

An investigation into money-related mobile phone use in a South African rural community

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Abstract

This study discusses the diffusion and knowledge of mobile phones in a rural community of the Eastern Cape of South Africa. This research draws upon previous studies conducted in the area as well as questionnaires and interviews with members of the local community. Our specific focus is on money-related uses such as online access to bank accounts, online payments, SMS notifications, online shopping, and airtime transfers. We explore this aspect of the local use of mobile phones, and find out why some services with developmental potential (like mobile banking service M-Pesa) are not used in this community.

We found two main reasons for the limited uptake of mobile money in this area: firstly, many people already have a bank account with a traditional bank, secondly the area is geographically marginalised and most services such as traditional ATMs are only available in the nearest town.

Although mobile money is not common in the area, mobile phones are used to manage and save money. The most common features are SMS notifications from the bank and USSD codes to buy specific goods. Moreover, we found that mobile phones are tools that help locals in organisational (e.g. arranging transportation), economic (e.g. saving on costs of transportation and information and accessing online banking) and bureaucratic (e.g. e-government) activities.

Keywords

Mobile penetration, rural development, mobile money, South Africa

Introduction

The fast mobile penetration in sub-Saharan Africa is a well-documented process. Growth

is impressive particularly in urban areas (Clayton Powell III 2012), while in rural territories of the continent penetration is growing at a steady, slower pace (GSMA et al. 2011, Ondiege 2010, Kavhai 2010, Kalba 2008).

In the academic world, a great number of case studies about mobile penetration, adoption (Kalba 2008), and impact (Donner and Tellez 2008, Gruber and Koutroumpis 2010) are analyzed through the perspective of economic development (Bhavnani et al. 2008, Scott et al. 2004). There are several examples of studies that link mobile phone penetration to economic development (Andrianaivo and Kpodar 2012, Aker and Mbiti 2010, Ondiege 2010, Donner 2008, Jenkins 2008). This relationship has been highlighted in activities such as agriculture (Zhenwei Qiang et al. 2012), fishing (Abraham 2007), and trade (Aker and Mbiti 2010).

In research about mobile phone use in many African countries, the success of mobile money systems like M-Pesa have dominated the ICT4D discourse (Donovan 2012, Kimenyi and Ndung'u 2009, Hughes and Lonie 2007). In South Africa mobile money did not see the same level of uptake at the national level (Ivatury and Pickens 2006). In this paper we explore other money-related uses of mobile phones in a South African rural area, beyond conventional mobile money.

Dwesa territory

The rural area under consideration is located on the south-east coast of South Africa, between the Nqabara and Mbhashe rivers, in the Mbhashe Municipality. Dwesa is the name of an area of roughly 285 km², comprising several villages inhabited by amaMfengo and amaGcaleka groups (Timmermans 2004). The terrain is hilly with small elevations. The roads connecting the villages and the closest town (Willowvale, where rudimentary government services, banks, post office and shops can be found) are in very poor conditions, with large, deep potholes and tracts subject to flooding (Dalvit et al. 2012). Few private cars operate in the area as taxi service and bus lines provide connections with Idutywa and Butterworth. At the time when this paper was written, 35 people died in a major road accident in the area involving a bus from the local transportation service. Those who were killed were mainly locals that were travelling back to their villages from the town, with the accident being caused by the poor conditions of the roads and vehicle.

Tourism could be a major economic driver in Dwesa because of the Dwesa Nature Reserve and the unnatural beauty of the area, but road conditions make it difficult to reach. The majority of local households conduct an agrarian lifestyle, characterised by livestock husbandry, garden cropping for self-consumption and some harvesting of Non-Wood Forest Products. The local community is largely dependent on state transfers (grants and pensions) and migrated relatives, and small economic activities only form a small part of the whole local economy (Timmermans 2004).

Key issues: Marginalisation and migration

Remoteness and the lack of services and infrastructure make it difficult (and expensive) for Dwesa inhabitants to perform simple tasks. Getting a birth certificate or an ID card means

an expensive day trip to Idutywa (50 to 80 ZAR). Residents identify the main local issues as lack of infrastructure (such as proper roads and a police station) and education (particularly secondary schools) (Pade-Khene et al. 2010, Cristoferi 2014). Community members pointed to issues such as a high age dependency ratio, high unemployment level, limited education foster the presence of anti-social behaviours as social jealousy, drunkenness, theft and teenage pregnancy. The high age dependency ratio (the low ratio of the working population to children and the aged) is characterised by a lack of authority figures, which can partly explain the presence of anti-social behaviours (Pade-Khene et al. 2010).

There is plenty of arable land but just a small portion of it is farmed. Significant herds of cattle roam around, but there is no small trade of milk or dairy products locally produced and/or processed. There is no local market for agricultural products, since production, if any, is generally for self-consumption. When inhabitants are in need of food provisions, they buy fresh and processed food at local shops in Dwesa or in Willowvale, at a significantly higher cost (mostly due to transport costs and market conditions in Dwesa) compared to urban areas of the Eastern Cape and South Africa at large. With such conditions, people in Dwesa are paying more and getting less.

The main reason for underused land pertains to demographic issues: the lack of workforce due to strong emigration flows (Bähre 2006, Statistics South Africa 2012), the lack of funds to be invested into agriculture, and the lack of know-how (technical and financial). Elderly people are short-term economic actors: they tend to invest in no-risk activities within a short-term time frame (in the case of agriculture: household gardens for self-consumption) rather than in sustainable business projects, with a mid and long-term perspective (e.g. fields cultivation for self-consumption and trade, milk collection and processing). In former Bantustan areas, such as Dwesa, the idealised myth of the city as the only place of opportunities prevents people from seeing the potential of their own environment (Pade-Khene et al. 2010), due to the social memory linked to the past (Bantustan policies) and the informal pension system (Posel et al. 2006, Kasere 2011). The legacy of apartheid geography is destitution and disempowerment of these rural areas, which are characterised by a looping economy based on grants and pensions, within a high age dependency ratio demography (Bähre 2006). Dwesa territory can be considered a consistent example of such a demographic picture: the local population consists mainly of grandparents and grandchildren, while their parents' generations are absent (Pade-Khene et al. 2010) reiterating the migration pattern (Hajdu 2006, Mafukidze 2006, Du Toit and Neves 2009).

The urban migration pattern sets challenges both in urban and rural environments across the whole African continent (Cross and Omoluabi 2006, Bouare 2006). In urban areas, informal settlements and demographic pressure produce serious social issues related to poverty, environmental management, healthcare and education provision, social vulnerability and security (Collinson et al. 2007, Rogerson 1999). While, on the other hand, rural territories are reinvented as kindergartens where retired grandparents raise their grandchildren until they finish school and move to the city (Posel et al. 2006, Ramphela

and Richter 2006).

Local ICT development: the Siyakhula Living Lab

It is fundamental to mention that the local community has been participating in the Siyakhula Living Lab, an ICT for Development project, since 2006. We find it relevant to note that the continuity of presence in the territory by implementing partners and constant cooperation between local community, academia and local schools made this project not just another ICT for rural development project but a local incubator for ICT knowledge that facilitates the local uptake of mobile phones (Gumbo and Terzoli 2013).

The SLL is a development collaboration putting together different actors (for example community, academia, telecom industry, and government). The aim of this project is to explore the potential of ICT for the socio-economic development of the area. This project is making use of ICT technology in order to develop, implement and localise services with a community-based perspective (Banks 2010). The Siyakhula Living Lab experience began in this area in 2005, making use of schools as points of presence. Its distinctive feature is working both with teachers and community members to achieve user-driven innovation of services (Gumbo et al. 2012).

Computer labs have been set up in schools, as they are distributed in the area and can be accessed easily. Teachers and members of the community have been introduced to basic computer literacy, internet use and open source software. The initiatives of the SLL were well received by the principals of the affected schools because of the perceived positive influence on teaching and learning as well as status (Dalvit et al. 2012). The SLL also fostered local interest in the mobile internet (Gumbo and Terzoli 2013), acting as a catalyst for self-learning and self-empowerment.

Methodology of research

Qualitative and quantitative data, information and analysis about the area, the population, and the interaction of locals with ICTs, have been collected in several studies (Palmer et al. 2002, Timmermans 2004, Dalvit et al. 2007, Fay 2007, Thinyane et al. 2007, Pade-Khene et al. 2010, Kavhai 2010, Cunningham et al. 2012, Gumbo et al. 2012). These studies highlighted the limitations of conventional survey methods, such as questionnaires and interviews. The language barrier constitutes a major issue. In Dwesa few people can speak and understand English (mainly teachers and high school students). Moreover, people are unfamiliar with such methods and may misinterpret the interaction or try to please the researcher. Two interviews in English were arranged with experienced key respondents, who had taken part in previous studies and were familiar with the research process. The first interviewee was a local man in his 60s, relying on a government pension to feed himself, his daughter and two grandchildren. The second was a 30-year-old teacher who migrated to Dwesa from a nearby town. The interviews were used to provide contextual understanding of the use of mobile phones in relation to economic and financial activities. These two key informants were chosen because of their representativeness of the local population. As a grandparent and a teacher, these two people represent a large

part of the local demographics, which are deeply affected by the migration of the workforce.

The main data collection instrument was a questionnaire. This enabled some measure of comparison with previous researches on diffusion and use of cellphones (Kavhai 2010, Pade-Khene et al. 2010). A strong point of the questionnaire tool is anonymity. As respondents are not facing the interviewer, answers provided should be less affected by the social desirability bias (Kavhai 2010). On the other hand, as rapid data extraction instruments, questionnaires may lead the researcher to involuntarily overlook some issues that may be of fundamental importance. We tempered this risk with two tools: interviews with key informants to help us to identify local issues (as mentioned above) and questionnaire localisation.

The questionnaire was translated by local teachers who helped choose suitable wording and sort out the meaningful questions from those that did not make sense in the Dwesa context, providing a relevance test for the questionnaire. The questionnaire was distributed through a network made up of teachers, pupils and households, allowing us to reach a significant number of respondents (n = 495) in one month, and involve teachers in a social research as actors knowledgeable about local social context.

The participating teachers (from Mpume Junior Secondary School, Mthokwane JSS, Ngoma JSS, Ngwane JSS, Nqabara Secondary School, Ntubeni JSS) were already cooperating within the Siyakhula Living Lab project and there is mutual trust between them and Rhodes and Fort Hare staff.

The teachers organised themselves into six groups. After the introduction a brief “question & answer” time was provided to the participants, a teacher put forward the shared opinion that even if you could access cash or e-money in Dwesa there would not be that much to buy. Teachers are generally coming from other areas and towns of the Eastern Cape, they are quite sure that the vast majority of their pupils will migrate to the city once they matriculate. Teachers' perceptions about Dwesa are consistent with the local idea that Dwesa is a quiet place for grandparents and grandchildren.

Each group worked on two questions to find out possible problems related to the questions (wording, meaning) and if the questions were suitable and sufficiently clear for the target group: their pupils and their families. They then translated the two questions into isiXhosa. Each group shared the suggested translation of the question into the isiXhosa spoken in the Dwesa area. The assembly is then invited to brainstorm and contribute to the translation proposed, improving it to make the question as intelligible as possible to the target group. For example, the majority of people in Dwesa do not have a clear idea of the difference between “cellphone” (iiselula) and “landline telephone” (iifowuni) since for them the “cellphone” is the only kind of “phone” they have been dealing with. In this case the choice was to put them both, with “iifowuni” in brackets. This procedure let us avoid the loss of meaning due to non-contextualised translation and improve effectiveness and relevance of the tool (Cornwall and Jewkes 1995, Maseko et al. 2010).

The questionnaires were administered by household rather than individually, because mobile phones are often shared devices inside a household (Dalvit 2014). We chose households rather than families because the concept of relational family corresponding with household units is a prominently western social institution, while it is common in South Africa that family relationships extend past the nuclear family: household unit suits the South African socio-demographic context better (Sagner and Mtati 1999).

The questionnaire was administered by respondents themselves. Teachers handed it out in classes to their pupils and pupils filled them in at home with household members. Questions had to be as clear and unambiguous as possible in order to avoid misinterpretation by the respondents, since they could not ask the researcher for explanation. The main format of the questions was closed and short.

The questionnaire begins with basic demographic and mobile phone-related questions and moves on with more specific questions about habits with mobile phones, basic mobile banking and banking habits. The order of these topics has been reworked in the presentation of findings below.

Findings and discussion

Almost everybody in Dwesa has a bank account. The majority of respondents (34%) are with First National Bank, 23% are with ABSA, 23% with Standard Bank, 10% with Capitec, 7% with Nedbank, and 2% with Post Bank, while 1% marked “other”, which could mean informal saving. Both key interviewees agreed that one of the main issues in accessing banking services in Dwesa was the lack of ATMs, which are only available in Willowvale. When asked about the estimate of monthly cash withdrawals, 29% said they withdraw cash once per month, 27% twice per month and 12% three times per month, This means additional costs (mainly transport), ranging from 90 to 240 ZAR per month, need to be added to the amount being withdrawn. Such additional costs may constitute as much as 25% of the monthly disposable income of a household. Obviously, people travel to town not only to withdraw money, but also to shop and socialise. Nevertheless, the use of mobile phones to access some of the services and avoid some of the traveling could positively impact on the average Dwesa household budget.

Each family spends an average of 160 ZAR on mobile communication. Mobile airtime costs are consistently an issue for users (Kavhai 2010), because there are few resellers in the area and they can charge an extra fee. The added cost of Dwesa airtime can be overridden by buying airtime online, from carriers' websites. Vodacom and MTN are the main carriers in the area (Pade-Khene et al. 2010) and both sell airtime online. Recent provisional findings showed that 80% of people receiving social pensions access their SASSA accounts via mobile and buy airtime and electricity with USSD codes (Buthelezi 2015).

The habit of transferring airtime is common among 26% of respondents. Airtime transfer is generally considered, in the sub-Saharan context, a way to transfer some cash to relatives

and friends and may serve some of the functions of mobile money (Donner and Tellez 2008). The data show a consistent evolution from previous research on mobile diffusion and use in Dwesa.

Around 35% of respondents have access to a handset, 36% share a mobile with another person and 26% share a handset with three or more people in their household. Around 2% has no access at all to a mobile phone (9 out of 495 households). In the majority of households (69%) we find a distribution of at least one mobile between every two people. 33% of households have one (or almost one) handset for each person and this shows a positive evolution of mobile diffusion compared to previous studies. Previous research (Pade-Khene et al. 2010, Kavhai 2010) shows that 23% of the local population used to own a mobile phone. In a time span of three years there has been a 10% increase in the number of individuals with their own mobile phone.

The SMS is a way for 42% of respondents to make small purchases related to mobile features like ringtones, and make small donations. Approximately 48% of respondents make use of their devices as music players, 48% radio players, 32% take pictures/videos with mobile phones and 31% send pictures.

Knowledge and use of 2G (and some 3G) devices is well rooted within Dwesa. About 87% of respondents know the brand and service provider of their mobiles. Locals have begun to use the advanced features (multimedia, services access and internet access) of new mobile phones, while previously these devices were found to be displayed mainly as status symbols (Kavhai 2010): we found that roughly 21% of residents with access to a mobile phone browse the internet, 10% use mobile to send e-mails and 8% for online shopping. As noted by one interviewee, at the school where she works teachers use computers as well as mobile phones to access the Internet, do online banking and online shopping. The other interviewee indicated that these practices were rare among older community members. As noted above, 99% of respondents have a bank account. Approximately 70% make basic to advanced use of mobile banking: they receive SMS notifications about transactions and 40% of bank account holders access their accounts online. While no evidence of mobile money use was found, these figures indicate a relatively common use of mobile phones to interact with the traditional banking system. SMS notifications are well widespread because they reach any kind of mobile (feature phones, Blackberry, Android). Provisional findings pointed out also a widespread use (48% of those having a bank account) of USSD codes to check account balance, buying electricity and airtime (Buthelezi 2015).

The willingness shown by respondents to attend workshops on advanced use of mobile devices was encouraging: 70% of respondents showed an interest in workshops, most of these (50%) were students and their siblings, 17% were parents and relatives and the remaining 3% were grandparents. These results are consistent with the perceptions of both interviewees: that younger generations are the most interested in learning new technologies. It should be noted, however, that the comparatively low percentage of favourable respondents from older cohorts could be attributed to their propensity to

migrate and their subsequent under-representation in the sample.

Conclusions

Our research suggests a fast uptake of mobile phones in Dwesa. As representative of many rural realities in South Africa and the rest of the continent, these findings are not surprising, but consistent with research conducted in similar contexts. An interesting observation is that networked activities and the use of relatively advanced features are slowly becoming more common (one in five respondents uses the Internet on a mobile phone). Higher-end mobile phones are acquiring an instrumental value, besides the original symbolic one. Particularly young people are interested in learning to exploit the full potential of their mobile phones.

The fact that almost all respondents already have a bank account could explain the absence of mobile money use. The majority of local population lives on formal and informal social security and, while the latter might have pushed the use of mobile money (but the only finding we had in this sense was just some airtime transfer), it is through the former that locals get the main part of their income.

Mobile phones are extensively used to interact with conventional banks, suggesting a complementary rather than replacing role. The travel costs and bank fees associated with cash are regarded as necessary and unavoidable consequences of rurality. As local shops only accept cash, there is no evidence of micro-payments within the area.

People in Dwesa perform a wide range of money-related activities on their phone, although none of this qualifies as mobile money in the conventional sense. These activities range from airtime transfers to online shopping and SMS purchases. It should be noted that these activities generally entail long-distance monetary exchanges in two directions. Airtime is typically transferred from relatives in the cities while online goods are purchased from either big cities or overseas vendors. Either way, money-related activities on mobile phones do not appear to support local exchanges or alleviate the costs associated with cash (e.g. the need to travel to town). On the contrary, they risk to reinforce dependency on urban centres in terms of migrated relatives as well as services while perpetuating the perception that goods and services can only come from outside the Dwesa community. The success of initiatives such as M-Pesa can be explained in terms of their responsiveness to a particular local context. This serves to underline once again the importance of considering contextualisation and local social aspects as main drivers of success (or failure) of certain technologies, rather than the structural characteristics of the technology itself.

In Dwesa, money-related activities seem to entrench rather than address local issues associated with marginalisation and migration. Services supporting local exchanges and the emergence of a local market could contribute to sustainable development in the area by turning Dwesa from a periphery to a centre of economic activity. We found evidence of fast and widespread diffusion of mobile phones, some of which support advanced

features, as well as a keen interest in exploiting their potential. We suggest a local focus for the development of mobile services capitalising on these conditions.

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