

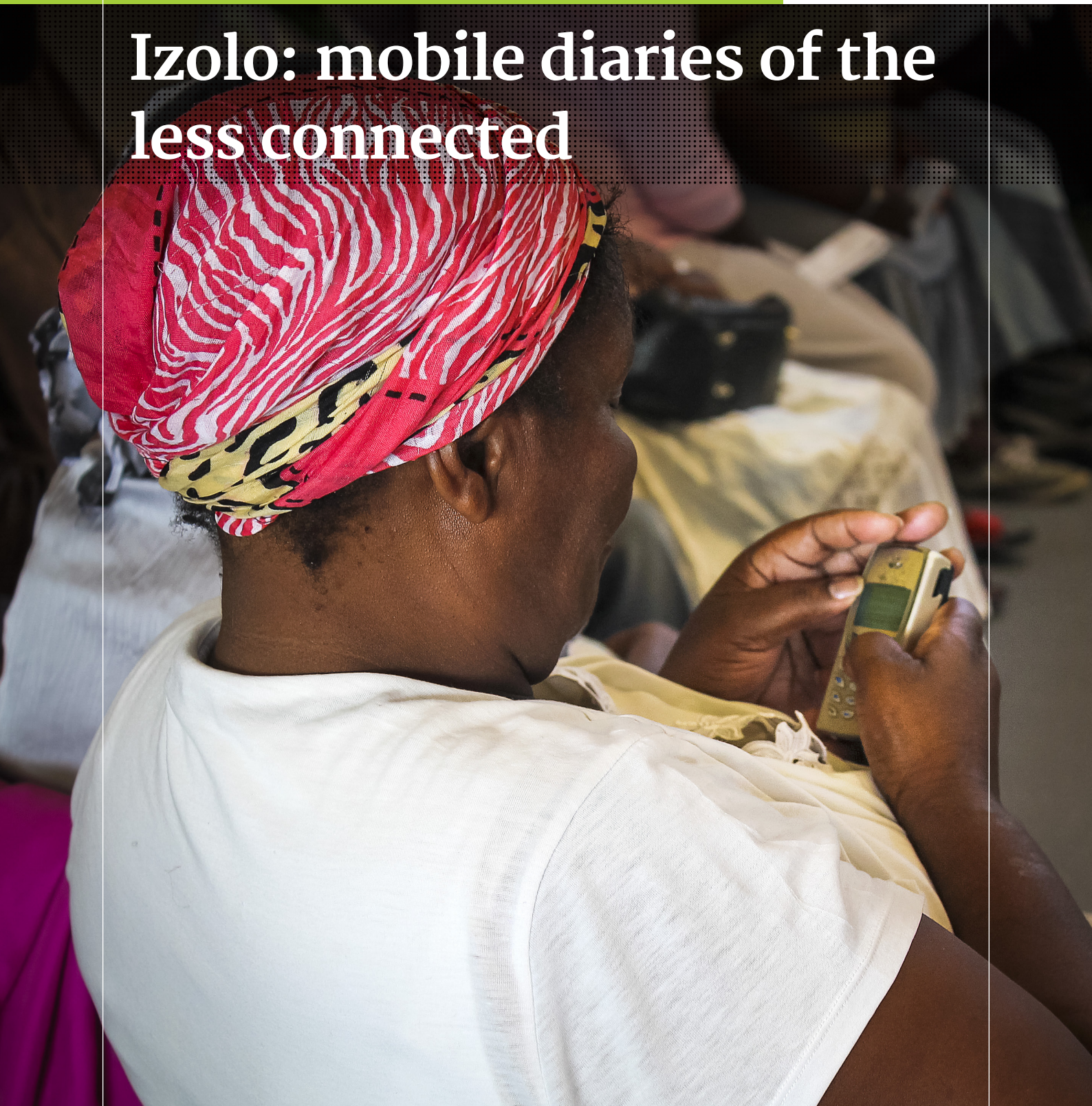
NOVEMBER 2017

MAKING ALL
VOICES COUNT

RESEARCH REPORT

A GRAND CHALLENGE
FOR DEVELOPMENT

Izolo: mobile diaries of the less connected



Indra de Lanerolle, Marion Walton and Alette Schoon

About the authors

Indra de Lanerolle leads the Network Society Lab and the Journalism and Media Lab in the Journalism and Media Programme at the University of the Witwatersrand, Johannesburg, South Africa, where he is a Visiting Researcher and Adjunct Lecturer.

Marion Walton is Associate Professor of Media Studies and Production at the Centre for Film and Media Studies, and a Researcher at the ICT for Development Centre at the University of Cape Town, South Africa.

Alette Schoon is a Senior Lecturer in the Journalism and Media Studies Department at Rhodes University, Grahamstown, South Africa.

Acknowledgements

The authors would like to acknowledge and thank all the field researchers, including Minah Bhadu, Samora Sekhukhune, and Tony Malgas and his team; the translators and transcribers, including Noxie Gogo and Glenda Tambu Muzenda; and the team at the Institute of Development Studies: Rosie McGee, Duncan Edwards, Karen Brock, Ciana-Marie Pegus and Francesca Feruglio. We would also like to thank our anonymous reviewer for their very helpful comments. All of the above made important contributions to the final study.

This research project was a collaboration between the Universities of the Witwatersrand, Cape Town and Rhodes. We would like to thank the management and administrators of our respective university departments that supported and enabled the project. Any errors or omissions remain, of course, the responsibility of the authors alone.

Reference and copyright

IDS requests due acknowledgement and quotes from this publication to be referenced as: de Lanerolle, I.; Walton, M. and Schoon, A. (2017) *Izolo: mobile diaries of the less connected*, Making All Voices Count Research Report, Brighton: IDS

© The Institute of Development Studies 2017

Contents

Summary	4
1. Four mobile diaries of the less connected	5
1.1 Introducing the less connected	5
1.2 Thandiwe's mobile diary	5
1.3 Vuyani's mobile diary	6
1.4 Sibusiso's mobile diary	7
1.5 Xoliswa's mobile diary	7
1.6 What can these diaries of the less connected tell us?	8
2. Why understanding the everyday mobile practices of the less connected is important	8
2.1 Network marginality: the less connected	8
2.2 Why do these questions matter?	9
2.3 Who is this report for?	9
2.4 How can you use this report?	10
3. How we developed the Izolo mobile diaries	11
3.1 Izolo	11
3.2 Identifying the less connected	11
3.3 Creating the diaries	12
3.4 Fieldwork	12
3.5 Where the diarists lived	13
4. Connecting to the network	13
4.1 The fragile and frugal connections of the less connected	13
4.2 Getting and staying connected on mobile networks	14
4.3 Alternatives to mobile networks	18
5. Mobile practices	19
5.1 Staying in touch	19
5.2 Managing money and earning a living	20
5.3 Education	21
5.4 Finding and sharing news	21
5.5 Shopping	22
5.6 Music, pictures, videos and games	22
6. Mobile repertoires	23
6.1 Calls and SMS	23
6.2 WhatsApp and Facebook	23
6.3 The World Wide Web	24
6.4 SHAREit – enabling offline sharing	25
7. Mobile meanings and imaginaries	25
8. Conclusions	26
9. Recommendations	28
9.1 Connecting with the less connected	28
9.2 Connecting the next billion	28
9.3 Researching the less connected	28
References	30

Summary

For the best part of a century, sub-Saharan Africa was barely connected to global telecommunications networks. Mobile phones and networks have transformed this situation. Now, according to the International Telecommunications Union, more than four in ten adults have mobile phones, and more and more are using them to connect to the Internet. Phones are now reaching those on low incomes, those in rural areas, and those on the edges of, or outside, formal economies. We call these people the ‘less connected’ and in South Africa, they are a very large group.

Our research sought to explore what kind of experiences of being connected these people have, and what role the mobile phone plays in their everyday lives. To do this, we developed a new diary interview method to construct the mobile diaries of more than 80 people in three locations in urban and rural South Africa. Each diary is an account of one particular day: the day before we interviewed them, or ‘yesterday’ – Izolo in isiXhosa and isiZulu, two of South Africa’s most commonly spoken indigenous languages.

The diaries show that mobile phones are a vital part of these people’s lives. They use them to stay in touch with close friends, children, parents and intimate partners; to manage their finances and to earn an income; to share local news; to listen to music and radio, and to take, store and view videos and photographs.

However, the diaries also suggest that the communication links between the less connected and the wider world are fragile, and mobile phones are used only with complex and frugal management. The diarists, if they use the Internet at all, use it mainly or only on their phones and largely depend on mobile operator networks for their connectivity. The mobile currencies of ‘airtime’ and ‘data’ are in short supply, often dependent on gifting between friends and relatives. Diarists described many strategies to minimise the costs of their connectivity, and to manage their cash flows, including staying up late at night to make use of cheaper rates, buying airtime and data in very small quantities, and leaving their data connections off except occasionally to check messages – connections are mostly turned off, rather than being ‘always on’.

The fragility of their connections and the frugality of their mobile practices mean that their communications are largely restricted to close social networks. They rarely explore the broader landscapes of the World Wide Web to search for information or to visit national news sites. They found many uses for their mobile phones that did not rely on expensive mobile networks.

Governments, corporations, civil society organisations and activists working to use mobile phones to connect to the less connected are unlikely to succeed if they do not make more efforts to learn about, understand and then take account of their everyday practices and constraints, in South Africa and elsewhere. The Izolo mobile diaries are a contribution to deepening our understanding of the practices of the less connected in South Africa.

The mobile diaries of the less connected discussed here can be seen as accounts of the early adopters of what may be the Internet of the future: where most Internet users connect via mobile phones, and where most of them are on low incomes.

1. Four mobile diaries of the less connected

1.1. Introducing the less connected

This report aims to describe the ways mobile phones are used in everyday life by a group of people in urban and rural South Africa that we describe as the 'less connected'. The less connected, as we identify them, are those who, if they use the Internet at all, use it mainly or only on their mobile phones; whose home languages are under-represented online; and who largely depend on mobile operator networks for their connectivity, since they do not have fixed-line connections at home.

They are also less connected in other senses. They earn average or below average incomes; they live in poorer areas with fewer economic opportunities; they often have jobs on the edges of the formal economy, or no job at all. They speak languages which, though among the commonest in the country, are not often used in the centres of power – in parliament, government or business.

We know from previous research (de Lanerolle 2012) that this group makes up a significant and growing part of the total community of Internet users in South Africa. Many organisations – including governments, international development agencies and global Internet corporations – are focused on connecting 'the next billion', many of whom are in Africa. The mobile diaries of the less connected discussed here can be seen as accounts of the early adopters of what may be the Internet of the future: where most Internet users connect via mobile phones, and where most of them are on low incomes.

The main purpose of this report is to explore and understand the role of the mobile phone in the lives of the less connected. In the report, we explain how the diaries were produced, how they can be used, and draw out some interpretations from them that we believe are relevant to anyone interested in engaging with the less connected, and / or in influencing their connectivity in South Africa or elsewhere.

In this section, we present four of the Izolo mobile diaries: narrative descriptions drawn from more than 80 diary interviews conducted, recorded and transcribed in 2016 and 2017.¹ Each of the diaries is an account of 'yesterday' – the day before we conducted the interview. For some, it was a good day. One diarist's brother bought a car; another celebrated his birthday with a trip to town with his girlfriend. One diarist received a call from her grandmother for the first time in ten years; another was excited to participate in and follow the local election. For others, it was not a good day. One diarist was sad because he missed his daughter; another was stressed after his family home was destroyed. As we will see, the mobile phone played a significant role in each of these events.

1.2 Thandiwe's mobile diary

34 years old, urban, female, low income, uses mobile Internet

Thandiwe looks after a small baby and does women's hair at home.



Phone: Alcatel Android

Phone use in diary: received and sent WhatsApp messages



Airtime balance at time of interview: R9 (US\$0.70)



Diary day: Sunday

Thandiwe earns some money doing women's hair in her home, a formal house made of bricks. She loves to laugh and she likes to be busy. She says she's a person who is always busy, so doesn't get time to do many other things.

¹ Throughout this report, pseudonyms are used to protect the identities of diarists.

Thandiwe has an Alcatel low-end Android phone – a smartphone. She has been using the mobile Internet for about two years. She uses the Internet daily and sometimes uses Wi-Fi² at the local library. Like many of our diarists who have Internet access on their phones, she uses WhatsApp extensively. She also has Facebook and Instagram apps on her phone. She has an ambivalent attitude to Facebook: “It’s for meeting different people and posting how your day was ... But we end up writing things that are unnecessary, like maybe, maybe a person had a fight with whoever.”

Yesterday – a Sunday – was a good day. She had three customers.

She woke up as usual around 4am; the baby wakes her. After bathing and feeding the baby, she got him back to sleep at around 6am. Then she washed. After that, she turned on her mobile data (she switches it off overnight) and checked her WhatsApp messages. Her first client had already WhatsApp’d her to say she was coming that morning.

Thandiwe has an airtime balance of R9 (South African Rand), less than US\$1, on her phone. She buys data packages and manages her data very carefully, buying data monthly in 30 MB packages. “I buy R12 data and then it can last for a month, simple, because most of the times [it’s] off. So I only open my data when I want to check messages, or if maybe I want to send someone a message, or maybe I’m checking someone’s whereabouts. Then I switch on my data to WhatsApp, then send a message to say, ‘Where are you and why you are taking so long?’ And actually ... most of my clients send me messages on WhatsApp that [say], ‘Listen, I’m on the way’. Then, if she’s late at that time, I switch on to WhatsApp to check: ‘How far are you?’”

Not all her messages on Sunday were work-related: “My cousin sent me a message saying that she was drinking, she’s stressed because her child was leaving yesterday, she was taking her child to the crèche.” She responded “to console her that there would come a time where she would get a job and work, then she would be able to support her kid.”

Thandiwe braided her client’s hair until 11 am. Her sister and cousin were in the house, and she was talking with them. She didn’t use her phone while working, “because I know once I start using the phone, I won’t stop”. Her client was using her own phone, though, busy on Facebook: “Actually, she showed me some beautiful hairstyles, which I like ... she came across a photo with a person who had nice cornrows, so she was showing me.”

Her next client arrived in the late morning, so as soon as she had finished her first client, she started with her second, attaching a hair extension. The second client also used her phone, but it was private; she didn’t share what she was doing with Thandiwe.

Thandiwe had a short break at around 1pm. Then her third client arrived around 2pm to have her hair plaited.

“WhatsApp makes life easy, to be honest, because instead of buying R2 airtime, and I’ll maybe chat for 30 minutes and it’s finished ... I get to buy R12 data and use it for a month, that’s why.”

Later that evening, she plays a game on her phone. “I play lollipop; it’s a nice game on my phone. I play that every time before I sleep. And then I put my phone on the charger, then I sleep.”

1.3 Vuyani’s mobile diary

19 years old, rural, male, low income, uses mobile Internet

Vuyani is still at school, living with his grandmother and brother.



Phone: Samsung Young 2 Android

Phone use in diary: WhatsApp, voice and Facebook



Airtime balance at time of interview: Ro



Diary day: Friday

Vuyani is 19. He is still at school, in grade 11. He lives with his grandmother and his older brother. Their home is made of corrugated iron and a few months ago it collapsed, so he is now sleeping on his own in a house nearby. After school, he would like to get a job as a driver and earn enough money to build a new house for his family.

Yesterday was a Friday. Vuyani woke up at 4am, worried. He has been stressed ever since his home collapsed, concerned that it is a sign of more general misfortune. “I was asking myself ... whether the ancestors see the situation that I’m in.” He got up and danced to house music. “When I’m stressed, I play my music.” He played the music from his phone, connecting it to a speaker via an audio cable. Then he checked his WhatsApp messages. Some were from his family group, about a family funeral that weekend. He isn’t part of any other groups; sometimes he feels

² Wireless local area networking.

people are rude, or there are messages that would upset him. He didn't respond to any of the messages. Then he relaxed in a bath, had breakfast and went to school. He doesn't take his phone to school.

After he returned from school, he went to visit a friend, and then went with them to get feed for their pigs. He chatted on WhatsApp with some of his friends and family. Later that evening, he wanted to call a friend to ask to borrow a brush to clean his shoes. He had 'data' but no airtime, so he sent him a WhatsApp message instead. Then he looked at his Facebook newsfeed; he wanted to see what pictures his friends had posted.

1.4 Sibusiso's mobile diary

39 years old, urban, male, very low income, no mobile Internet

Sibusiso is unemployed, living with his mother, grandmother and his daughter.



Phone: Nokia 105 (basic phone)

Phone use in diary: sent 'Please Call Me's', received calls from debt collectors



Airtime balance at time of interview: R0



Diary day: Thursday

Sibusiso is 39. He has matric (school leaving certificate) but he's unemployed and lives with his mother, grandmother and sister. He has a daughter who lives with him. He would love to be able to better provide for her. When he is not around his daughter, he says he doesn't feel OK. He has a (basic) Nokia 105 phone.

Yesterday was a Thursday. He woke up at 10am, brushed his teeth, made his bed then went to the spaza (local informal shop) to buy cigarettes and check his lottery numbers. He came home and had a bath. He smoked some 'weed' outside in the street with his friends. Then he went to collect his daughter from school at 2.30pm. Later, he watched two popular soap operas on television. He stayed home in the evening; he says he doesn't go out any more, because he doesn't have any money.

He made no calls on the day: "Recently, I've been struggling with airtime, since I am no longer working. I can't use the money I get for airtime, to be honest, you see. I load airtime once in a while, because I no longer work." Last time he bought airtime, he spent R5 (\$0.40c) but by yesterday, it had run out.

'Please Call Me's' (free messages without content to show someone you have been in touch) are important to him: "I send Please Call Me's because I don't work. My friends and girlfriends always complain, asking why I send Please Call Me's instead of calling them. I just tell them to buy me airtime."

He made no calls but he did receive some: "It was calls from my accounts ... credit cards, Edgars and Truworths [large South African retailers] ... They were recording the conversation, asking me when you are going to pay the money and advised to make payment arrangements."

He would like to be able to use WhatsApp and Facebook, but his phone is not Internet-enabled.

1.5 Xoliswa's mobile diary

43 years old, rural, female, low income, mobile Internet

Xoliswa lives with her partner and two children; she does part-time work on local building sites and gets government child grants.



Phone: Samsung Android smartphone

Phone use in diary: listening to church recordings



Airtime balance at time of interview: R0



Diary day: Saturday

Xoliswa lives in a small rural village with a partner and two children. She survives on part-time manual work on small local building sites, mixing cement and helping bricklayers. She also gets two child grants from the government. She has a Samsung Android phone with WhatsApp, Facebook and a virtual private network (VPN)³ application on her phone. She finds work opportunities on Facebook sometimes, but can't follow up on these because she doesn't know how to write emails on her phone. The airtime balance on her phone is R0.

Yesterday was a Saturday. She woke up before dawn and prayed. "Once I open my eyes and think that it's another day, I just pray the same time before I cook anything, before I do anything ... I don't get out there before talking to God."

She got the children ready to go to football, then she did the laundry, fed the chickens and prepared

³ VPNs enable secure connections between Internet-connected devices.

and baked bread. While she was busy around her home, she listened to church music on her phone with headphones. She has many recordings of church services on her phone, which she listens to while doing housework: “I can play [them] for the whole day, because there are many of the recordings.” Many people in her church use their phones like this: “Even the pastors use the phones in my church. While one preaches, one pastor is recording also.”

She had no airtime on her phone, so she didn't communicate with anyone except when a friend SMS'd⁴ her in the afternoon. Her friend was complaining that Xoliswa is 'scarce' on WhatsApp. She hasn't been on WhatsApp for a while; her airtime goes quickly because she doesn't know about, or know how to buy, data bundles.

Usually she only checks messages in the morning. “I don't have airtime and I don't want to buy it again. It's not nice to always [be] loading airtime. Your grant money would get finished soon.”

Even so, without her phone, she would have been lonely; she would have missed her music, although she says if she didn't have her phone, she would have sung. She says there's nothing that makes her happier than a song.

Xoliswa's airtime also gets used up because the kids use her phone: “When I woke up, it was not on me, I think the kids took it while I was sleeping, it was also charged ... They borrow it a lot, especially when I have data. My phone doesn't rest, they always check it ... Sometimes they would say ‘Mama, buy airtime, there's something we want to check.’”

Xoliswa has advanced applications on her phone, used for file sharing: VPN and BitTorrent.⁵ She says she finds them confusing: “They said this thing is from America, it's not from South Africa. But when these countries appear, you would press one of those countries, a country that you like to use. If it says Korea, you would press Korea and then it would count. It would quickly tell you that you are ready. So I'll go back, and something that tells me I'm connected will appear here.”

1.6 What can these diaries of the less connected tell us?

These are very personal and very individual stories. Each person is different and no day is the same. Sibusiso's phone use earlier in the week, when he had airtime on his phone, would have told a different story. But within the rich details of their practices with their mobile phones, we believe there are many significant and valuable insights. Among the details that we explore later in this report are Thandiwe's careful management of her data budget; Xoliswa's use of her phone as a media device; Vuyani's music collecting; and Sibusiso's unwelcome communications from creditors.

All of these diarists are people we describe as less connected. Three of them use the mobile Internet, while one is restricted to using voice and SMS. We believe that understanding more about their mobile practices, their constraints and their contexts is especially important for those people and organisations that seek to connect with them, or enable and support them to use mobile technologies to improve their lives.

2. Why understanding the everyday mobile practices of the less connected is important

2.1 Network marginality: the less connected

A significant body of evidence points to a strong relationship between those who are economically, socially and / or politically marginalised, and those who are marginalised in their access to, and use of, ICTs. This has been shown in research on digital divides (e.g. van Dijk 2005) and in studies of low-

income mobile and Internet users (e.g. Cartier, Castells and Qui 2005). It has also been found in South Africa, in both quantitative and qualitative studies (e.g. de Lanerolle 2012; Donner and Gitau 2009).

What may be less understood is the kind of experience of being connected these people have. As Donner (2015: 64) argues, while the Internet is becoming

⁴ Short message service, or text message.

⁵ BitTorrent is a protocol used for the peer-to-peer sharing of large files (e.g. videos) between devices.

widely available to those on low incomes via mobile devices, “it may not be the same Internet”.

Our research is informed by two approaches to studying this different, mobile Internet in the global South. Over the last two decades, Horst, Miller and their collaborators have practiced, and argued for, an ethnographic approach to understanding the Internet, particularly the mobile Internet, and its embeddedness in everyday life; see, for example, Miller and Slater (2001) and Miller *et al.* (2016). In Africa, Nyamnjoh, Brudvig, Walton, Donner and their colleagues, among others, have taken ethnographic approaches to studying the use of mobile phones by marginalised populations, including migrants, youth and women; see, for example, Nyamnjoh and Brudvig (2016), Walton and Donner (2012), Walton (2010), Schoon (2016) and de Bruijn, Nyamnjoh and Brinkman (2009). Our study is based on interviews, not direct observation; however, our research follows these ethnographers’ concerns and preoccupations with the roles and meanings of mobile phones in everyday life; with the ‘why’ as well as the ‘how’ of daily mobile use.

The other approach that informed this study is Castells’ conceptual framework of the ‘network society’ (Castells 2007, 2000), which understands mobile communications (and digital communications in general) as central to participation in political, social and economic life. Researching migrant workers in China, Castells and colleagues describe their subjects as “the information have-less”, as “a metaphor consciously used to draw attention to under-examined phenomena” (Cartier *et al.* 2005: 11). Qiu developed this concept in his book on the “working class network society”, in which he explores “working class ICTs”: the “vast grey area between the haves and the have nots” (Qiu 2009: 7) and argues that this is “emblematic of the new technosocial reality emerging in much of the global South” (Qiu 2009: 8). We choose the term ‘less connected’ to describe our subjects because in our view, it is network position – understood in social, economic, political and communication technology terms – rather than access to information that better captures marginality and inclusion / exclusion.

While these traditions and frameworks influenced the design and interpretation of our research, we tried to remain as open as possible to the ways in which the diarists themselves understood and described their activities with mobile phones. We use the terms ‘practices’ and ‘mobile practices’ often throughout this report, following the media theorist Nick Couldry, to describe activities centred on, or related to, mobile phones. By mobile practices, we simply mean what people actually do with their phones and what they

say about those actions. As Couldry (2004: 121) states, “the value of practice theory ... is to ask open questions about what people are doing and how they categorise what they are doing”.

2.2 Why do these questions matter?

We live in a ‘network age’, in which governments, business, civil society organisations (CSOs) and technologists are proposing and exploring the ways in which connecting citizens to digital networks could improve economic, political and social life. There is a powerful ‘grand vision’ that many African governments, as well as global Internet businesses and others, appear to share⁶ – of how connecting the unconnected can and will transform economic, social and political opportunities for Africans. At the centre of this vision are the mobile phone and mobile networks, the only part of this global technological network that can be found almost everywhere in South Africa, and indeed across most of the African continent.

South Africa is a highly unequal society. Most South Africans have a mobile phone, but our previous research led us to believe that mobile phone use among the relatively poor is not the same as mobile phone use among the relatively rich.

Changes in communication technologies enable changes in how relationships of power are organised. As Castells, one of the first theorists of the ‘information society’ puts it (2010: 93): “Information technology, and the ability to use it and adapt it, is the critical factor in generating and accessing wealth, power and privilege in our time.” As these technologies diffuse throughout Africa, they have the potential to reproduce, as well as to challenge, existing inequalities in society. As two of the leading researchers on the ‘digital divide’, van Deursen and van Dijk (2014: 507) argue: “When the Internet matures, it will increasingly reflect known social, economic and cultural relationships of the offline world, including inequalities.”

2.3 Who is this report for?

We have written this report primarily for two groups. The first are those who are using, or trying to use, mobile technologies to connect to the poor or the marginalised, in South Africa or elsewhere. These include people in government, CSOs and tech-focused organisations who are using digital technologies to extend ‘citizen voice’, and to increase transparency, accountability or government responsiveness – a field that is sometimes called ‘civic tech’. It also includes those who are using these technologies for economic

⁶ See Friederici, Ojanperä and Graham (2017) for a review of African government policy documents on mobile, broadband and the Internet.

We hope you can use this report to reflect on the differences between your own ‘imaginary’ of the mobile phone and the mobile Internet, and the daily practices of the South Africans we engaged with in this study. The diarists also have imaginations of what the mobile phone is and could be. But their daily practice and their ‘imaginaries’ may differ substantially from yours, or from other ‘imaginaries’ you are exposed to.

or social development, for education or health, for example; this field is sometimes called ‘information and communications technology for development’, or ICTD.

The second group we hope to reach are government policy-makers, corporate decision-makers, donors, researchers and investors who are aiming to contribute to extending mobile and Internet access and use in Africa. These include those in the telecommunications companies that build the infrastructure and provide network services to the less connected; people in national and local governments bringing public Wi-Fi and the Internet to schools; those in government and regulators who set and monitor broadband targets; and those advocating for increasing and improving access and affordability.

The study on which this report is based was funded by Making All Voices Count, which from 2013 to 2017 supported more than 170 civic tech initiatives in 13 countries in Africa and Asia, and also supported an extensive research and evidence programme on uses of technology in governance and accountability. Making All Voices Count’s research and evidence strategy asks which “social differences or exclusions are narrowed by technology, which are exacerbated, and which are unaffected?” (McGee, Edwards, Minkley, Pegus and Brock 2015: 5). The Izolo study aimed to explore some aspects of this broad question in South Africa.

2.4 How can you use this report?

The evidence presented here comes from more than 80 people in three locations in South Africa. We believe that their mobile diaries are interesting and illuminating in their own right; we also hope that they may inspire and enable readers to generate new ideas and reflections on the roles of the mobile phone and the mobile Internet in everyday life, and the opportunities that they may – or may not – allow.

The people in the report were chosen carefully (see Section 3), but when reading, you should bear in

mind that these are individual stories. We have made interpretations that we believe may apply more generally, but it is natural in this type of qualitative research to be cautious about generalising. Each of us is different and each day is different. These diaries are also snapshots in time; mobile technologies and mobile practices are dynamic, and if we repeated these diaries in a year’s time, we would expect different results.

If you are designing or working on interventions to connect to the less connected, you may want to use these diaries to reflect on whether your assumptions about your intended users have been tested, or whether you need to do more research to understand their everyday mobile use. The diary method used in this study is one approach you could adopt.

If you are working to connect the unconnected, you may want to use these diaries to examine your assumptions about what connectivity can or will bring, to deepen your understanding of what kind of connectivity may benefit people like these, and which purposes that connectivity may be put to.

You may also have ideas about the mobile phone’s role in society. These may be based on experience, but they may also be based on your imagination of what the Internet is, could or should be. We all share some ideas like these, which constitute a “social imaginary” – “the taken for granted notions, images and visions” of mobile technologies and the Internet (Mansell 2012: 6). Some of these are powerful ‘grand visions’ of the transformative power of mobile technologies in Africa,⁷ often replicated in news stories, conferences and elsewhere. We hope you can use this report to reflect on the differences between your own ‘imaginary’ of the mobile phone and the mobile Internet, and the daily practices of the South Africans we engaged with in this study. The diarists also have imaginations of what the mobile phone is and could be. But their daily practice and their ‘imaginaries’ may differ substantially from yours, or from other ‘imaginaries’ you are exposed to.

⁷ If you are interested in how these are articulated in reports and policies of governments and others in Africa, see Friederici, Ojanperä and Graham (2016).

3. How we developed the Izolo mobile diaries

In this section, we explain the methods we used to select the diarists, the way that we worked with them to construct their diaries, and the locations in which we conducted the fieldwork.

3.1 Izolo

Izolo means ‘yesterday’ in isiXhosa and isiZulu, two of South Africa’s most spoken indigenous languages and the languages spoken by many of the people at the heart of this study. The research is about how people used their mobile phones on a particular day – the day before we interviewed them. What did they do with their phone? What for? And how did their phones fit into the rest of their lives on that day?

The people we asked were men and women whose ages ranged from 19 to 70, most of whom lived on low (up to about US\$2.50 a day) or very low incomes (up to about US\$1 a day).⁸ Around half the population in South Africa live on incomes within these levels. They are, by official definitions, poor. Some had phones that could connect to the Internet, and some didn’t.

3.2 Identifying the less connected

There is a high degree of consensus among academic researchers on the main factors that are relevant to identifying who is included and excluded from advanced mobile technologies and the Internet – the global technology networks that constitute much of modern communications. Key among them are age, income and education (van Deursen and van Dijk 2014).

Other dimensions have been suggested as influencing practices on mobile phones and Internet use. Important among these are the availability and

affordability of technologies, both devices and networks; for South African research on this, see de Lanerolle (2012); Walton (2010); and Donner and Gitau (2009). In addition, several studies have explored ‘digital skills’ and experience; see, for example, van Deursen and van Dijk (2011). Social network factors (the practices and uses of technologies in a person’s social networks and communities) have also been proposed as significant, for example in ethnographic studies on sharing practices (e.g. Walton, Marsden, Haßbreiter and Allen 2012) and in research following the diffusion of innovations approaches (e.g. Rogers 2001). Table 1 summarises the factors that have been identified as influencing whether people can and do use these technologies in South Africa and elsewhere.

We used this framework to develop quotas for selecting participants in our study. We recruited some people who had phones that enabled them to use Internet services⁹ (e.g. WhatsApp, Facebook or the World Wide Web¹⁰), and some who only had basic phones that could be used to make or receive calls or send and receive SMS. In recruiting, we also aimed for a balance between men and women, and young and old, and for a range of incomes.

The younger age group was from 18–34 and the older age group was 35 and older. The very low income group had individual incomes (including grants) of R0–355 (about US\$0–27) per month; this is less than US\$1 per day. About 20% of the South African population fell into this group in 2011 (Lehohla 2011). The low income group had incomes above R335 and up to R1,031 (about US\$80) per month; this is up to about \$2.50 per day. About one third of the South African population fell into this group in 2011.

Table 1 Factors influencing Internet adoption and use

Socio-economic factors	Socio-technical factors	Skills / experience factors	Social network factors
<ul style="list-style-type: none"> Age Education Employment Gender Income Location 	<ul style="list-style-type: none"> Device Network accessibility, quality and cost 	<ul style="list-style-type: none"> Years of use Literacy in language(s) required to use technologies 	<ul style="list-style-type: none"> Use / practices among strong and weak ties / communities

⁸ Some had slightly higher incomes. See Section 3.2 for a detailed description of the income levels of the diarists.

⁹ Some had ‘smartphones’ – those with touch screens that use android, iOS or Windows operating systems. Others used ‘feature phones’ – Internet enabled phones without touchscreens and with less sophisticated operating systems.

¹⁰ By Internet services, we mean any service that requires Internet Protocol and an Internet connection to use. This includes mobile applications, as well as those services and websites that are accessed using browsers (e.g. Chrome or Opera) which together constitute the World Wide Web.

Table 2 Quotas for recruitment of diarists

Category	Groupings		
Age	Younger		Older
Gender	Female		Male
Income	Very low income	Low income	Middle income
Mobile phone	Basic phone		Internet-capable phone

According to these definitions, more than half of all South Africans were on very low or low incomes in 2011 (Lehohla 2011: 11). The middle-income group had incomes above R1,031 per month. The average (mean) income among this group was about R1,700 (about US\$130) per month, or around US\$4 per day. Table 2 summarises these quotas.

Within these groups, we aimed for diversity in occupation and other factors. Occupations included school students, a domestic worker, and retail and construction workers, as well as many who worked in the informal sector (e.g. selling goods or doing piecework).¹¹ Some were also grandmothers, several of whom were also full-time carers, looking after their grandchildren. Their homes, another factor where we sought diversity, included formal brick houses, shacks (sometimes in the backyards of brick homes) and traditionally built rural huts.

3.3 Creating the diaries

Our study was based on gathering and co-constructing mobile diaries with less connected South Africans. We developed a new method to do this, which we call the reconstructed mobile diary method, or RmDM.¹²

Diaries – annotated chronological records – have been used over many decades and in a variety of social sciences, including psychology, media studies, geography and urban studies. They have been used in audience research from the earliest days of media and communication studies, in both quantitative and qualitative research.

A benefit of the diary method is capturing reported events and experiences in context. This makes the approach attractive for studying and understanding contemporary mobile phone use, which can be difficult to study by observation given the small form factor of the devices, the difficulty of seeing what people are actually doing with their phones, and the private and intimate nature of much mobile communication.

However, a number of problems have been identified with diary methods in ICT-related studies. These

include a high burden on the diarist, who has to write down every instance of phone use when it occurs, and the difficulty of ensuring the diary is always present; many people use their mobile phones in a lot of places.

To overcome these shortcomings, we developed a new mobile diary interview method, drawing on an established method called the Day Reconstruction Method, in which the diarist is prompted to reconstruct recent events (e.g. the previous day) instead of required to record the diary at the times of the events or experiences. This involves dividing the day into 'scenes' and then co-creating, through interviews, descriptions of what took place in each scene. We used this framework, although we made significant changes to the method, which is usually conducted as a survey to gather quantitative measurements. In our method, we asked open-ended questions about each activity in the diarist's day (or day part) and kept asking until we had details of what they did on their phones, what else they were doing while using their phones, who they were interacting with, etc.

3.4 Fieldwork

We conducted diary interviews in three locations during 2016 and 2017. One location was in a rural area, while two were in older 'townships' of major cities, i.e. areas developed before or during the apartheid period to house black people, and where most people on low incomes in urban areas of South Africa still live. The interviews were conducted by field researchers and the majority were conducted in African languages, including isiXhosa, isiZulu, Sesotho and Setswana, which are the main languages spoken in the areas where the interviews were carried out. We were able to collect data on 90 people in total, and recorded, translated and transcribed 80 interviews on which the findings in this report are based.¹³ The coding and analysis was done by the authors of this report.

¹¹ Piecework is any labour where people are paid by outputs (common, for example, in the textile / clothing industry).

¹² For more information on this method, please contact the corresponding author at: indra.delanerolle@wits.ac.za

¹³ Some interviews were not included in this analysis because they were incomplete, or because the recordings were incomplete.

We found that diarists' connections were both fragile and frugal: 'fragile' in the sense that connectivity was not something ever-present, and that could be easily lost; and 'frugal' in the sense that many of the practices the diarists described involved the careful managing of connectedness to maximise its usefulness and minimise its cost.

3.5 Where the diarists lived

South Africa is divided into more than 4,000 wards, which are used as electoral districts and in compiling census data.¹⁴ The country is also divided into nine provinces, which have their own governance structures. We selected three wards, each in a different province, from which we recruited participants for the study.

The first location was in an older township that was established in the 1920s, in a suburb of one of South Africa's major cities. The main language spoken is isiXhosa, the second-most common home language¹⁵ in South Africa. Around one third of the population of the ward are migrants from the Eastern Cape, one of the poorest areas of the country. Nearly a quarter of homes are informal housing, i.e. shacks in shack settlements or in the backyards of brick houses, and 95% of households have access to running water. Average household incomes are about the same as in South Africa overall but the employment rate is over 40%, which is higher than the overall national level. Although crime rates have fallen in recent years, the area still has one of the highest rates of serious and violent crime, including murder, in the metropolitan area that it is part of. Less than half of all residents have a matric (school leaving) qualification.

The second location was in a rural area, in a province where most of the population is rural. Almost everyone living in the ward was born in the area. Only around half of households have access to running water provided by the municipality, and very few have access to flush toilets; most rely on pit latrines. Average household incomes are about half the South African average. Formal employment levels are very low, and among the employed, incomes are low compared to the rest of the country. Only a quarter of residents have a matric qualification.

The third location was in a township with formal and informal housing, in a major metropolitan area in the richest province in South Africa. Most people rent accommodation and three out of ten live in shacks in backyards or informal settlements. Many are migrants from other parts of South Africa, and around one in ten were born in neighbouring countries. Almost everyone receives formal services including running water and refuse collection. The main languages spoken are isiZulu – the commonest home language in South Africa – and Sesetho. Average household incomes are about the same as in the country as a whole, but much lower than the average for the province. Employment levels – at 40% – are about average for the country.

4. Connecting to the network

A central purpose of our study was to identify the ways in which people connected to mobile networks and how the practices of getting and staying connected influenced their other mobile activities. We explore these issues further in this section.

4.1 The fragile and frugal connections of the less connected

We found that diarists' connections were both fragile and frugal: 'fragile' in the sense that connectivity was not something ever-present, and that could be

¹⁴ The data on which these descriptions are based is drawn mainly from the 2011 census, the most recent available at the time of writing.

¹⁵ A home language is a widely used demographic term, meaning the language or languages you learnt at home. Note that this can be different to the language commonly spoken at home.

For many of our diarists, being less connected meant being disconnected much of the time – being unable to make calls or send messages – because they had no airtime.

easily lost; and ‘frugal’ in the sense that many of the practices the diarists described involved the careful managing of connectedness to maximise its usefulness and minimise its cost.

Fragility was hardwired into the pre-paid payment system that all of our diarists used for their mobile connectivity,¹⁶ like the vast majority of South Africans. That means they had to buy vouchers in order to make calls, send SMS or use the Internet on their phones. Diarists referred to this process as buying ‘airtime’. We found that having ‘no airtime’ appeared to be their default condition.

Where diarists used the mobile network to connect to the Internet, this fragility was exacerbated by the complexities of managing ‘data’. An Internet-capable phone can use airtime to connect, but this is very expensive – up to hundreds of times more expensive than buying ‘data bundles’ – so most diarists who used the Internet on their phones bought data bundles, usually by converting airtime into data. The complexities of monitoring data bundles, very high ‘out of bundle’ rates, and the ever-changing landscape of promotions and special offers of mobile operators made being connected difficult and expensive. Their frugal strategies to manage this complexity meant that diarists were ‘usually off’ rather than ‘always on’.

While free public Wi-Fi networks were available to some, they did not offer a substitute for mobile networks. Only 19 of the people we interviewed used public Wi-Fi, and only two of them used public Wi-Fi but didn’t use mobile phone networks to go online. Since Wi-Fi hotspots could be some distance from home, those who used them generally used them infrequently and for specific purposes, such as to download music or videos (which are large data files) that would be unaffordable using mobile data.

There was a rich, offline ‘alternative Internet’ that the less connected used to share music, videos and photographs that were often taken on their phones. Many diarists had developed ways of

sharing that avoided the Internet and the expensive mobile networks on which Internet access depends. Instead, they had created their own device-to-device networks, using the Bluetooth, USB¹⁷ and Wi-Fi capabilities of their phones.

4.2 Getting and staying connected on mobile networks

The diaries offered many accounts of the challenges of staying connected to the mobile communication networks on which diarists depend if they want to use their phones. Often, they were disconnected – without the airtime required to make calls or without the data to use Internet services. Managing their connections required several sophisticated strategies.

Airtime

Airtime is the currency of mobile communications in Africa. Without it, even a smartphone is restricted in what it can do. The diaries reveal how fragile connections are for these less connected diarists, and how frugal they had to be in their daily communications in order to stay connected.

For many of our diarists, being less connected meant being *disconnected* much of the time – being unable to make calls or send messages – because they had no airtime. At the time of interview, we asked each diarist to check their airtime balance. As Table 3 shows, almost half of the diarists for whom we were given this information had no airtime at all, and almost two thirds had R1 or less (including those with none).

This means that most did not have enough airtime on their phone to make even one call or send one SMS. While call charges in South Africa vary according to the operator, the packages they offer and special promotions, a three-minute call at standard call rates on a major operator network is R2.37 (US\$0.20),¹⁸ while a standard-rate SMS costs R0.80 (US\$0.06).

¹⁶ In one case, the diarist had a second device – a tablet – which was ‘on contract’ (i.e. paid monthly with a fixed amount of data provided); in another, their contract had lapsed.

¹⁷ Universal Serial Bus, meaning a connection standard used by computers and other devices such as smartphones, flash drives and cameras.

¹⁸ The average South African Rand:US dollar exchange rate for 2017 was 13.3:1. We have rounded to the nearest 10 US cents.

Table 3 Amount of airtime on diarists' phones at time of interview (n=88)

Airtime balance at time of interview (R)	Number of people
0	43
0.01–1	14
1.01–5	18
5.01–10	6
>10	7
Total	88

Khethiwe, a rural seamstress on a very low income, made no calls in her diary: "I call when there's airtime ... [otherwise] I only answer calls". Sibusiso, who is unemployed, also recorded no calls in his diary: "Recently, I've been struggling with airtime, since I am no longer working. I can't use the money I get for airtime, to be honest ... I load airtime once in a while." Last time he bought airtime, he spent R5 (\$0.40c) but by yesterday (i.e. the diary day), the airtime had run out.

Most diarists reported buying airtime in very small amounts, usually between R5 and R10 (approximately \$0.40 and \$0.80), as Table 4 shows.

Table 4 Amount of last airtime purchase (n=81)

Amount (R)	Number of purchases
2	3
5	21
10	37
11–20	11
21–30	2
31–40	2
41–50	4
51–100	1
Total	81

Many diarists had family in other, often distant parts of the country, while two diarists reported having family outside the country. Elias, who lives in an informal settlement with his child and his brother, had not made a call to his family in Mozambique for a month: "You can have a decent conversation using R10 airtime, but if you have a lot to discuss then you might need R40 airtime."

Many diarists used more than one SIM¹⁹ card. They explained that often, this was so that they could make use of preferential pricing for 'on network' calls, which are often cheaper, in order to call family members. Sometimes, they had multiple SIMs to benefit from particular deals at different times of day or night.

Managing airtime

Many diaries reflected the daily negotiations involved in managing and sharing airtime in order to stay connected with friends and family. Diarists described getting airtime from girlfriends, relatives and neighbours, often in amounts as small as R2.

These negotiations frequently involved 'Please Call Me' or 'Call Back' messages: diarists either made a call but dropped the call before it was answered, or sent a free 'Please Call Me' SMS message with no content, which communicates to the recipient that the caller was trying to contact them.

Themba, a young man on a very low income, described how most of the messages in his diary were requests from others for airtime transfers: "I received one [Please Call Me] in the morning before waking up. I received four during the day and in the evening during bed time I also received [one] ... A friend might send it, just to ask for R2 and you'd call, then you'd realise that you've wasted your airtime. So I sometimes ignore it – if they send me 'call back', I know they don't have money. Had they had the money or data, they would be on WhatsApp and tell me the problem. Once they send me a call back, definitely they would ask me for R2 ... I didn't focus my mind on them a lot; I didn't focus on them because my airtime was too little."

This need to ensure others were connected sometimes meant trying to solve power problems too. Elias wanted to send a battery to Mozambique so his relatives' phones could be charged: "We don't have electricity back home, and they used to charge the phone at our neighbour's house, but that guy has moved ... I am thinking of sending them a battery and a convertor so that they can charge their phone."

Connecting to the mobile Internet

Although we selected around half of our diarists based on their having Internet-capable phones – 41 of the completed diaries were from participants who had smartphones or feature phones – a large number of those who could connect didn't do so on the day of their diaries. Only 25 diarists used their phones to connect to the Internet the previous day; 16 – more than a third – did not use the Internet at all that day. Of these, three said they only connected a few times a year. Table 5 summarises this information.

¹⁹ Subscriber identity module card, which securely stores a mobile subscriber's identity number.

Table 5 Mobile devices, reported mobile Internet use among diarists, and use on diary days (n=81)

Mobile Internet use	Number
<i>Internet-capable phones (feature phones or smartphones)</i>	41
Used Internet on their phone in diary	25
Didn't use Internet on their phone in diary	16
<i>Used Internet on their phone on mobile networks (ever)</i>	40
A few times a year	3
About weekly	3
Daily or almost daily	14
Several times a day	20

The commonest reason for this was a lack of airtime or data, but there were other reasons. One diarist had had no electricity the night before, so couldn't charge his phone. In a couple of cases, diarists didn't have the right applications on their phones, or hadn't yet learnt how to use them. For example, one diarist had the Facebook application on their phone, but didn't have a Facebook account.

There were also reasons that had nothing to do with the devices, digital skills or affordability. One older, middle-income rural man had been at a slaughtering ceremony²⁰ for a funeral, and said it wouldn't have been appropriate to use WhatsApp while there were other people around. A young rural woman, an artist, said she didn't like to socialise on her phone during weekends.

Mobile data

Mobile data bundles, often referred to simply as 'data', are the equivalent currency to airtime for using the mobile Internet. It enables higher-end phones to connect to the mobile Internet network. Pre-paid mobile users can buy data bundles using cash or by converting airtime. Mobile data can be bought in very small amounts, from as little as R5. If users connect to the Internet on their phones without buying data bundles, they pay much higher ('out of bundle') rates.

Lulama is a young woman living in an urban shack, who didn't use the mobile Internet in her diary. She had more than 200 Facebook friends, from her family home hundreds of kilometres away and from church. She liked Facebook: "It's a nice way to spend some time, because you can post and view photos, watch funny videos, read jokes and comments." Despite this, Lulama reported that it had been two months

since she had visited Facebook. She said she hoped to get on Facebook the following weekend: "I think I will have data bundles by then". She said if she could afford it, she would use it every day.

Another young woman, living in a rural area, also wanted to be on Facebook more often: "I would be happy to download music and get to Facebook, but the limitations are that there's always no data."

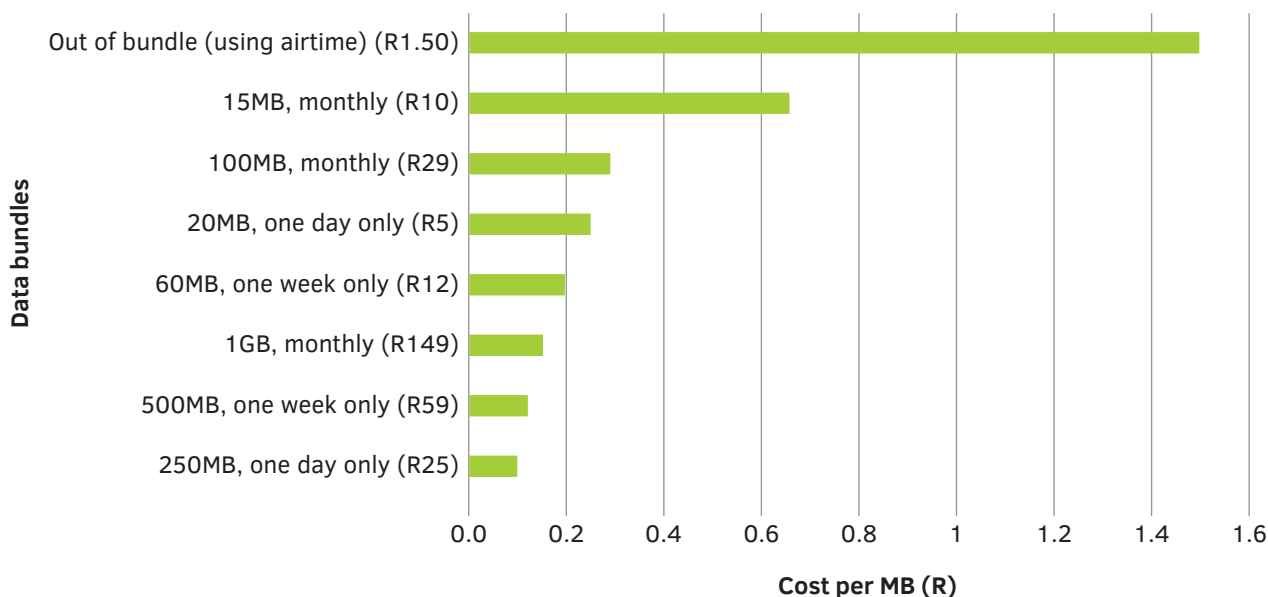
Frugal strategies for managing the less connected Internet

Managing data costs was not easy for diarists. Some diarists explained that although they connected to the Internet via their phones, they didn't buy data bundles. This meant that they were paying even more for data at out of bundle rates, which cost anything up to R2,000 (\$150) per gigabyte (GB). It was often not clear which applications might use up their very limited resources; one older, urban, unemployed mobile Internet user described a common experience: "My airtime gets wasted unnecessarily. For example, I will put R10 airtime ... and all of a sudden, I don't have airtime and I do not know what [application] is active that's using my airtime."

Sometimes, diarists paid these 'out of bundle' rates because their data bundle had run out. A young rural woman, who had attended college but now lived with her parents on a very low income, spent her diary day preparing for the funeral of a young cousin. When she wasn't busy cooking and cleaning, she was using WhatsApp: "I used airtime, I didn't have data ... I didn't have enough airtime to buy data; I was just using a little airtime."

In other cases, diarists didn't know how to convert their airtime into data. One young, urban, unemployed

²⁰ Many South Africans participate in ceremonies, including those for weddings, funerals or coming of age, that involve slaughtering cows or other livestock.

Figure 1 Prices of selected mobile data bundles from the largest mobile Internet operator

woman with a smartphone said: “What I don’t like about WhatsApp is that at times when you don’t have airtime, you cannot use it ... I use airtime.” When asked if she knew how to convert her airtime into data bundles, she said no.

As Figure 1²¹ shows, those of our diarists who used airtime to connect to the mobile Internet could be paying more than 10 times as much as those who could afford to spend R149 (or about US\$11) for a 1 GB data bundle.

Most of the diarists who told us they had recently bought a data bundle (33) said they had paid between R20 and R50 (US\$1.50–3.75). How much data they received depended on the time the data bundle lasted, as well as the network they were using. Because of the different rates offered between networks, and the variety of promotions, it is not possible to determine exactly how much data diarists were purchasing. To give some idea of how much data these amounts could purchase, on the country’s most popular network, Vodacom, R29 buys 100MB of data which lasts for 30 days (see Figure 1). This would be enough to view three websites every day for a month, or upload six social media posts, including a photo, or to listen to one song a day on a music-streaming service, or view one minute per day of low-definition video.²² As some of the accounts make clear, though, often diarists were paying ‘out of bundle’ rates, so would have been able to do much less.

Disconnecting

One strategy to manage data costs was to switch off the mobile Internet capabilities of the phone as often as possible. As Thandiwe explained in Section 1, she rarely turned on mobile data on her phone: “I only open my data when I want to check messages, or if maybe I want to send someone a message or maybe I’m checking someone’s whereabouts.” This frugal strategy can have personal costs, though: Xoliswa’s friend was complaining that she is ‘scarce’ on WhatsApp. She hadn’t been on WhatsApp for a while, but Xoliswa wasn’t going to buy more data until she received her next grant.

Zero-rated services and promotions

Some diarists reported having access to zero-rated services, or specially priced services, which have become more common in South Africa in recent years. For some diarists, this gave them free, or much cheaper, access to messaging and social network services like WhatsApp or Facebook. A young, self-employed, urban man living in a backyard had cheap access to WhatsApp on his mobile phone: “It has a WhatsApp bundle for the whole month.” Some diarists had multiple SIM cards to make the best of deals on offer from different mobile operators. By having two SIM cards, a young, unemployed woman noted: “I chat for free when I am using WhatsApp” on one network, while getting bonus airtime on another network.

²¹ As of 3 August 2017. See: www.vodacom.co.za/vodacom/shopping/data/prepaid-data

²² These estimates are based on the Hong Kong telecommunication regulator’s guide to data consumption. See: www.ofca.gov.hk/en/consumer_focus/education_corner/alerts/mds/check_usage/index.html

While some diarists described using these special promotions, the restrictions within the promotions often meant they were unable to use their phones when they wanted. Vuyani couldn't go to YouTube on the day of his diary (see Section 1): "I used to go on YouTube and watch the music videos ... I would love to often go there ... [but] it uses a lot of megabytes. I don't have enough airtime." On other days, he said, he sometimes used a special promotional offer which allowed him to get enough data to watch videos, but it could only be used between 1am and 7am in the morning: "It starts at 1am ... I wouldn't sleep sometimes at that time. I would wait for that time."

4.3 Alternatives to mobile networks

One frugal strategy used was to avoid mobile networks altogether. This could be done by using free public Wi-Fi where this existed, or by accessing the Internet at workplaces or schools. It could also be done using alternative means of connecting phone to phone.

Connecting mobiles via public Wi-Fi

In two of the locations where our diarists lived, there were one or more public Wi-Fi 'hotspots' with free connections for Wi-Fi devices. This meant that public Wi-Fi was only useful to those who had Internet-enabled mobile phones. The main benefit of public Wi-Fi for these diarists was to extend what they could afford to do on their phones. These hotspots were not always near to where diarists lived, however, and were not always working. One diarist reported that his local Wi-Fi hotspot had been out of order for the previous three weeks.

Only 19 of the diarists said they used public Wi-Fi hotspots, and only eight reported using them regularly (at least once a week). The same number said they regularly used the Internet on personal computers (PCs) at facilities like public libraries or Internet cafes. Those who didn't have Internet-capable phones were much less likely to use the Internet at these facilities. One diarist also had Wi-Fi available at the casino where she worked as a cleaner; others had access to Wi-Fi at school or college.

One of the most important uses of Wi-Fi was to download large files, or watch videos that were too expensive to use mobile data for. Musa, an older

man with no regular income, explained: "If I want to download, I use [public] Wi-Fi to save data." Buhle, an older woman on a very low income, used her employer's Internet: "There's Wi-Fi at work, so when I'm at work, I don't use my money. That's where I log onto YouTube and watch those things." Another diarist downloaded movies at a public Wi-Fi point a walk away from home, "just because my data is not enough for movies". Lesego, a young unemployed man with a smartphone who, like Musa, had some post-school education, used public Wi-Fi to download music: "I just go to the Rea Vaya [bus] station [which has free public Wi-Fi], especially when I want to download house mixes. They are long and consume too much data."

Overall, women diarists were less likely than men to use public Wi-Fi; older diarists were less likely to use it than younger diarists; and middle-income diarists were more likely to use it than lower-income diarists. This is consistent with research on the digital divide, discussed in Section 2, which indicates that younger people and higher-income people tend to use more sophisticated Internet services. Lesego went to the public Wi-Fi in the evenings; it may be that women were less willing to go out at night.

Internet access without a mobile phone

For the diarists in our study, there were other means of connecting to the Internet which didn't require an Internet-enabled mobile phone. Some used the Internet on computers at friends' homes. Some of those at school or college in the two urban locations had Internet access via PCs. Diarists in all three locations used Internet cafes or the Internet available at libraries and other public facilities. Men were more likely than women to use Internet cafes regularly, and younger people were more likely to use libraries and other public facilities regularly. Those on low incomes were as likely as those on middle incomes to use these facilities regularly.

However, those who also used the Internet on their mobile phones were more likely to use any of these facilities regularly (weekly or more often) than those who did not (see Table 6). Overall, therefore, among our diarists, these facilities did not help to close the connectivity gap between those who had mobile Internet access and those who did not.

Table 6 Frequent PC Internet access among diarists (n =74)

	Mobile Internet users	Mobile Internet non-users
Frequently use PC in Internet cafe	6	3
Frequently use PC in library or public facility	4	2
Frequently use PC in college or school	2	0
Frequently use PC at a friend's house	4	4

5. Mobile practices

What do people do on their phones, for what reasons and in what contexts? In the following two sections, we explore some of the greatly varied ways in which mobile phones fit into the daily lives of the less connected, as revealed in the Izolo mobile diaries. This section uncovers some of the reasons *why* diarists used their mobile phones, and identifies some of the ways in which mobile phones were used. In Section 6 we look at mobile ‘repertoires’ – how diarists used their phones – and the range of platforms and applications available on mobile phones that diarists used in the course of their diary days.

The perspective we take is grounded in the research purpose set out in Section 2. We want to provide insights for those who are using, or trying to use, mobile technologies to connect to the poor and / or marginalised in South Africa and elsewhere. We focus mainly on some of the personal, social and economic *purposes* or tasks that diarists spoke about in connection to their mobile practices. This can be described as an ‘instrumental perspective’.

There are other, equally important perspectives that could be brought to the diaries, which might place more emphasis on other cultural, psychological and social meanings of mobile practices. The diary method we used offers evidence that is also relevant to these perspectives. We touch on some aspects of these meanings in Section 7.

5.1 Staying in touch

Maintaining relationships in social networks

The diaries reflected the role of mobile phones in staying in touch with close friends, children, parents and intimate partners. Throughout the diaries, people made and received calls, and sent or received messages to and from those who were central to their social networks.

Many of the diarists had close family living far away. Bheki lived in a city over 1,000 kilometres away from his son: “[My phone] plays a very big role ... I am able to talk to my sister that stays far from me [and] my son that is in Eastern Cape whilst I am in Cape Town.” A rural diarist made and received multiple calls from her youngest daughter, who worked in town, starting before dawn: “I called her as early as 5am because she needs a wakeup call.”

Khethiwe, a rural seamstress on a very low income, was old enough to remember how difficult this could be in a world before mobile phones: “We used to go plead our case, waiting for a call or to make one,

at those upmarket homes [and] houses that had a landline in yester-years. They would even send a messenger to let you know that there would be a telephone call for you at such and such a time – please come and take your call.”

More frequently in the diaries, mobile communication was with people who were physically close, sometimes with people who the diarists saw daily. Lerato, who was employed as a domestic worker, said her first call when she arrived at work that morning was from her partner: “My boyfriend ... checks up on me, if I arrived safely at work, almost every day.” Often this communication was to coordinate daily life. One diarist noted that her son had contacted her at night to check what time she was coming home, so he knew when to lock up the house. Wandile explained that without his phone that day, “my plans would have been ruined” as he would not have known where to find his brother: “I can connect with people whenever, just, like, when I want to do something, then I call someone ... like, ‘I’m at this place, I want to see you’, things like that ... that is why my phone is important to me.”

Lesego was busy on his phone for much of his day, because it was his birthday: “I was on WhatsApp and Facebook. Facebook was basically about birthday wishes ... On WhatsApp, I was talking to my cousin ... then it was my aunt. Most of the people I was talking to yesterday were passing on birthday wishes.”

At other times, phones were used for much more substantive communication. On the morning Thandiwe was arranging for her hairdressing clients to come to her house (see Section 1), she also exchanged WhatsApp messages with her cousin who was upset about leaving her young child: “I responded to my cousin’s messages, [to] try and console her that as soon as she get a job, then she can have her child and raise her child the way she wants to raise her.”

Deliwe lives in a hostel with two of her adult children, one of whom has a mental disability. Her Tuesday was not a good day. In the afternoon, she learnt that a cousin had been killed and his children had been injured. She spent the R100 that she had intended to use to buy food on airtime, to call relatives with the news and to discuss funeral arrangements.

Neliswa used her feature phone to take a photo of her father who was in hospital and sent it as an MMS (media message) to her brother, so he could see their father’s condition.

Many of the diarists, like many South Africans, earned their living in the 'informal' economy: doing occasional work, mending shoes, collecting and recycling rubbish, for example. The mobile phone was often an essential tool in their work on their diary days.

Communicating in groups

Many of the Internet-connected diarists participated in messaging groups. These included family groups, friend groups and church groups. One diarist spent part of his day discussing the performance of football teams with his group of football fan friends. Another had a birthday group, which operated as a savings club, so birthday cakes and presents could be bought each time one of them had a birthday: "It's important because we are like a family, we share a lot of saddening things and exciting ones. There are church issues, family losses." Vuyani had messages from a group in the early morning: "We have a[n extended] family group there, so that we know each other ... One message was informing me about a family funeral today."

For some younger diarists, messaging groups offered entertainment. Sandile spent time after school watching television while he chatted on WhatsApp: "We are six gents [in the group] ... I like chatting whilst watching TV. I wanted to share information."

Nandipha, a young urban woman on a very low income, said she didn't like WhatsApp groups and had left the church group she had participated in: "I got out of them ... because I have not been going to church and they started asking me 'why?'"

Extending social networks

In some cases, diarists used their phones to extend their social networks. Fikile was trying to track down someone in his community who he thought might be able to help him with work opportunities: "I was doing some research. I was doing research on a guy who owns many things – I was doing a background research."

Sometimes, the wider world came to them, whether welcome or not. Sibusiso, whose diary is reported in Section 1, made no calls on his basic phone during his day, but he did receive calls from retailers chasing debts.

5.2 Managing money and earning a living

Managing money

Staying in touch was important for many reasons, one of which was managing money. Diarists and their relatives and friends were often looking for money for transport, petrol, school fees and airtime. In one case,

the diarist was arranging money for bail for a cousin arrested for credit card fraud.

Lumka spent her Monday helping her mother. She had no airtime, so she only received calls. One was from her sister: "I did receive a call from my sister, who was discussing transport money for school-going kids at home." One child had been unable to get to school.

Diarists made use of money transfer systems where cash could be collected at a supermarket in a nearby town with a personal identification number (commonly known as a PIN) sent to their phone. The mobile phone was also important for some diarists to get confirmation that transfers had been made and received. Phakamile, an older retired man living with his wife, told us: "My kids do give me money ... the other day, one of them told me to check my messages and there was a message to inform me that I must go collect money at Shoprite [a supermarket]."

Sustaining livelihoods

Many of the diarists, like many South Africans, earned their living in the 'informal' economy: doing occasional work, mending shoes, collecting and recycling rubbish, for example. The mobile phone was often an essential tool in their work on their diary days.

Thandiwe turned on her data in the morning to coordinate her schedule with her hairdressing clients (see Section 1). Madoda, who collects and recycles rubbish with an old truck, needed his phone to track down his friend to bring a pump when his vehicle got a flat tyre, but he had left it at home: "It's the only means of communicating. I searched and searched."

Elias, who mends shoes, woke to find messages from customers: "I received two calls before I woke up in the morning, from people wanting to know whether I was at the container or at home. They were my customers who wanted to know what time was I going to open the repair shop." Later that morning, while working in the shipping container that houses his business, he received seven calls: "Mostly it was customers wanting to know about the progress on their shoes, or what time am I closing."

Looking for work

In total, 35 of our diarists described themselves as unemployed. For many, looking for work was part of

their day. In Neliswa's diary, she took her child to school and then went to town to look for a job that she had seen in a newspaper. She wanted to be able to use her feature phone to search on the jobs websites that she knew of, and sometimes used the computers at the local library for this. But her mobile was still important to her in searching for work; if she hadn't had her phone that day, "I would have stressed, thinking that I was going to miss calls from job agencies calling me for a job."

Fikile spent his Wednesday evening at a shebeen (an informal bar) and used Facebook to follow up on jobs that he had seen on his Facebook timeline. Musa, an unemployed man, used email to check if there were any responses from his job applications or updates on new positions. Another diarist, who got work as a builder and welder, explained that his phone was an essential tool for him: "I like it because my clients can get hold of me easily. I get most of the jobs through the phone."

Sabelo, who was unemployed, searched using Google for information on pay rates for different jobs: "I'm always checking online [for] careers and courses. I would check ... for how much salary will that one get, that you can work for."

Andile is an older, unemployed, urban man with a Nokia Lumia smartphone. He relies entirely on his phone to be connected. His airtime balance at the time of interview was R5; he spent R20 on mobile data in the last week. He told us that the reason he bought a smartphone was because he thought it would help him get a job: "I thought I would be able to use Google and the Internet to apply for jobs, instead of walking around looking for jobs, taking trains and buses to go look for work." But he said he couldn't use his phone in this way: "You need to have data and airtime to do that on the phone. You have to buy airtime and convert to data, and still the data gets used up."

5.3 Education

Eight of our diarists were full-time students. None of them reported using their phones for studying in their diary periods, though one rural school student described using Google at other times to find past papers, and an information technology (IT) student described using the Internet on a PC at college. One of the school students listened to an educational programme on their FM radio in their diary.

Khethiwe, a rural grandmother caring for school-age children, received educational material on her phone from one of her children's teachers during the evening: "There was a message after 8:00pm from a teacher, advising us to teach our children as they have no [language] teacher since he left ... [isiXhosa] words like za, ze, zi, zo, zu ...

there is a shortage of teachers at the primary school ... she [the teacher] uses her own airtime."

Zandile, a young rural woman who lost her child, told us how she missed reading poems and stories on her phone. These were posted on a South African social media platform, but she explained that the platform is now used instead for education, with teachers available online to help high-school children with their revision for exams.

5.4 Finding and sharing news

For most of the diarists, 'news' on their mobile phones often meant new and important information about local or distant family members or friends, rather than national or international events. For example, Nandipha, a young unemployed woman, received a video of her friend's newborn baby via WhatsApp.

Few diarists described searching on their phones for news from established media channels or sources. When people did keep up with news about their wider communities, or the country, it was often through their social networks or via radio or television.

Musa was unusual among the diarists for having two phones and a tablet, which he used on Thursday [his diary day] to follow the local election results, which had taken place the day before. "What kept me going was the anticipation of the election results and the rival parties who were neck to neck ... I do like politics a lot." He followed News24,²³ one of the main South African online news services, as well as checking Google and Twitter to follow the results, "because Twitter is instant". He also watched the news on television, as did many of the diarists.

More often, though, where diarists used their own or others' phones to get news, it wasn't through the Internet. Lerato listened to a Sesotho language radio station on her phone: "I was listening to Lesedi FM. I turn on the speakers and keep on working while listening ... I get updated about a lot of things, for example, when there is going to be a strike of taxi drivers."

Madoda, who works as a recycler collecting and selling rubbish, had a basic phone. He would have liked to buy a smartphone, but his children came first: "We can't buy a [better] phone with the money we are earning. The only thing you think about is to buy food, [things for my] children and clothing." His phone doesn't have a camera or an Internet connection, but it does have a radio receiver: "It's the news that I always listen to." Langa also listened to the radio on his phone, and said that if he didn't have his phone, he would miss listening to the news.

Madoda had been worried on his diary day about protests that were taking place in the township where he works and lives. While he was waiting to fix his truck, his friend showed him some videos of the protest that he had taken on his phone: "We're chatting about the strike and [my friend] said he had a video. Then I said, let me see. Then he showed this video. I was shocked that it was a big thing ... people marching to the police station to release those who are arrested. While marching, they were looting at the same time."

Another diarist was in the park and was also shown pictures of the demonstration: "He was just showing us from his phone [that] toyi-toyi [protest] was happening." Nandipha was at the protest: "I was there and saw a petrol bomb being thrown [at the] post office; I took a photo from my friend's phone." The next day, her friend had still not sent her the picture: "I wanted to have a proof that I was part of the public protest."

5.5 Shopping

Arranging wedding catering, buying spare car parts, buying chickens – this was all done using phones; sometimes online, but not through e-commerce sites. Wandile was looking for a caterer: "I called this ... lady ... there is going to be a wedding, so she has got a catering company, I was talking to her about that." Another diarist did food shopping by phone: "I phoned a lady twice yesterday, that I placed an order for fresh farm chickens from her."

None of the diarists conducted e-commerce on their phones, though Lesego did use a retail application. His Wednesday included going to town with his girlfriend to the cinema as a birthday treat. He didn't buy his tickets online, but he did use his phone to check the cinema schedule: "I used it once, when I was checking the movies on the app."

Sabelo did some 'window shopping' online, though he was unemployed and couldn't afford to buy what he saw: "I like to look at the cars, though I don't have money to buy. Things like houses, maybe, how much do they sell this one, then what about this car. Then I also look at things like TVs, maybe on sale radios, fridges."

5.6 Music, pictures, videos and games

Phones were widely used as media devices. Listening to music and other recordings, watching videos and looking at pictures were all common activities. Almost always these were 'offline' activities that involved content that was stored on the phones.

Music and sound recordings

Music listening was one of the commonest mobile phone activities noted in the diaries. For some, it was

the only thing they did on their phone apart from making or receiving calls. One young man with a smartphone reported that the music player was the only application he used: "I only listen to music." For Celiwe, a young woman on a very low income who had a feature phone, music was also the only application she used, getting songs from others via Bluetooth: "I use a memory card to play music on my phone ... I get it from my friends' phones and I copy it from there."

On Sunday, Boniswa was listening to music on the radio on her phone while she did the washing. It was the weekend, when she doesn't answer calls or look at Facebook, but she does use her phone to play games and listen to music. She heard a track on the radio she liked, and she knew her sister had it on her phone, so she transferred it by Bluetooth from her sister's phone: "I downloaded one track and I kept on repeating it".

Xoliswa's busy Saturday was accompanied by recordings made in her church: "I can play [them] for the whole day, because there are many of the recordings."

Photographs

For many diarists, their phones contained important photo collections. Mandisa, a young mother with three young children, went to sleep looking at pictures of her kids: "I want to always view them." Her children were with her on the day of her diary, but the photos were especially important to her when her children were away: "My kids always go to Port Elizabeth during holidays. So, I want to view the pictures when I miss them." She had printed some of her pictures to decorate her home.

Bheki described how he missed the photos he had lost on his previous phone: "I had a smarter phone that got lost. I think I dropped it in a taxi from town ... I felt bad and hurting ... it [had] my pictures of the family."

Celiwe spent her Sunday evening at a party. Other people took pictures at the party and she would have liked to have shared the photos, as her own phone's camera is of low quality. She doesn't have WhatsApp or Facebook since her last phone got damaged: "It would have been nice" (to have been able to receive others' photos).

Games

Many diarists played games on their phones, often alone but sometimes with friends. There were games like Snakes built into basic phones, as well as downloaded games like Candy Crush.²⁴ Boniswa was even woken up by the game she plays regularly: "I woke up because of Candy Crush notifications ... there was an open episode at the time I woke up." While she was waiting for water to prepare breakfast, she continued to play Candy Crush.

When they did use the mobile networks' Internet capabilities, it is striking how little the diarists accessed the World Wide Web – the open Internet. Using messaging and social media services was much more common.

6. Mobile repertoires

In Section 5, we presented some of the diversity of mobile practices of the Izolo diarists, from their perspective – to demonstrate why they used their phones. In this section, we look at how they used their phones, specifically which applications they used.

The commonest applications were the Global System for Mobile Communications (GSM) voice services and SMS, which were built into all diarists' phones. But some phones used in the diaries had many other capabilities. Some had FM radio receivers, and the clock and calendar applications were also used. Some diarists used the torch functions at night. Phones' storage capacities were important for storing and finding contacts, or to store music, photos and videos. Many of these capabilities did not require the less connected to use the network capabilities of the phones. Diarists also utilised built-in network features that enabled sharing without using airtime or data, especially Bluetooth and Wi-Fi.

When they did use the mobile networks' Internet capabilities, it is striking how little the diarists accessed the World Wide Web – the open Internet. Using messaging and social media services was much more common.

6.1 Calls and SMS

As we note in Section 4.2, many diarists made phone calls, although some only received them because they had no airtime or were carefully managing their airtime. They also used the SMS capabilities of their phones. For those who had Internet services, they sometimes made choices between whether to use SMS or Internet-based instant messaging services like WhatsApp. These choices could depend on cost, but also on which applications other people in their social networks used.

Neliswa had a busy day sharing news with family members about her sick father. She made calls and sent and received SMS: "If it's people that are on

WhatsApp, I respond through it because it is [more] reasonable [in cost] than an SMS. If I am using CellC network, I get free SMS bundles."

Choices may also have been influenced by whether diarists were comfortable with writing. Bongani, a young man who didn't finish high school, had only two phone conversations on Sunday. Most of the day, he was busy participating in a traditional ceremony. He sometimes receives SMS on his basic phone: "It is mostly my friends that write to me." He responds by calling them rather than using SMS, though, and said he preferred calling: "When I call someone, it's real-time." It's also possible that because he didn't read or write English well, he may have been less able or willing to use SMS.

Madoda's concerns about sending SMS were to do with privacy: "Maybe there are important things you need to talk with a certain person, then you're not sure whether that SMS was read by that person alone; maybe the phone is on her or him and somebody else would read it, then it's not a secret anymore. I don't like SMS."

The design of devices also played a role in choices about whether to use SMS. Lumka has a feature phone with a numeric keyboard. She had no airtime on Monday, but received some calls and SMS; she later got airtime and made some calls. For her, a restriction to writing SMS was her phone's keyboard: "I like phoning based on [the] type of phone that I own ... it's only good for writing figures from the keyboard." She said she would write messages if she had a touchscreen: "If I had a smartphone, I would prefer to use WhatsApp than SMS ... [it's] less expensive than making calls."

6.2 WhatsApp and Facebook

Out of 41 diarists who used the Internet on their phone (at any time), only 25 used it during their diary periods. Among these, we found that the instant messaging application WhatsApp was by far the most

frequently used Internet-based application; all but two of these used WhatsApp for messaging, but also for voice calls and sometimes for voice messaging.

Fewer than half of the diarists who used the Internet the previous day used Facebook, and only three used Google. Only one used Twitter, although others mentioned they would like to use it but either didn't know how or didn't have data to use it. One used the much less well-known app SHAREit. Only one diarist checked email, though one had tried to send an email but had been unable to. Table 7 summarises the use of selected applications among the 25 respondents who used the Internet on the day of their diaries.

Table 7 Selected applications used on mobile phones during diary days (n=25)

Applications used	Number
WhatsApp	23
Facebook	11
Google	3
Bluetooth	2
Instagram	2
Twitter	1
Email	1
SHAREit	1

WhatsApp and Facebook were by far the most commonly used Internet applications. One of the reasons many diarists offered for using WhatsApp was its relatively low data consumption, and hence low cost. One rural diarist explained why she had responded to a call on WhatsApp, rather than calling back: "WhatsApp doesn't use a lot of data. I didn't have airtime to call a person, it was little, but I managed to send a WhatsApp message." As Thandiwe described in Section 1, WhatsApp's relatively frugal data consumption was important in her choice of application: "WhatsApp makes life easy, to be honest, because instead of buying R2 airtime and I'll maybe chat for 30 minutes and it's finish[ed], then I get to buy R12 data and use it for a month, that's why."

Another factor that may have influenced the popularity of WhatsApp and Facebook is that both services are zero-rated by some operators for some pre-paid services in South Africa. As one urban diarist explained: "On [mobile operator] Cell C, WhatsApp is free. I only use data to connect to Facebook."

Network effects²⁵ may also have played an important part. Choosing which applications to use related to who else in diarists' communities had access to and used them. Wandile needed WhatsApp because that is how clients contacted him: "It's where I get my work-related messages. They don't call me, they WhatsApp me for bookings."

These effects could also work in reverse. A rural diarist, who earned a living transporting things with his donkey, said he didn't know how to use WhatsApp – but that was only part of the story: "Who is going to WhatsApp me? ... Even if I do not know how to use those [applications], I do not care! Because I do not know who will ever WhatsApp me."

Some diarists expressed other reasons to avoid these applications. Deliwe, who lost her child in 2013, had used Facebook in the past, but discontinued it: "I never log on to it at all ... The reason why I don't like [Facebook] is because when I logged on, I saw some people talking [about] my child's incident and they were making fun of it. I didn't like it ... I think it's kids from my village. I don't know who they were ... I found out that the talk was about me. That's the reason I don't like it." Another young female diarist gave similar reasons for not using WhatsApp or Facebook: "I don't like them – there's a lot of gossip going on around it."

As noted, many diarists were part of families that extended across distant parts of the country, with urban diarists having family members in rural villages and vice versa. Lulama, a young woman living in an urban area, ended up in conflict with family members on Facebook: "The thing about Facebook is that some people from back home, in the rural areas, do not understand the uses of Facebook well. When I posted that I am engaged, some people called asking why I did not tell them about the engagement and I have decided that I will unfriend those that shouted at me. And now I don't post as much as I used to."

6.3 The World Wide Web

It was striking that very few diarists mentioned use of the World Wide Web – searching for information using browsers like Chrome or Opera. Yet even though they rarely used it, if at all, diarists were aware of what the open Internet offers.

Thandiwe, the hairstylist, said she would like to use the Internet for her work: "If I were to get more data, I would Google and check more hairstyles ... Maybe a person would come and say, 'I want to do something' ... like try something new... Then I know that ... I have

²⁵ Many communication technologies and platforms are subject to network effects: the more other people use the service, the more valuable it is to the user.

my own different styles that I get from the web ... I would just Google the styles.” When asked what was stopping her from doing that now, she explained: “My data would get finished.”

Themba, who had the Google application on his phone, said: “I like to Google but it takes a lot of data ... If we disagree on something, then we would Google it to see whether it’s true. If data was not expensive, then ...”

Andile was frustrated by the gap between the jobs he thought he could find on the web and his lack of data: “You need to have data and airtime to do that on the phone. You have to buy airtime and convert to data, and still the data gets used up as well.”

6.4 SHAREit – enabling offline sharing

As discussed in Section 4, these less connected diarists were often disconnected from mobile

networks and from the mobile internet. And, as noted in Section 5, they often shared pictures, videos, music and recordings without connecting online. Two diaries included use of Bluetooth to transfer music or pictures. One included the free Chinese application SHAREit,²⁶ and seven other diarists mentioned using this application, although they didn’t use it on their diary days. SHAREit enables people to share content between Wi-Fi-enabled phones. As one of our rural diarists explained: “SHAREit is an application that you use for files like music videos, and you can share with others without Internet.” The files can be of any kind: videos, music files, applications or documents.

An older, middle-income father explained how he accessed Internet content using this application: “I usually ask [my child] to download for me via SHAREit, so I ask him if he has that thing I am looking for at that time; if he has it, he will send it to me via SHAREit.”

7. Mobile meanings and imaginaries

The Izolo diaries reflect the frugal and fragile connections of the diarists to the wider world, but the diarists valued their connections and the role their phones played in their lives. Diarists also had visions of the value of a greater connectedness, even if they couldn’t always realise them.

Wandile said: “The most important thing is my cell phone, because I can’t communicate with other people without my phone.” Fikile said he was “addicted” to his phone. Another diarist called her phone “my baby” and said: “I always have my phone with me. This is my baby; if I don’t see it, I go crazy. I can’t live without it. How would people get hold of me in case I get a job, or there is some emergency?”

There were other meanings that diarists ascribed to mobile phones, which were not directly connected to their capabilities or uses. Deliwe had been given her phone by her husband three years earlier. If she lost it, she said: “I would miss my child, because I was given [the phone] when my child died. That’s why I protect it; I got it the same year as the day when my child died, in October 2013.”

Not all meanings were positive, however. A rural man, who was unemployed with an irregular and low income, missed a call when travelling in a minibus taxi, but said that even if he had heard his

phone ringing, he would not have answered: “I am embarrassed to answer a phone in a taxi ... when it’s not a modern phone or a smartphone.”

Phakamile, an urban retired man surviving on a state pension, felt mobile phones were undermining important traditions and norms: “Sometimes I feel that they are the cause of us to drift away from our culture, like, I can’t pass the message of death over the phone, as an example. There are people that I have to sit down with if I want to invite them to a traditional ceremony. But nowadays, people phone for everything.”

Thandiwe expressed her feelings about checking for messages and finding there were none: “I look at it ... there’s nobody that is thinking about me ... I look at it and then press it and then, OK, there are no messages ... And then I get worried when I don’t receive messages. It’s like they don’t think about me or anything.”

Diarists had visions of the power of the mobile Internet, even if they couldn’t always realise this power. As described in Section 5, Andile bought a smartphone to look for jobs, as well as “for big things” like “Google and the Internet”. Sabelo had not used email, but believed he could use it to apply for jobs: “You know email, it’s better than going to

submit [job application forms]... I think there are many things on the phone... but we are not exposed to other things.”

One of the rural diarists had a feature phone, but he missed the smartphone he had lost a few years before and all the things he used to do with

it: “I used to go to [it for] everything ... I used to Google, Google, Google ... If I represent[ed] my community ... in a municipal meeting, then I will write it down [on the phone] so that I don't forget ... I will set an alarm for that day ... And maybe, when I feel like writing down ... like, maybe how my day went.”

8. Conclusions

The Izolo diaries offer stories of the many ways in which the mobile phone has been assimilated into the lives of the less connected. Mobile devices were no longer exotic foreign objects, whatever their provenance; they were part of daily routines. Many diarists said they “could not live without” their phones. They were a vital part of their social lives – tools for managing their resources and their communications, often essential in maintaining livelihoods. Mobiles also provided the background music, the religious inspirations and the news that accompanied daily tasks and chores. They were there for taking, keeping and looking through photos of absent children, for lighting the way when walking through the village at night, and for keeping personal diaries.

Among young and old, rural and urban, the diaries demonstrate rich and diverse digital practices and literacies. We met, for example, an older woman on a very low income in a rural village who used peer-to-peer networking to download videos and music from across the globe. We discovered sophisticated strategies for creating alternative sharing networks that avoided the unaffordable costs of the mobile Internet, for example through local device-to-device sharing.

Our research confirms Donner's (2015) critique of the binary ways that being connected are often measured, by agencies such as the International Telecommunications Union and operators associations. Their binary measures of connectivity and the optimism often conflated into the notion of being connected, do not take sufficient account of the very different and limited possibilities and significant constraints internet access implies for the less-connected.

The diaries also offer some insights that add complexity to the picture of mobile use that has emerged from the work of mobile ethnographers working in the global South. Madianou and Miller (2013a) have proposed the concept of ‘polymedia’

to capture the multiplicity of platforms and tools that mobile phone users choose, among and in which “the media are mediated by the relationship as well as the other way around” (Madianou and Miller 2013b: 148). The diarists did make choices among the various channels and platforms available to them on their phones, but they frequently emphasised the constraints they faced in making these choices. These include the limitations of their own connectedness and the assumptions they had to make about the connectedness of others in their social network. The diaries suggest that for the less connected who use the mobile Internet, they have not moved ‘beyond access’, but rather that access remains contingent and involves repeatedly having to re-establish and negotiate that access.

If the Internet has often been imagined as a territory – ‘a virtual world’ – then the diarists’ exploration of this world was limited. Only a few of those who used the mobile Internet reported searching (e.g. via Google or YouTube) or using ‘the web’ at all. While online, they were usually in ‘walled gardens’: the global platforms of WhatsApp or Facebook. But they found other means of using the phone to share and connect: moving media between devices using cables, Bluetooth or Wi-Fi, or showing each other content on their devices.

The common imaginary of the Internet – as an always-on web, stretching across the planet, connecting all those who have access to it and to the information resources that users have placed on it – does not describe the daily practices of the less connected we studied. Instead, the Izolo diaries point to a gulf in practices and experiences between the less and more connected. These differences, as Donner (2015) suggests, in many ways amount to a different Internet. Three qualities of this other Internet – an Internet of the poor – stand out from our research: fragility, frugality and a small world.

Three qualities of this other Internet – an Internet of the poor – stand out from our research: fragility, frugality and a small world.

Fragility

The connections of the less connected we studied were fragile. Almost half the diarists had no airtime at the time we interviewed them. For many, disconnection was their default condition. Sometimes they were waiting for a gift of airtime from a friend, partner or relative. Because they lived within communities of the less connected and unconnected, their communications practices were complex. Choosing modes and platforms of communication had to take account not only of their own resources, but also those of the people they needed to connect with. This fragility was primarily a product of how unaffordable their connections were. But in addition to costs, the diarists faced challenges of access to electricity, insufficient phone memory and processing power, and the constraints of phone keyboards, screens and language.

The fragility of their mobile connections was mirrored by the fragility of other aspects of many diarists' days: deaths, court appearances, threats to personal safety and searching for work. This draws further attention to the ways in which the less connected are marginalised in their social and economic lives, as well as in their communicative ones.

Frugality

The fragility of diarists' connections led directly to their practices of frugality – the strategies and tactics they adopted to extend and maximise their ability to connect. These strategies ranged from using Please Call Me's, to using alternative sharing applications such as SHAREit to exchange media. For those with mobile Internet connectivity, their frugality was demonstrated by using those applications with low and predictable data consumption, like WhatsApp; staying offline for most of the day, and only switching on their connections to check and send messages; staying up late into the night to take advantage of special promotions by mobile operators; or visiting public Wi-Fi points to download music and movies.

A small world

Partly, but not only, because of the frugality and fragility of their connections, the networks of the less connected were largely comprised of other

less connected people. Some diarists articulated their imagined possibilities of connecting to the wider social and economic resources of the online world, but were constrained by cost, knowledge, skills, language and the social distance between the worlds they inhabited and the worlds of the more connected.

The frugal strategies of the less connected highlight an important distinction between devices and networks. Because of the lack of affordability of mobile networks, mobile devices were often used 'offline'. These approaches partly compensated for their exclusion from the 'always on' networked world, but were limited to physically accessible people and places.

Furthermore, most diarists were almost entirely dependent on mobile devices for their connectivity. For example, diarists' very limited access to PCs restricted their ability to communicate with the more connected through these devices.

As Section 6 describes, diarists' choices of platforms were dominated by social network services like WhatsApp and Facebook which, by their structure, largely limited their communications to their own social networks of family, friends and church groups. Email was very rarely used, even though more than one diarist noted it was important for interacting with the world of formal employment.

Less is not more, but less is different

We have argued that the 'less connected' is a useful way to understand the specific practices and experiences of the diarists. 'Less' is important in highlighting the inequalities of access and use when compared to those with more resources and power. But the diaries also suggest not only a separation from the more connected, but a network between the less connected that may, in many ways, constitute a new network. While the less connected may experience an Internet more akin to the dial-up networks now largely abandoned by the better resourced, mobile phones have enabled the development of a communication network among the less connected that, however fragile, is far more extensive and accessible than the one remembered by one rural diarist – when people had to make prearranged calls from faraway houses.

9. Recommendations

The recommendations here are far from definitive. They are offered mainly as suggestions for further inquiry and, we hope, more careful user research. They are aimed at the primary groups of readers identified in Section 2.

9.1 Connecting with the less connected

For those aiming to use mobile technologies to engage with the less connected, our research suggests some key issues to consider when designing interventions.

Design for low data consumption

Data is a scarce resource. The frugal practices recorded in the Izolo diaries suggest that any initiatives that aim to connect with the less connected should carefully consider how data consumption can be minimised.

Design for ‘mostly off’

Whereas digital professionals (and many others) are able to benefit from an ‘always on’ Internet, designing for the less connected requires appreciating that the less connected are rarely connected; the less connected are ‘mostly off’, not ‘always on’.

The World Wide Web is a world away

The Izolo diarists rarely visited the web. Most of their online time was spent within the ‘walled gardens’ of platforms like WhatsApp and Facebook. This makes reaching them particularly challenging.

Pay attention to the solutions of the less connected

The diaries offer insights into the strategies the less connected deploy to use mobile technologies within the financial constraints they face. Initiatives that seek to understand and align with the connective strategies of the people they aim to reach are more likely to succeed.

9.2 Connecting the next billion

For those working to extend Internet access, our research raises some questions for further consideration and investigation.

#DataMustFall²⁷

Among the Izolo diarists, the most significant barrier to extending their mobile practices was the

affordability of the mobile networks. The very small quantities in which airtime and data were bought, and the complexity of the pricing of data, meant that often diarists were paying the very highest prices for data. Our research suggests that the most effective way to reduce costs for the less connected would be to eliminate, or greatly reduce, out of bundle prices and make it easier for mobile network customers to avoid them altogether. At the time of writing, the largest mobile operator in South Africa announced their quarterly results, which showed that three quarters of their income from pre-paid customers came from out of bundle use (Vodacom 2017), and the chief executive officer admitted that they needed to address this issue. Just before finalising this report, the same operator cut the prices of out of bundle data by 50% – but the poor still pay much, much more for data than the rich.

Public Wi-Fi will not necessarily increase access

The main users of public Wi-Fi among the diarists were those who were relatively sophisticated and heavy mobile Internet users. Public Wi-Fi helped enrich and extend their use, but it didn’t substitute for affordable mobile network connectivity. This suggests that increasing public Wi-Fi may enrich the connectedness of those already connected, but may not lead to those who don’t use the Internet becoming regular Internet users.

Zero-rating services may not lead to broader Internet use

The low or zero pricing of particular Internet platforms, such as Facebook and WhatsApp, may have had a significant effect on the diarists’ willingness and ability to use these services. By comparison, the very limited use of the open Internet in the diaries offers little evidence that access to these ‘walled gardens’ has encouraged greater use of other web-based services.

9.3 Researching the less connected

This study builds on previous quantitative and qualitative studies in South Africa. We hope that it inspires others – including those developing technologies with or for the less connected – to conduct similar research in other locations and contexts. The mobile diary method we developed for

²⁷ This is a popular Twitter hashtag in South Africa, which mirrors #FeesMustFall – a national student campaign against university fees.

this study offers one approach. Whether using this approach or others, we believe this study provides strong evidence for the need for grounding policies and practices in civic tech, ICTD and ICT policy in careful user research.

While we have searched for and described some common patterns across the diaries that we

co-created with the subjects of this study, the connections that people made in these diaries were all individual. Those seeking to engage with the less connected would do well to remain open to the great variety and diversity of needs, practices and purposes of mobile and Internet users. Individuals, communities, locations and contexts differ.

References

- Cartier, C.; Castells, M. and Qiu, J.L. (2005) 'The Information Have-Less: Inequality, Mobility, and Translocal Networks in Chinese Cities', *Studies in Comparative International Development* 40.2: 9–34
- Castells, M. (2010) *End of Millennium: The Information Age: Economy, Society, and Culture Volume III. 2nd Edition*, Hoboken: Wiley
- Castells, M. (2007) 'Communication, Power and Counter-power in the Network Society', *International Journal of Communication* 1: 238–266
- Castells, M. (2000) 'Toward a Sociology of the Network Society', *Contemporary Sociology* 29.5: 693–699
- Couldry, N. (2004) 'Theorising Media as Practice', *Social Semiotics* 14.2: 115–132
- de Bruijn, M.; Nyamnjoh, F. and Brinkman, I. (eds) (2009) *Mobile Phones: The New Talking Drums of Everyday Africa*, Oxford: African Books Collective
- de Lanerolle, I. (2012) *The New Wave*, Johannesburg: University of Witwatersrand, www.networksociety.co.za (accessed 19 October 2017)
- Donner, J. (2015) *After Access: Inclusion, Development, and a More Mobile Internet*, Cambridge: MIT Press
- Donner, J. and Gitau, S. (2009) 'New Paths: Exploring Mobile-Centric Internet Use in South Africa (Mobile 2.0: Beyond Voice?)', pre-conference workshop at the International Communication Association conference, Chicago, IL, May 2009, http://lirneasia.net/wp-content/uploads/2009/05/final-paper_donner_et_al.pdf (accessed 19 October 2017)
- Friederici, N.; Ojanperä, S. and Graham, M. (2017) 'The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development', *Electronic Journal of Information Systems in Developing Countries* 79.2: 1–20
- Lehohla, P. (2011) *Methodological Report on Rebasement of National Poverty Lines and Development of Pilot Provincial Poverty Lines*, Pretoria: Statistics South Africa
- Madianou, M. and Miller, D. (2013a) 'Polymedia: Towards a New Theory of Digital Media in Interpersonal Communication', *International Journal of Cultural Studies* 16.2: 169–187
- Madianou, M. and Miller, D. (2013b) *Migration and New Media: Transnational Families and Polymedia*, Abingdon: Routledge
- Mansell, R. (2012) *Imagining the Internet: Communication, Innovation, and Governance*, Oxford: Oxford University Press
- McGee, R.; Edwards, D.; Minkley, G.; Pegasus, C.M. and Brock, K. (2015) *Making All Voices Count Research and Evidence Strategy*, Brighton: IDS
- Miller, D.; Costa, E.; Haynes, N.; McDonald, T.; Nicolescu, R.; Sinanan, J.; Spyer, J.; Venkatraman, S. and Wang, X. (2016) *How the World Changed Social Media*, London: University College London Press
- Miller, D. and Slater, D. (2001) *The Internet: An Ethnographic Approach*, London: Bloomsbury Academic
- Nyamnjoh, F. and Brudvig, I. (2016) *Mobilities, ICTs and Marginality in Africa: Comparative Perspectives*, Pretoria: HSRC Press
- Qiu, J.L. (2009) *Working-class Network Society: Communication Technology and the Information Have-less in China*, Cambridge: MIT Press
- Rogers, E.M. (2001) 'The Digital Divide', *Convergence* 7.4: 96–111
- Schoon, A. (2016). Distributing Hip-hop in a South African town: From the Digital Backyard Studio to the Translocal Ghetto Internet. In Proceedings of the First African Conference on Human Computer Interaction (pp. 104–113). ACM. <http://dl.acm.org.ezproxy.uct.ac.za/citation.cfm?id=2998592> (accessed 20 November 2017)
- van Deursen, A.J.A.M. and van Dijk, J.A. (2014) 'The Digital Divide Shifts to Differences in Usage', *New Media & Society* 16.3: 507–526
- van Deursen, A.J.A.M. and van Dijk, J.A. (2011) 'Internet Skills and the Digital Divide', *New Media & Society* 13.6: 893–911
- van Dijk, J.A. (2005) *The Deepening Divide: Inequality in the Information Society*, New York: SAGE Publications
- Vodacom (2017) Trading update for the quarter ended 30 June 2017, Midrand, Vodacom Group Limited, www.vodacom.com/pdf/quarterly-results/2017/vodacom-announcement-Q1-2017-new.pdf (accessed 17 October 2017)
- Walton, M. (2010) *Mobile Literacies and South African Teens: Leisure Reading, Writing, and Mxit Chatting for Teens in Langa and Guguletu*, Durbanville: Shuttleworth Foundation
- Walton, M. and Donner, J. (2012) Public Access, Private Mobile: The Interplay of Shared Access and the Mobile Internet for Teenagers in Cape Town, Global Impact Study Research Report Series, Cape Town: University of Cape Town
- Walton, M.; Marsden, G.; Haßreiter, S. and Allen, S. (2012) 'Degrees of Sharing: Proximate Media Sharing and Messaging by Young People in Khayelitsha', in *ACM Proceedings of the 14th International Conference on Human-computer Interaction with Mobile Devices and Services*, New York: Association for Computing Machinery

About Making All Voices Count

Making All Voices Count is a programme working towards a world in which open, effective and participatory governance is the norm and not the exception. It focuses global attention on creative and cutting-edge solutions to transform the relationship between citizens and their governments. The programme is inspired by and supports the goals of the Open Government Partnership.

Making All Voices Count is supported by the UK Department for International Development (DFID), the US Agency for International Development (USAID), the Swedish International Development Cooperation Agency (SIDA) and the Omidyar Network, and is implemented by a consortium consisting of Hivos, IDS and Ushahidi.

Research, Evidence and Learning component

The programme's Research, Evidence and Learning component, managed by IDS, contributes to improving performance and practice, and builds an evidence base in the field of citizen voice, government responsiveness, transparency and accountability (T&A) and technology for T&A (Tech4T&A).

About Network Society Lab

The Network Society Research Lab conducts research on digital technologies in Africa and their roles in social, economic and political change. For more information, go to www.networksocietylab.org or follow @civictechAfrica on Twitter.

Web www.makingallvoicescount.org
 Email info@makingallvoicescount.org
 Twitter @allvoicescount

Disclaimer: This document has been produced with the financial support of the Omidyar Network, SIDA, UK aid from the UK Government, and USAID. The views expressed in this publication do not necessarily reflect the official policies of our funders.



This work is distributed under the terms of the Creative Commons Attribution 4.0 International licence, which permits unrestricted use, distribution and reproduction in any medium, provided the original authors and source are credited. <http://creativecommons.org/licenses/by/4.0/legalcode>



Implemented by:

