

The Wireless Revolution and its Implications for Rural Development: The Case of Mberengwa District in Zimbabwe

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Abstract: *The study set out to investigate the implications of the current explosion in wireless technology on rural development in Mberengwa District. The researchers used a case study research design. A total of twenty four participants took part in the study. Data was collected using key informant interviews with four purposively selected informants and two focus group interviews each with ten conveniently selected members of the community. Thematic analysis was used in analysing the data. Wireless technology has been fairly adopted however with several challenges. The study established that wireless networks present opportunities participation in rural development planning, education. Mobile networks have the potential to increase the participation of women; however challenges of access, infrastructure, cost and technology education slows down progress.*

Keywords: Wireless technology, rural development, participation

1. Introduction

Globally a number of studies have been carried out on Information and Communication Technologies (ICTs) and their potential to enhance development in countries such as Bangladesh, Brazil, Ghana, Nigeria (Chapman and Slaymaker 2002, Galperin, 2004, Kamel 2005, Onwueemele, 2011 Boateng, 2012). The African continent is experiencing an information revolution which offers the continent an opportunity to leapfrog the future, breaking out of decades of stagnation or decline (World Bank, 1996). Technology can bridge the gap between development professionals and the rural people through initiating interaction and dialogue, new alliances, interpersonal networks and cross sectional links between organisations. It has created mechanisms that enable the bottom up approach articulation and sharing of local knowledge. Cypher and Dietz (2008) viewed noted that technological progress reduces costs, increases productive efficiency, conserves society's resources and establish the capacity for a higher standard of living. Zimbabwe like many other countries in southern Africa has experienced a significant expansion in wireless networks and the use of cell phones has permeated all sectors of the economy including the rural economy (African Development Bank Zimbabwe Report, 2012).

Despite the overall growth in wireless use in African countries, there remains a significant technological/ digital divide between urban and rural areas in most countries across the world (Sarrocco 2002, Fong 2009, Fuchs and Horak 2008). It is evident that rural Zimbabwe lags behind in terms of development since attaining independence in 1980 (Mukeredzi, 2013). People in rural areas live in harsh and unstable environments and hence are susceptible to various difficulties such as food insecurity, hunger and deprivation (Ley, 1996). Generally they lack adequate amenities and services and indeed there is no significant change in most rural areas. The rural economy is mostly agro-based and

focuses on primary production. The study was conducted in Mberengwa District in the Midlands province of Zimbabwe. The common economic activities in the area include mining mostly illegal for small scale miners and agriculture. Despite this, poverty incidence levels for households are very high estimated to be at 72% in 2003 (Zimbabwe Parliament Research, 2011). The new wireless technologies offer exciting opportunities for addressing the lack of connectivity in rural Zimbabwe. The new breed of wireless allows nations to leapfrog the first generation of internet access technologies much like mobile telephone has allowed leapfrogging of traditional telecommunication networks. Internet offers unique opportunities to overcome a variety of informational deficits that handicap people, businesses and communities in poor nations (Castells, 1999, Rodriquez and Wilson, 2000).

The growth of mobile communications technology has created opportunities for economic, social empowerment and grassroots innovation in developing countries (Chapman and Slaymaker, 2002, Fuchs and Horak 2008, Boateng 2012). However, there has not much research effort on the relationship between ICTs and rural development including the role of the wireless expansion on rural development in Zimbabwe (Chitanana, 2014). Hence the study, using Soussan et al (2001)'s livelihood model sought to investigate the rural development implications of the wireless revolution in Mberengwa District. Soussan et. al's model considers the main factors that affect peoples' livelihoods and the relationship between these factors. The framework attempts to raise complexities of poverty. The rural poor people are at the centre of a web of interrelated influences. The list include natural resources, technologies, their skills, knowledge and capacity, their health, access to education, sources of credit or networks of social support. According to Ellis(2000) natural capital covers land, water and biological resources used by men for survival, social capital such as networks, member of groups, relationships and access to wider societal institutions, human capital or the skills, knowledge, ability to labour and good health, physical capital such as transport,

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shelter, roads and energy. The model captures the factors that influence the livelihood strategies of the rural poor. The recent developments in wireless networking are raising new hopes for sustainable development in rural communities which has been behind in terms of technological advancement. Studies in Nigeria, Kenya and Ghana have shown the development implications of wireless technologies inclusive of mobile banking on development (Medhi et. al 2009, Agwu, 2014 and Carter 2014). It considers the main factors that affect peoples' livelihoods and the relationship between these factors. The framework attempts to raise complexities of poverty. The rural poor people are at the centre of a web of interrelated influences. The list include natural resources, technologies, their skills, knowledge and capacity, their health, access to education, sources of credit or networks of social support.

The emergence of wireless technologies across the world has reduced the distance between nations and the world is becoming a global village. In Africa particularly rural Zimbabwe which has been affected by the digital divide is gradually coming out of hibernation and slowly joining the global village. This study sought to establish the implications of the wireless revolution, a powerful global development force and its implications in growth and prosperity. The study focuses on the adoption of wireless technologies in Mberengwa District, opportunities associated with wireless technologies and the challenges faced in the adoption of these technologies. The study was necessitated by a paucity of studies on wireless technologies in rural Zimbabwe. The study set out to answer the following research questions:

- What has been the level of adoption of wireless technologies in Mberengwa District?
- What rural development opportunities are associated with wireless networks in Mberengwa District?
- What challenges do people in Mberengwa District face in adopting wireless technologies?

2. Materials and Methods

The study adopted a qualitative research approach in an interpretive paradigm (Myers, 2009, Betram and Christiansen, 2014 Thanh and Thanh, 2015). In view of this a case research design was employed in order to collect detailed data from the field. A total of twenty four participants took part in the study as follows: four purposively selected key informants and two focus group interviews, each with ten conveniently selected participants. Key informants included the Councillor, two School Headmasters and Agriculture Extension Officer The study focused specifically on participants from ward 2 of Mberengwa District. Data was presented in summaries and significant quotes where necessary. Data collected from the study was analysed using thematic analyses where by the major themes are supported with rich quotations of respondents (Vaismoradi, 2013).

3. Results and Discussion

The major themes that emerged from the study are presented based on data collected from field work. .

3.1 Adoption of wireless technologies in Mberengwa District

The majority of participants in both the key informant interviews and focus group interviews revealed that they had adopted wireless technology in the form of mobile phones. However, the adoption levels are generally higher among the youth and men as compared to the aged and women. Amongst women themselves there are also significant differences in adoption levels based on education and entrepreneurial activities they engage in. It was revealed that women in business make more use of mobile phones for their transactions as compared to those in farming.

3.1.1 Opportunities derived from adopting wireless technologies

This section presents the major themes on opportunities derived from adopting wireless technologies in Mberengwa District.

3.1.2 Personal and Business communication

Wireless technologies especially the mobile phones have presented several opportunities for the majority of participants in the focus group as well as key informants. The opportunities range from general communication for both personal purposes and business. Some participants made the following comments;

Now we can chat with other family members who are not based here in Mberengwa without challenges”

“We have since joined the global village and enjoying the benefits associated with it. Information is power; we can make informed decisions now as a result of this development”

“We can now receive cash without going to town through the Ecocash facility, thanks to Econet wireless”

The participants who were already using mobile phones population expressed their appreciation of how the phones have improved their communication and made their lives better. Some of them who are expressed that sending and receiving money has never been easy in the past before the introduction of mobile money services such as Eco-cash, Tele-cash and Net-Cash. The mobile money services reduced costs of accessing money significantly as there is no need for one to have a bank account or travel to town to access cash. To sum up the financial assets of the rural poor people may be increased. The findings from the study have confirmed earlier studies which revealed that the emergence of rural branchless banking may enable circulation of cash in rural areas thereby raising the financial capital of rural areas (Ndlovu and Ndlovu 2013).

The mobile communication has become the world's most common way of transmitting voice, data and services. The advent of the mobile phone is stimulating a revolution in rural connectivity for small scale rural producers in developing countries. The mobile phone is enhancing communication information exchange and innovation in

service delivery (Donner, 2009, Tickner, 2009, Parikh, et al. 2007). Mobile phone based services have proliferated in recent years providing new ways to access price and market information, coordinate input/output resources including transport, logistics, finance and production techniques (Qiang et al., 2011). Personal use of mobile phone has also enabled rural producers to interact directly with end user markets, traders, suppliers, extension services and with each other.

3.2 Participation in rural development planning

Some participants noted that other than accessing money, the use of wireless technology has increased their participant levels in rural development planning. Invitation to community development meetings are now fast as compared to the past where they were sent through letters from the District Council. With the mobile phones some participants are now on chat platforms such as WhatsApp which has necessitated speedy communication between local government and the people hence enabling participatory development planning. The increased participation of women in rural development planning in the district is also attributed to the increased use of mobile phones. Women farmers and entrepreneurs in Mberengwa have benefited through increased access to market information,

The following quotes indicate contributions of mobile phones to participation in rural development planning:

'Now that we have phones, call for community meetings are now fast and reliable'

Another respondent said

In the past messages from Chiefs were passed through word of mouth through the representative of the Chief. Their coverage was limited since they walked on foot and rarely used bicycles for the more affluent ones''

Another respondent said:

The relief organisations which operate in the District such as Care International and World Vision would talk to people only in areas with good roads, often times excluding those in mountains.

From the above comments it shows that previously community members in hard to reach areas would normally be excluded from the community development process in Mberengwa District. Other studies have revealed that effective rural poverty reduction strategy is better supported by robust infrastructure and also extending wireless facilities to the rural poor people (Matunhu 2008, Matunhu and Mago 2013). This exclusion of participants from hard to reach areas reflects Robert Chambers' terminology of Rural Development Tourism (Chambers, 1983). The responses raised indicated that the emergence wireless technologies may capacitate the rural population in different ways.

The mobile phones are being used to help raise farmers' incomes, lowering information costs, reducing transport costs and providing a platform to deliver services and to be innovative. In other words wireless technologies facilitate communication convenient communication regardless of

where one is and time. Farmers and agricultural producers can more easily access relevant and timely information which may range from acquisition of quality seeds, credit, insurance, water supply for irrigation, to livestock care and market prices (Asian Development Bank, 2003). The wireless revolution can sustain rural agricultural activities. In the same vein it helps rural people become aware of and articulates their position, exchange knowledge and skills to take control of their lives, reach consensus and manage conflicts (Bassette, 2004). Furthermore availability of wireless networks can spearhead the creation of employment opportunities for the rural population.

3.3 Educational opportunities

The use of wireless technologies in Mberengwa District was noted to bring educational opportunities for the majority of participants in the study. Some of the participants noted that their mobile phones are more than devices for phoning purposes but they are also using them to access educational information which they find useful. Programmes which were regularly mentioned include Eco-farmer a service aimed at bringing agriculture extension services to the farmers. The majority of respondents argued that the programme is helping in addressing the challenge of having a few Agriculture Extension Agents as compared to the demand for their services. One respondent made the following comment:

We now get information on about weather patterns on the phones and this makes us prepare for farming seasons better.

Another one noted that;

For me, I am always guided by the information on weather by my phone. The previous which heat wave which affected most of our crops last season was even predicted

In this way, the wireless services are being utilized for enhancing functional literacy among both small holder and communal farmers across the District. The advantage of utilizing the wireless technology is that it is all inclusive. Even community members with disabilities can equally benefit from where they are. Participants in the study revealed that the wireless technology has brought new hope for them for it promotes e-learning, non- formal education at low cost. In this way it has become an important tool for empowerment. The above responses admitted that wireless revolution, has got a strong educational relevance. This can address the traditional form which has been considered to be very rigid and to be conducted in class hence technology facilitated self-directed learning which is not confined to the class, it has brought a flexible education system which has been extended further to the rural areas.

Veeramani (2010) admits that the explosive growth of the internet opens up opportunities to support demographic, technological and lifestyle changes and offer quality education to those who would otherwise have no access to it. The internet has brought e-learning promoting interactivity and participation with the hope at one point the facility can reach the poor rural citizens. Rural areas generally have poor

educational resources to meet diverse needs of the rural people; hence they can make use of available e-learning opportunities. People of all ages learn informally and acquire most of the skills necessary in life. Coombs (1974) suggest this promotes lifelong learning. The authority also maintains that the process of lifelong learning facilitates discovery, innovativeness, leading to self help and self management. All forms of education may benefit from the advent of wireless technologies. These forms include the informal or lifelong education, formal education system and the non formal education system, hence concietize, empower and liberate the rural people (Kassam, 2000). This is supported by Nyerere's education for reliance.

3.4 Challenges associated with adoption of wireless technologies in Mberengwa District

The wireless revolution has not been an easy process. Some participants in the study revealed a number of challenges being experienced in Mberengwa District. The challenges identified include cost, lack of confidence, technophobia, digital divide, ambivalence, resistance to change and poor network connection in some areas. Some of the respondents made the following comments on challenges associated with adoption of wireless technologies in Mberengwa District:

Electricity connection is a problem in Mberengwa these days, this often interferes with our network connections.

Another respondent said;

We just hear some people talking about the use of internet. For us it's something that we do not have. It's to do with the cost of installation. Most of us cannot afford.

A number of factors have been identified by other researchers as hindering the adoption of wireless technologies in rural areas. These factors include exclusion of the rural poor due to their circumstances, lack of infrastructure including electricity (Biriwasha 2011, Molawa 2009, and Chimhowa et.al 2010). Adoption of wireless technologies is also affected by policies of the state. These are the macroeconomic policies. They either encourage or discourage private entrepreneurs to innovate and change. Cypher and Dietz (2008) maintains that these policies affect the economy and they do have an important impact on technology adoption. In response nations are encouraged to develop policies in which the private sector are enabled and encouraged to produce and invest in technological acquisition. Nations are also encouraged to have policies that help keep inflation rates and balance of payments in check that would contribute to growth, national technological change and development.

Giddens (2009) cites other factors such as gender, social, class, ethnicity and religious affiliation as detrimental in technology adoption. He raises the cultural elements of recipients emphasizing on how people survive. People have a way of life and some are resistant to change hence the whole process of technology adoption is affected. Some regard the current technology as disturbing or destroying the cultural values of people or a process of westernizing indigenous

cultures hence some traditional communities have adopted a very rigid stance. Haralambos (2008) admits that electronic communications such as the internet change the nature of the social groups with which the individual can interact, making geographical location much less important. He views technological adoption as a move towards a global culture where the world is becoming more homogenous. Giddens (2009) further purports that globalisation which is closely linked to the wireless revolution is fundamentally changing the nature of our everyday experiences. The current age affords individuals more opportunity to shape their own lives; hence some are aligned to this kind of change. In a bid to protect their cultures they shun technology. It becomes apparent adoption of technology is indeed affected by peoples' background and their cultural values.

Other challenges affecting developing nations are telecommunication infrastructure, general literacy, less knowledge of technologies, gaps, erratic or no power supply, income and the existing inequalities (Odeniyi et al, 2013).

4. Conclusions

The researchers made the following conclusions based on the results of the study:

- Participants have adopted wireless technology quite reasonably, but this refers specifically to them. The adoption levels of wireless technology in Mberengwa District are mostly limited to the use of mobile phones. There was no mention of the use of other technologies such as the internet.
- The wireless expansion presents a number of opportunities to the rural folk of Mberengwa including increased participation in rural development planning, efficient personal and business communication, empowerment of previously excluded members including women and opening up of educational opportunities. The wireless revolution can enhance rural participation in development.
- A number of challenges still exist that hinder the adoption of wireless technologies in Mberengwa District including; infrastructural problems, poor network connections, cost and lack of knowledge on wireless technologies.

5. Implications

The following recommendations were made based on the conclusions above;

- There is need for investment by government and the private sector in infrastructure, including electricity in rural areas to enable the expansion of wireless technologies at reasonable costs to rural populations.
- Technology literacy is a necessity that should be provided to rural communities by both telecommunication companies and government institutions so that the people can benefit by utilizing opportunities associated with the wireless revolution there by reducing the digital divide.

References

- [1] African Development Bank (2012). Zimbabwe Report. African Development Bank

- [2] Agwu, E.M and Carter, A.-L. (2014) Mobile Phone Banking in Nigeria: Benefits, Problems and Prospects. *International Journal of Business and Commerce Vol. 3, (No.6)*
- [3] Bertram, C., & Christiansen, I. (2014). *Understanding research*. Pretoria: Van Schaik Publishers.
- [4] Biriwasha, M (2013) *Information and Communication Technology drive*. Unpublished
- [5] Boateng, M.S (2012) The role of Information and Communication Technologies in Ghana's rural development. *Library Philosophy and Practice (E-Journal)*
- [6] Castells, M. (1999) *Information technology, globalization and social development*. UNRISD discussions paper no 114. Geneva: United Nations Research Institute for social development.
- [7] Chambers, R. (1983). *Rural Development: Putting the Last First*. London. Routledge
- [8] Chapman, R. and Slaymaker, T. (2002) *ICTs and rural development: Review of the literature, current interventions and opportunities for action*. London: Overseas development Institute
- [9] Chimhowu, A., Manjengwa, J and Feresu, S (2010) *Moving forward in Zimbabwe: Reducing poverty and providing growth*. Harare. Institute of Environmental Studies, University of Zimbabwe
- [10] Coombs, P.H. (1974) *Attacking Rural Poverty: How non formal education can help*. Michigan: John Hopkins
- [11] Cypher, J.M. and Dietz, J.C. (2008) *The process of economic development*. London: Routledge
- [12] Donner, J (2007) The use of mobile phones by micro entrepreneurship in Kigali, Rwanda: Changes to social and business networks; *Information Technologies and International Development, Vol. 3 (2):3-19* [online] <http://itidjournal.org/itid/article/view>
- [13] Fuchs, C and Horak, E. (2008). Africa and the digital divide. *Telematics and Informatics. Vol. 25. 99–116*
- [14] Fong M.W.L. (2009). Digital divide between urban and rural regions in China. *The Electronic Journal on Information Systems in Developing Countries. Vol. 36, (6), 1-12*
- [15] Galperin, H (2004) *Wireless networks and rural development: Opportunities for Latin America*. Los Angeles: University of South California.
- [16] Giddens, A. (2009) *Sociology*. London: Polity Press
- [17] Kamel, S (2005) The use of information technology to transform the banking sector in developing nations, *Information Technology for Development, Vol. 11:(4), 305-312*
- [18] Kassam, Y (2000) Julius Kambarage Nyerere. Prospects: *The quality review of Comparative Vol.xxiv (no1)*
- [19] Matunhu, J. (2008) The rural poverty trap in South Africa? *Tamara Journal Vol. 7 (7).2008*
- [20] Matunhu, J and Mago, S (2013) Rural Banking for rural development in Zimbabwe. *Stud Tribes Tribel. Vol. 2 (1): 43-48*
- [21] Medhi, I., Ratan, A & Toyama, K. (2009) Mobile-Banking adoption and usage by low-literate, low-income users in the developing world." In N. Aykin (ed), *Internationalization, Design and Global development*, Springer Berlin, Heidelberg, pp. 485-494.
- [22] Molawa, S (2010) *The First and the Third World in Africa: Knowledge, challenges and current technological innovations in Africa*. WITS Institutional Repository
- [23] Ndlovu I and Ndlovu M (2013) Mobile banking the future to rural financial inclusion: Case study of Zimbabwe. *IOSR Journal of Humanities and social science Vol. 9, (4)*
- [24] Parikh, T.S; Patel, N and Schwartzman (2007) *A survey of information systems reaching small producers in global Agricultural value chains*, School of Information. UC Berkeley. [online]<http://www.stanford.edu>
- [25] Parliament Research Department (2011) *Mberengwa East Constituency profile*. Parliament of Zimbabwe.
- [26] Qiang, C. Z. (2012) *Mobile applications for agriculture and rural development*. CT sector Unit. World Bank.
- [27] Rodriquez, F. and Wilson, E.J. (2000) *Are poor countries losing the information revolution?* Infodev working paper. Washington DC
- [28] Sarrocco, C. (2002) Improving IP connectivity in the least developed countries: Breaking the vicious circle. *Info Vol. 4(3), 14-28*
- [29] Soussan, J., Blackie, P, Springate,-Banginski, O. and Chadwick, M. (2000) *Understanding livelihood processes and dynamics*. Working paper 7, livelihood policy relationships in South Asia, school of geography. University of Leeds.UK.
- [30] Tickner, V (2009) *Agricultural marketing systems and the development and spread of mobile phone use and other information and communication technologies (ICTs) in developing countries experiences and directions forward*, Government and Agricultural marketing consultants., Brighton.
- [31] Thanh, N.C and Thanh T.T.L (2015). The Interconnection between Interpretivist Paradigm and Qualitative Methods in Education American. *Journal of Educational Science Vol. 1, (2), 24-27*
- [32] Vaismoradi, M Hannele Turunen, H Terese Bondas, T (2013) Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing and Health Sciences (2013), Vol. 15, 398–405*
- [33] Veeramani, M. (2010) E-Learning: A conceptual framework. *International Journal of Educational Research and Technology Vol. 1 (2) Dec 2010:20-24*
- [34] World Bank (2002) *World development indicators*. Washington DC: World Bank