)

Patterns of access and sharing reported by young people across all three countries suggest that sharing can be as complexly selective and strategic as that reported for rural Uganda by Burrell (2010), with considerable variation in access between households within individual study sites, depending on factors such as family structure (e.g., foster status), household resources and livelihood patterns, and substantially complicated by inter-generational relations and gender- and age-related power structures. Borrowing restrictions are widely reported, especially in Malawi and Ghana (where phone ownership is lower than South Africa): survey data indicates that among those children who had a mobile phone present in their home, 51.5% in Malawi could not use that phone, compared to 33.7% in Ghana and just 17.4% in South Africa.

In our Ghana qualitative interviews, in particular, many young people observed that older family members permitted them to borrow the phone to call other family (where it is likely to be answered by the older generation), but calls to friends were strictly limited or barred. Children, especially young girls, sometimes seemed very fearful of punishment if they accessed the phone without permission: *I have not used a phone before even though there is a phone at home I am not allowed to use it. I only get to touch the phone if my father gets the call and is not near. I pick it up and then go to give it to him*. [Schoolgirl, 16 years, RS, Ghana coastal zone]

Our qualitative data also provides some detail regarding how young people most commonly acquire a mobile phone, through gifts from urban-based siblings and parents (who often also pay for air time) (see also Molony 2008: 347). In Malawi ownership levels are still relatively low, but in Ghana there were many cases where young people (in both rural and urban areas) reported being given phones by family members living in a city some distance away: *I have a personal mobile phone. My brother in Tema bought it for me so that I can communicate with him. He pays for the recharge units most of the time* [Unemployed boy, c. 18 years, U, Ghana coastal zone]. In some cases the family members are living overseas, in a neighbouring country or further afield: *I have a phone given me by my mum [in Cote d'Ivoire] so that I can use it to communicate with her* [while I'm living with my grandmother] [Schoolboy, 16 years, U, Ghana coastal zone]. As Slater and Kwami (2005) observe, in the Ghanaian context, the mobile phone is a more manageable gift in terms of size and cost than other desired items such as fridges. The gift of a phone – whether to individuals living in another part of the region, country, or overseas - allows urban-based families to discharge (especially) rural obligations, without too much hassle and to receive urgent news such as funeral announcements. Once obtained, phones are usually prized possessions, though lack of money for units sometimes forces the phone to be relinquished: *I once had a mobile phone… My father bought it for me. But in Kumasi my mother asked me why she should buy me food while I used a mobile phone. I therefore decided to sell it and use the money to buy food, soap and other needs.* [Unemployed girl, 22 years, PU, Ghana coastal zone]

In South Africa, phone acquisition in rural areas is also very commonly enabled by urban-based family. Here phones are widely considered essential to maintaining the social networks between rural young people and their migrant parents and family in the city, as we discuss further below. However, acquisition of phones may have less positive undertones, especially in the case of young girls: this was a substantial cause for concern among many adults.

5. AGE AND GENDER PERSPECTIVES ON PATTERNS OF PHONE USE

We have made various references in the discussion above to gendered and age patterns of phone use. In this section we use our survey data to compare patterns of usage firstly by age, then by gender, across the three focus countries.

Rettie (2008) suggests that age affects phone usage even more than gender in Western contexts (drawing a general contrast between higher use younger and lower use older adults). Our survey data shows that, within the age cohorts under examination, younger children were everywhere least likely to have access to a phone: 87% of 9-11year-olds had never used a phone in Malawi, 80% in Ghana, and even in South Africa, where overall usage is high, only half of the youngest group surveyed had ever used a phone.
The father of young children in a remote rural Malawi village (where mobile phones are still very rare) observed, the mobile phone is '*a great treasure that cannot easily be shared or exchange hands.*' [Father, c. 30 years, RR, Malawi central region]

Table 3 below indicates usage in the week prior to the survey by age group and shows clearly significant differences in usage by age group across the three countries.

Table 3: % within age group who used a phone last week [n= 2903]

	9-11 years	**12-14 years**	**15-18 years**
Malawi	4.8%	9.3%	14.7%
Ghana	5.4	13.6	30.1
South Africa	37.1	58.0	74.6

Phone usage by age group: P (chi-square) =<0.005

In each country we find the lowest percentage who had used a phone in the week prior to the survey in the youngest of the groups we studied (c. 9-11 years), intermediate

percentages in the middle age group (12-14 years) and highest percentages in the oldest group (15-18 years). This accords with information from qualitative research where the view was occasionally expressed that younger children were incompetent in their phone usage, being likely to break the phone, or to use the phone for 'inappropriate calls'. The type of 'inappropriate' calling to which respondents alluded referred principally to those involving contact with the opposite sex. A 13-year old schoolgirl in Ghana, for instance, said her father does not even allow her to use her elder sister's phone: *He says a child should attain the age of 18 before using a mobile phone. He feels that I am young and that boys would be disturbing me on the phone and it will also prevent me studying* [U, Ghana forest zone]. By contrast, those in the oldest age group were far more likely to refer to their regular use of phones in qualitative interviews, observing their use for a variety of purposes, including in some cases as a means of earning money.

For those in the oldest of the age groups under discussion, mobile phones evidently offer a growing livelihood opportunity, especially those who have already left school, whether living in urban or rural areas. Often the business is set up by or with support from a family member: *Some time ago [my uncle] gave me one of his mobile phones to do 'space to space'* [Out-of-school[5] boy, fostered with grandmother, 15 years, U, Ghana coastal zone]. Another boy had saved money from selling iced water to buy phone cards: *For the phone card rental I get a profit of 10,000 cedis every day… my sister asked me to do this. She gave me the advice*. [Boy, 18 years, U, Ghana forest zone].
However, very occasionally we met budding young entrepreneurs who had clearly identified the mobile phone as a business opportunity with potential, as in the case of the following 17 year old boy, still at secondary school (four miles away), who had just acquired one of the first mobile phones in his village when we interviewed him:
I have a cell phone. I bought it through business [petty trade]…this week. Even here it works. I use it in both places but mostly I use it at school… There's somebody nearby, a schoolmate. [I phoned] just to tell him my phone number. [I will use it] for business – as a call centre where they call and give me money. Nobody has yet, but I'm sure people will. [RR, Malawi southern region].

Examination of phone usage patterns by gender across our three focus countries is particularly instructive. Table 4 below shows broad country contrasts: lower use of phones in the week prior to the survey by girls than by boys in Malawi (where overall usage is lowest across the three countries), but the reverse of this pattern in Ghana and South Africa. However, the gender difference is statistically significant only in the case of South Africa.

Table 4: Gender perspectives: use of phone in last week by country [n=2895]

	Female	Male

[5] Out-of-school i.e. not currently enrolled or attending school, despite being of school age.

Malawi	8.9%	10.2%
Ghana	19.1	14.7
South Africa	62.1	51.2

Phone usage X gender: significant only for South Africa where P (chi-square) =<0.05

If we explore variations within country, between different locational categories, however, interesting differences emerge across the three countries (tables 5,6,7). Table 5 below shows that in Malawi (which has the overall lowest phone use by young people) male usage is higher than female usage in all four settlement categories. Table 6 indicates that the reverse is the case in South Africa (the country with overall highest phone use by young people) where in all settlement categories female use is higher than male use. In Ghana (Table 7) the picture is more complex: in the two rural categories, male use is greater than female use, but in the two urban categories, female use is greater that male use.

Table 5: Use of phones in last week by gender, Malawi [n=979]

Settlement type	Female	Male
Remote Rural	0%	0.8%
Rural with Services	2.7	3.0
Peri-Urban	10.2	16.8
Urban	19.4	26.1

Not significant at .05 level

Table 6: Use of phones in last week by gender, South Africa [n=927]

Settlement type	Female	Male

Remote Rural	49.7%	33.0%
Rural with Services	60.6	51.4
Peri-Urban	68.5	64.6
Urban	71.4	60.5

Phone usage [all categories] X Gender: significant only for Rural with Services where P (chi-square) = <0.001

Table 7: Use of phones in last week by gender, Ghana [n=989]

Settlement type	Female	Male
Remote Rural	2.0 %	4.0 %
Rural with Services	1.5	1.7
Peri-Urban	27.9	20.1
Urban	37.6	33.3

The Ghana situation is thus half-way between that pertaining in Malawi, on the one hand and South Africa on the other. The overall pattern across the three countries suggests that where phone usage is low and the technology newly adopted, males are likely to predominate; but as phone usage grows, girls start to predominate. The pattern we have found of low use by girls (compared to boys) in low-use settlements and higher use by girls (compared to boys) in higher use settlements, accords with established understanding of gendered technology uptake in low income countries, particularly in the transport field, whereby males commonly capture new technology but, as its novelty declines, females may be able to increase their adoption levels (Bryceson and McCall 1994; Fernando and Porter (eds) 2002, p. 5; Porter 2008, all with reference to uptake of Intermediate Means of Transport; see also Cockburn 1985; Cockburn and Ormrod 1993). The pattern of lower female use in low-use settlements may be supported by other factors too, such as low network coverage in remoter low population density (low use) areas, since the combination of girls' relative time poverty and restrictions on their independent

mobility (Porter 2011) may limit their opportunities to use phones, particularly if network access is only available when a journey is made to a remote site some distance from home. As availability of phones and network coverage increases, female usage may thus expand considerably. In high-use areas, better reception will enable females to fit phone use more easily into their busy working days tied to the domestic sphere, since they do not have to walk to remote areas to obtain a signal. We can also hypothesise, from this data, that female roles in the maintenance of distant family networks through phone contact are likely to become more dominant as the mobile phone becomes a routine communication tool.

In South Africa, the highest use country, it is also worthy of note that girls' personal ownership of mobile phones is substantially higher than boys overall (Table 8), and that the difference between girls' ownership of phones (23.7% for the country as a whole) and boys' ownership (17.3%) is statistically significant. However, as we discuss further below, many parents and guardians express concerns regarding the means by which girls obtain personal mobile phones.

Table 8: Phone use by gender [n=2943]

	Own mobile	Household member's mobile	No phone/ phone rarely used
Malawi	F=0.4% M=0.9	F=10.8% M= 8.1	F=77.2% M=76.4
Ghana	F=1.9 M=3.0	F=18.9 M=15.0	F=57.0 M=63.3
South Africa	F=23.7* M=17.3	F=34.7 M=36.4	F=26.2 M=35.9

Own mobile X Gender: significant only for South Africa where P (chi-square) =<0.005
[Actual numbers in individual cells are too small for adequate significance testing in Ghana or Malawi]. Only key categories are noted here.

6. MOBILE PHONES IN CONTRASTING LOCATIONAL CONTEXTS

In this section we draw on data from qualitative interviews to explore the ways mobile phones are used and perceived at each end of the settlement spectrum in our study countries. Firstly we examine the situation in remote rural areas where young people's phone usage is relatively low (i.e., compared to the country as a whole), and subsequently consider densely populated urban neighbourhoods where their phone usage is much higher. The potential for the virtual mobility presented by the mobile phone to

circumvent controls on physical mobility is considered here, with particular reference to gender.

6.1 Mobile phones in remote rural areas: reducing isolation, connecting families

In remoter rural areas mobile phone network coverage is often very poor, especially in Ghana and Malawi[6], where services in general are rather less well developed than in South Africa. Buys et al. (2009) observe how network coverage is affected by cell phone tower location related to population, elevation, slope, distance to the nearest main road, distance from the nearest large city and observes '*coverage exclusion for low density rural populations that are off-road and uphill* (Buys et al., p. 1502).*'* During fieldwork in remote rural locations in Ghana and Malawi, the few people who had access to mobile phones were often to be observed walking to particular points (commonly a hilltop) where a signal can be obtained.

In addition to constraints imposed by poor network coverage in these remote rural sites, there are also limitations because of the lack of mains electricity to charge phones[7], the rarity of shops selling air time and its cost. Consequently, charges are higher to rural customers and use is constrained, especially in poorer households, where mobile phones are often used principally to receive calls, unless family members send them airtime. Nonetheless, phones offer a vital link with city-based relatives in particular.

In both Malawi and Ghana, despite poor rural connectivity and very limited mobile phone ownership among young people outside cities, the recognition of the potential that mobile phones offer in linking to distant relatives (and their resources) has grown rapidly:
Five people have working phones – you can get the network here. Some more are broken... The change [phones bring] is in informing relatives distant from here – it's a bit easier.' [Settlement leader, c. 50 years, RR, Malawi southern region]

I was calling my uncle at Mulanje to send money [for school fees: the call was made at school, in another settlement]. [Schoolgirl, 18 years, RR, Malawi southern region]

[I] use my parents' phone to interact with my mother who stays in Accra. It allows me to always converse with my sister. In its absence I should have gone to the communications centre [in another settlement] [and] *pay more money* [Schoolgirl, 14 years, RR, Ghana coastal zone]

In remote rural South Africa, where large numbers of children are resident with grandparents while their parents work in cities hundreds of miles distant (and connectivity is better than in Ghana and Malawi), mobile phones are already widely recognized as a vital communication tool for so-called 'stretched households' (Scuse and

[6] The Malawi government is not satisfied with the poor coverage of rural areas by private and state operated telephone network providers and has developed a Universal Access Policy to give rural populations access to affordable communication (Nkawihe 2007).
[7] Solar and wind-up phone chargers have not, as yet, become widespread, so rural mobile phone owners resort to charging their phones (for a fee) intermittently at settlements which have electricity supply but may be some distance from their homes.

Cousins 2005) by young and old, as the following statement illustrates: *Their mother bought a cell phone that I keep so that they can talk to her whenever they want to… their mother sends them airtime. The phone is very important because it brings them closer to their mother. They don't see their mother frequently.* [Grandmother caring for three children, c. 60 years, RR, South Africa GNW]

For young people who manage to access phones in remote rural areas, the mobility implications may be substantial. In rural areas in all three countries, parents or grandparents and other elders tend to exercise surveillance on young people's daily travel to (primary) school, for water collection, farming in the village area and so on (Porter et al. 2010b, 2011). The importance of surveillance and control can be explained not only in the fact that children are precious as individuals in themselves, but also because young people's inputs – particularly their labour contributions – are commonly perceived as vital to family survival in these usually poorly-resourced and poorly-serviced locations. Ensuring the security of young people's labour input is a major issue for many families, given the precarious circumstances within which they struggle to get by. The physical mobility of girls is also often highly constrained by concerns about their vulnerability, especially once they reach puberty (Porter 2008, 2011). Many young people, girls and boys, report how irksome they find this level of surveillance, an issue which is compounded by other frustrations of life in such locations. As one 16-year old girl in a remote rural Eastern Cape village observed: *Here in XXX there are no schools, no roads and no transport and clinics. We don't have all these things so I don't see myself staying for long*.

In such contexts, not surprisingly, mobile phones are highly valued by young people as a perceived lifeline to a better world. Regular contact with urban family networks is seen as a potential access route to external resources – secondary school fees, transport fares to visit relatives in the city, even urban jobs (Muto 2009). For such young people talk on the mobile phone is part of an exit strategy which is likely to depend on nurturing urban family ties.

6.2 Mobile phones in the city: symbol of success, object of desire

For many urban families the phone appears to be seen as a way of discharging obligations to their rural kin without making long, difficult and costly journeys to remote rural areas: what Slater and Kwame (2005:12) refer to as a 'balancing of acknowledgement and avoidance/evasion as well as – perhaps – a "modern" balancing act between "my" life and my family'. As one unemployed young mother of four observed: *Cell phones bring families together; they are so close to their grandmother* [resident in a distant rural area] *now, and I like it because they have to know their families*. [Mother, 30 years, U, South Africa GNW]

But while such connections to rural kin are clearly important to many urban families, including young people, the mobile phone has much broader significance in the city, especially for youth. In Brazil, where 70% of young people reportedly own a mobile phone, this product apparently comes only second to a car on the wish-list of 15 to 20 year olds: youngsters without mobiles reportedly feel like outcasts (S. Brandford, New

Statesman 6 February, 2006). For young people in urban areas of all our three focus countries, the mobile phone is similarly an object of desire and ownership a symbol of success: *A personal mobile phone can improve my social status especially when I meet my friends. Most of them have one so I [have] become the odd one out…*
[Unemployed boy, 18 years, PU, Ghana forest zone].
My parents show me people carrying mobile phones in their hands and [mother tells] me she wants me to be like them. She admires the way those people dress and the phones they carry and discouraged me to be part of those children who go to [the]… river to get sand [as paid work, undertaken for building construction businesses] or [go] swimming [that being] a waste of precious time. [Secondary school boy, 14 years, U, Malawi southern region]

The desire for mobile phones is such that theft of phones and theft to maintain phones is widely reported in urban areas. In some cases, as in urban Ghana and South Africa, this is blamed on young boys: *Almost everybody uses a mobile phone. …the boys find ways and means to maintain the phones even if it means stealing.* [Settlement leader, U, Ghana coastal zone] *We have to walk in groups because there are boys who are not schooling who take our money and mobile phones.* [Girl, 18 years, U, South Africa Eastern Cape]
Occasionally, urban phone theft involves violence, particularly in the South African context where mobile phone muggings are rising rapidly, according to our informants:
These phones have become high on the list of most wanted by criminals. Children cannot go anyway they feel they want to go because some guy will stop them, point a knife or a gun to them and demand their cell phones. [Taxi driver, U, South Africa Eastern Cape]
My [18 year old] elder son's phone was stolen… just when he had got off the taxi. Three boys approached him with a knife and asked for the phone. He never fought back…
[Mother of 2 boys, c. 40 years, U, South Africa Eastern Cape]

In Malawi, where urban secondary school children wrote essays on their views of mobile phones for our study, their perceptions of the advantages and disadvantages of phone ownership are revealing. Perceived advantages were listed as follows: reduction in long journeys; rapid news/information dissemination to remote areas regarding emergencies, funerals or other important events; as a source of income generation; of value for their other facilities (calculator, radio, alarm, camera, torch) and prestige. One boy wrote, *'Nowadays in Malawi cellphones are everywhere as if it is a must to have it',* and another, '*Cellphones have had a huge impact among the youth. People are declared great once they get a cellphone'.* Perceived disadvantages focused around the costs of purchase, units, repair and charging up (and links made to associated theft, prostitution, early marriage and the spread of HIV/AIDS); class disruption (by both teachers and students); pornography download; playing games on the phone instead of studying[8] and road accidents.

[8] The potentially disruptive influence of phones in school has become a major issue across the world (Ford and Batchelor 2007). At the time of our research we found this mostly reported as a concern among teachers in urban secondary schools where pupils are older and wealthier: outright bans on phone use in school were becoming increasingly common, especially in South Africa, where phone use among young people is particularly high: *School policy is that learners are not supposed to bring cell phones to school. The policy was introduced two years ago. We have resorted to confiscating the cell phones…*[Deputy High

As in remote rural areas, the linkages between virtual and physical mobility have considerable significance in a youth context. Our research into physical mobility has shown how, in our urban study neighbourhoods, young people of both genders associate physical mobility with opportunities to avoid surveillance and experience freedom, including sexual freedom, but that their mobility is constrained by diverse factors from parental restrictions and high transport fares to fears of witchcraft, traffic, domestic guard dogs, rape, theft, mugging and hijack (Porter et al. 2010a). The parents we interviewed are often very concerned about youth mobility, especially among older girls (perceived as vulnerable and in need of protection), sometimes contrasting city freedoms with the benefits of village surveillance: they frequently impose physical mobility restrictions and place-related exclusions (ibid). Inevitably, inter-generational tensions arise in the face of these somewhat different mobility discourses and the gendered power hierarchies within which they are embedded (Cresswell and Uteng 2008). In this context, the virtual mobility offered by the mobile phone (for planning more cost-effective journeys, obtaining news, organizing clandestine meetings, assessing destination potential) provides a particularly potent instrument for youth, since access to phones among young people is far more widespread than in rural areas and the potential for direct connection to members of the same generation consequently high. Here it presents a new factor in the youth mobility nexus. It is an extremely valuable tool not only for direct income generation or journey planning, but also in the repertoire of obfuscation and circumvention that can accompany youth struggles towards acquisition of autonomy from parental control (since direct contestation and conflict over physical mobility is restrained by the skewed power relations which shape interactions between youth and their elders).

7. MOBILE PHONES AND YOUTH IN SOUTH AFRICA: ENABLING DANGEROUS LIAISONS?

The role of mobile phones as a potential lure, enticement or instrument of control, especially of young women and girls by older men, has been reported in diverse contexts (e.g., Burrell 2010 re rural Uganda, Smith 2006 re urban south-east Nigeria). Mobile phones as payment for sex and as a means to escape parental surveillance and control only emerged as strong themes related to personal experience in our South African qualitative transcripts, where they were particularly evident in interviews with parents and guardians of girls. In Ghana and Malawi we find impact predicted, rather than discussion being based on actual experience[9], as in the following quotation: '[increased phone use] *would encourage girls to be going out with men so that they have money for buying airtime.*' [Mother of one child, 20 years, U, Malawi central region]

School principal, PU, South Africa GNW] However, teachers' use of phones in class was also (as noted in Malawi school essays and elsewhere) observed on occasions by pupils to be a disruptive influence.

[9] Though Slater and Kwami (2005:12) suggest that gifts of phones by sugar daddies (i.e., older, cross-generational – usually sexual – partners) to young girl friends in Ghana allow both control and surveillance.

Higher incidence of concern in the South African context is probably related to young people's higher levels of phone use and ownership, compared to other countries. The gift of mobile phones by men to young girls in exchange for sex was implied in a variety of interview contexts, in both rural and urban areas:

There is a cell phone that my daughter has. I don't know who bought it for her because I don't have money to buy a cell. … [she] is schooling at XXX Secondary School … she is renting in someone's home …. Since she has been going to secondary school her behaviour has changed and she doesn't listen to me anymore because she thinks she is clever now. [Mother of three children, c. 30 years, RS, South Africa Eastern Cape]

There is widespread suspicion that girls from impoverished families who own mobile phones are indulging in illicit relationships:

Many children in the school have mobile phones… you wonder to yourself that many of these children come from poorer backgrounds, how do they afford a mobile phone, yet they even carry those expensive phones. It is mystery to me …. children are getting pregnant because of these phones. [Woman Junior Secondary School teacher, 45 years, RS, South Africa Eastern Cape]

Use of mobile phones to avoid surveillance and enable (unsuitable) liaisons was suspected by many parents, guardians and teachers:

Children can use them to go behind your back. I think she [18-year-old granddaughter in her care] has a boyfriend … when we are sitting she would get out when she is receiving this anonymous call. Ever since she had a mobile phone she has been acting weird. [Grandmother, 66 years, RS, South Africa GNW]

You never know who is calling …Some people just call and ask for one of them. I suspect their boyfriends are the ones who call and if so, it is not good

[Unemployed mother of 2 girls, c. 35 years, RR, South Africa GNW]

[15 year old girl] *has her own mobile phone. Sometimes boys call [her] phone when she is still in the bathroom and I can understand that she has a boyfriend*

[Mother, 45 years, RR, South Africa GNW]

Mobile phones are not good for children… Teenagers can use something called MXiT to chat with their boyfriends, and they can find new boyfriends from the same thing. It is corrupt and makes children to be disrespectful.

[Female key informant, 30 years, RS, South Africa GNW]

Warnings to young people about the potential harm associated with mobile phones are widespread and were often reflected in discussions with young girls who have clearly been well primed. Thus, a 14-year old girl in a focus group discussion at a school in rural Eastern Cape reflected on a likely scenario:

It makes young girls call their boyfriends. It happens that you are at home with your parents and your boyfriend calls you and tells you that he is near your home; you will then go to him. At the end of it all we start seeing a stomach growing – pregnancy.

However, as much of our preceding discussion indicates, mobile phones also offer a potential tool for empowerment (not least for young girls in contexts where parental control is excessive), enabling improved access to resources, including direct financial support, social support and employment.

8. CONCLUSION

For most of the young people in our study, access to mobile phones – once achieved – is a vital component of everyday life. This reinforces earlier observations on uptake among African youth by Castells et al. (2007: 138-9). In those areas with relatively low levels of ownership, where mobile phones are still a novelty, they remain an object of desire and personal ownership a symbol of success. In areas where mobile phones are widely in use, the desire is likely to be for newer models with ever more potential applications. However, although model and accessories/applications *per se* are of growing significance, especially to sophisticated young urbanites, it is as a communication tool that the mobile phone is critical.

As Durham (2010: 116) writes, youth are situated in a social landscape of power, rights, expectations and relationships. Girls, especially once they reach puberty, are more likely than boys to experience sustained surveillance and associated physical mobility constraints, imposed by parents and other elders (though boys also report constraints, Porter 2010 a,b). These constraints, often imposed at least in part from positive welfare motives, can be a substantial barrier to accessing education and improved livelihoods, especially (but not only) in rural areas. The virtual mobility offered by the mobile phone has critical value to young people as a means of helping to leapfrog such mobility constraints, whether openly or surreptitiously, and this has gendered and generational implications.

A key theme in the interviews we conducted is the significance of mobile phones as network capital, expediting the availability of social support (Rettie 2008: 291). The power of mobile phones as efficient urban-rural connectors seems to be particularly important. Scuse and Cousins (2005) observed, in the Eastern Cape context, how mobile phones were becoming a critical element in rural-urban communication within families, especially in 'stretched households': the same point is relevant to our research sites. Rural dwellers maintain and nurture networks to city-based relatives wherever and whenever possible through phone contact: such networks are perceived as a route to funds, to kin solidarity, and to work. Urban-based family, for their part, can fulfill rural kin obligations through phone calls and thus avoid long and potentially hazardous journeys to deep rural areas. In particular, however, we encountered many children living away from their parents and siblings with grandparents, other family members or non-kin foster parents in all three countries and all 24 sites, for a variety of reasons (notably education, parental work, orphanhood, host household labour needs). Our interviews suggest that the mobile phone is enormously important to them and their families, especially where the distance between them is great: it offers not only the practicality of sending messages about school fees and associated needs for books, uniform and suchlike, but also vital emotional support. It thus arguably has some potential to improve the sustainability of child and youth residence in distant households. In terms of support to young people's residence in rural households, this raises interesting questions regarding the potential for improved rural/agricultural viability in the longer term (if this is the case), versus the thesis that mobile phones will increase youth migration to the city. The most likely scenario is probably that the increased support available through mobile

phone connections to younger children living in rural areas at a distance from their immediate family will be balanced by increasing out migration to the city as they grow older.

The virtual mobility of the mobile phone not only promotes young people's inclusion in existing social networks but may also encourage the extension of social networks with exciting possibilities, from 'finding new boyfriends' locally, as one respondent observed above, to transnational connections. Unfortunately, as we have seen particularly in the South African context, the development of the new networks which phones can facilitate brings substantial concerns to parents and guardians. Certainly, in South Africa, ownership of a mobile phone in the case of poor schoolgirls/ unemployed girls is perceived as a likely indicator of sexual liaison with 'sugar daddies'. The potential for mobile phones to increase inter-generational tensions, because of the opportunity they provide to escape surveillance and circumvent constraints on physical mobility, is evident.

The literature on mobile phones in Western contexts suggests that mobile phone use generally strengthens strong ties at the expense of weaker ties – that it builds bonding rather than bridging capital (Rettie 2008). However, the potential of mobile phones for developing opportunistic encounters is also evident among some of the young people we interviewed, and as the research team has personally witnessed in terms of subsequent phone calls and SMS (in-country and to UK) from young people we met during our study. Given the fact that social networks play an important role in enabling households and individuals to move out of poverty, networking activity of all types is not only logical but likely to expand as young people's access to mobile phones expands.

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