



Use of internet in rural areas of Zambia

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“I am now testifying that my life has greatly changed because I have full access to Internet. Before Internet was implemented I was in a dark world but I am now in the light because of Internet. I am saying so because as a teacher I would like to know what is happening around the world so that I can update my pupils on current affairs. Right now I have all the information on my fingertips”. (a teacher from Macha¹)

Summery

Access to information and, more importantly, the internet is not evenly distributed in this world. But if they had it, would people in rural Africa want to use the internet? How would they use it and benefit from it? Will internet influence culture and how can communities prepare themselves when the internet comes in their village?

To support the rollout of internet in more rural areas in Zambia and to improve the effectiveness of ICT in rural environments, a clear view on the adoption and use of ICT and services was needed. This study aimed at providing this knowledge.

Interviews in rural Zambia taught us how people use the internet and the benefits they experience. We also spoke about their expectations and what they think is needed when the internet is introduced in a community.

The study showed that people and communities in rural Zambia do benefit from ICT both socially and economically. Basically, they use the internet for the same purposes as people in Western countries, such as to communicate, to search for information and to buy things. However, internet is even more important in rural areas because of lack of alternatives, such as telephone lines, libraries, newspapers, roads in good condition, and public transport.

When introducing the internet in a new community, first of all, sensitization should take place. Then training is needed on how to use a computer and the internet. Next to that, proximity is important, having internet at home or at work would naturally enable a lot of people to use internet more often and benefit more from it. Most participants feel

¹ . All quotes in this paper are anonymous as was agreed with the participants

that the internet can have a positive impact on their culture; however, more African content should be developed and placed on the internet.

This paper is not about technical aspects of introducing the internet in rural areas. It's about cases of real people and how internet changed their lives. Internet empowered them and helped them to build a more sustainable future with better education, easier communication and new economic activities.

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1. Introduction

This paper describes study on the usage of ICT in rural areas in Zambia. It is a qualitative study, based on a series of interviews carried out among the people of Macha, Southern province and Mukinge, North-Western province of Zambia. This study is conducted by Linknet and TNO. LinkNet is an organization in Zambia whose vision is to improve the future of rural areas throughout Zambia by providing telecommunications and ICT services via the internet (Van Stam, G., 2006). TNO is a research organization in the Netherlands with a mission to apply scientific knowledge with the aim of strengthening the innovative power of organizations (TNO 2007).

1.1. Research questions and hypotheses

The research questions in this study to be answered were:

- How do people use internet in their daily life in rural African areas?
- What are the specific benefits of internet people experience and expect in Macha and Mukinge?
- Will internet help to preserve or destroy the Zambian culture?
- Which means can promote the use of internet?

The hypotheses were:

- People in rural areas do benefit from internet in their daily life.
- People in rural areas come up with innovative ways of using ICT and services not yet known in western and urban areas, because of their different context.

1.2. Structure of this paper

The remainder of this paper is organized as follows. Section 2 describes the methods used. In section 3 the results of the interviews are described starting with the use of internet in section 3.1, followed by the benefits of the internet in 3.2. In 3.3 internet and the Zambian culture is described and section 3 ends with introducing the internet in a new community in section 3.4. This paper ends with section 4, conclusions and recommendations.

1.3. Background

TNO supports LinkNet in the villages Macha and Mukinge in Zambia with the rollout of telecommunications by offering technical support and training. To support LinkNet's plans for the rollout of more villages and to improve the effectiveness of ICT in rural environments, a clear view on the adoption and use of ICT and services was needed. This study aimed at providing this knowledge.

The rollout of telecommunications and ICT in the rural areas of Zambia would enable people to communicate both within and outside their villages, create new employment possibilities for villagers, and support rural institutions (e.g. schools and hospitals) with their communication needs (Van Stam, 2006). Furthermore, the internet enables e-learning, which has the potential to bridge the educational gap that exists in society and improve the lives of millions of people in the developing world who do not enjoy the same opportunities as those in rich, developed countries (Pais A., 2007).

Technical, practical and political hurdles are to be overcome when introducing the internet in a rural community, such as computer illiteracy, having no telecom infrastructure, huge fees for small bandwidth satellite connection, lack of electricity and equipment breaking down faster because of harsh environment. Although the authors acknowledge that a multidisciplinary approach involving the local people, technical and organizational aspects is essential to successfully introduce ICT in a sustainable way, there are other papers that cover those stories, such as the ones presented at the IST Africa conferences and the E-learning Africa conferences. However, little qualitative psychological and sociological studies are done on how people use internet in rural areas in Africa and what it means in their daily lives. Only some of the findings of the mentioned conferences were relevant for this study, such as Joseph, K. and Andrew, T (2006) and Kozma, R.B. (2007). Additionally studies on culture and cross cultural psychology were used to prepare for this study such as Segall M.H., Dasen P., Berry J.W., Poortinga Y.H. (1990) and Hofstede, G. (1991).

2. Method: Interviews

Semi structured interviews were conducted, most of them in English and two in Tonga, the local language in Southern province. Participants were interviewed at their homes, their workplaces or at school. A recorder was used during the interviews in order to work them out later. A number of 18 interviews took place with 12 male participants and 23 female participants. Most were individual interviews and participants were selected from different parts of the community to create a wide variety of perspectives (see table 1). Students from the Macha and Mukinge girls' school and the Mukinge nursing school were interviewed; those interviews took place in small groups to make these young people feel more comfortable. The full questionnaire used can be found in the appendix.

	People who are already using the internet	People who have not used the internet yet, (but are expected to do so in a short period of time)
Topics of the interview	• How they use the internet • What made them start using internet • The benefits they experience • Impact of internet on Zambian culture	• What they know about the internet • Their expectations • What they think is needed when the internet is introduced in their community • Impact of internet on Zambian culture
Participants	teachers (deputy) headmasters of basic and secondary schools, Chief, businesswoman, airport manager, farmer, elderly online student, head of community radio IT consultant Students of Macha girls school	salesman police officer, employee of ministry of education Students of Mukinge Girlsschool Students of Mukinge nursing school teacher

Tabel 1, participants and topic of interviews

3. Results

The results of the interviews are summarized for each topic of interest; no interpretation is done by the authors other than adding results from other studies where relevant. Quotes of participants are added to illustrate the results. All quotes in this paper are anonymous as was agreed with the participants

3.1. Usage of the Internet

First use of the internet

The interviews started with asking people to tell us their story about the first time they used the internet. In the African culture where people are used to telling stories this approach worked very well. The participants who have used the internet started using it between 2003 and 2005. Most participants first surfed the internet in the internet cafe at the vision community centre in Macha, others in Choma, Lusaka or abroad. Some people were helped to get started by their friends, children and other relatives; others were assisted by people working in the internet cafe. The wish of sending e-mail to relatives or friends was a strong trigger to start using the internet.

“My enthusiasm to use internet was driven by a Canadian young man who stayed with me and encouraged me to open up an e-mail address so that we could communicate when he leaves for Canada. This prompted me to open an e-mail account.”



Study is another important trigger to start using the internet. A lot of participants look up information for their assignments, for example for the Zambia Open University. Others are following e-learning courses at institutes abroad.

“I am studying at Zambia Open University. Internet has really helped me to acquire information for my school assignments as libraries are very scarce here”

Chatting was another trigger:

“These guys were doing a lot of chatting with people from Australia, America, New Zealand, people from all over the world”. They would type and then click on enter and those guys would reply immediately. When I was watching I was very surprised as to how it worked. So they also opened an account for me at Yahoo and I started chatting and also sending e-mail”.

Keep on using the internet

After their first introduction to the internet, all participants kept using the internet. Some do so regularly. They browse websites to look up information for studies, on how to use operating systems for computers (e.g., Linux), how to repair cars, farming, news, weather reports (airport manager). People buy books, school materials and even look up prices and buy second hand Japanese cars. Next to information, they establish new contacts with people all over the world, just for fun, but also to exchange information and consult experts on certain topics such as the ones mentioned above. Also, some use the internet to send reports to donors and supporters of schools in other countries.

“Since then, I use internet twice a week; I do this after knocking off from work”.

“Apart from studying on line, I also use internet to communicate with my children Based in the United States of America and friends through out the world”.

“I am still using the internet on daily basis; this gives me an opportunity to communicate with my friends in Germany”.

Others don't use the internet very frequently, mainly because of the distance between the Vision Community Centre and any other area where they can use the internet. All of these participants expressed the wish to have the internet at their homes or their workplaces.

“At the moment I do not use internet regularly. ... it is a 30 minutes walking distance to the community centre where internet is accessible. My wishes are to have internet connectivity at our school but the major barrier is the absence of electrical power at our school”.

How the internet changes lives in rural areas

Unanimously, participants state that the internet changed their lives. For some the impact is still little, but for others the internet greatly changed in their lives for the better.

“To me, internet has changed my way of life because I would not be the way I am now without it. I am now able to study on line and also communicate with friends around the world”.

“Internet has changed my life in terms of communication because before internet arrived at Macha, I used post messages through the post office; this took time to receive a reply if the information was urgently needed”.

What is very interesting is that the internet also has an impact on the lives of those who do not use it themselves, such as students getting better quality information from their teachers and farmers learning new things from each other:

“In 2005 I was searching for conditions necessary for sunflower growing. I found the information on the internet. So I went to buy the seeds and planted the sunflower. Last year I had a successive harvest and this year I’m looking forward to a successive harvest as well. It changed me as an individual, but also the community. One of my friends and also a teacher started growing sunflowers and others have started planting the sunflower, they followed my footsteps”.

In this case, internet access let to the introduction of sunflower farming (G. van Stam, 2007) and turned out to be a very good way to generate income.

On the other hand, some participants worry about the negative impact the internet can have on the local culture. Because most content is from the West, people will adopt elements from the western culture. (More on the impact of internet on culture is found later in this paper).

3.2. Benefits of the internet

Social benefits: communication, information and education

Lots of social benefits are experienced by the participants when using the internet. Being able to keep in contact with friends and relatives all over the world is a great benefit for all. Also, being able to find information you need is a very important benefit. For example reading the news and knowing what’s going on in the world, find business information and find out prices of goods and also for technical information such as repairing cars.

“As a Mechanic and driver, internet has helped me to search for information on how to repair cars once I experience a breakdown”.

Next to that, sending and receiving information quickly has solved a lot of problems that people normally experience in a rural area, such as announcing weddings and funerals, knowing when salaries, people and goods arrive.

“As an individual, I have benefited from internet by getting the information much quicker then I used to do long time ago”.

Education is another topic on which people experience great benefits. Finding information for writing assignments is much easier in an environment where books are scarce. Unfortunately, schools having internet available are still very scarce in rural areas. All participants working at schools state the access to the internet or more access to the internet will improve education. This is consistent with findings of Chikanta and Mweetwa (2007) “There is great need to have internet at every school to



improve on our teacher's output and expose pupils to internet at the early stages of our education system".

Women who haven't finished secondary school experience a new opportunity to study online. Being able to study online is a very important benefit and a lot of participants actually do so.

"Internet has helped me to search for better schools in other countries".

People who do not use the internet themselves can also benefit. This can be explained by the Zambian culture being a more collectivistic culture (as apposed to a more individualistic culture). In a collectivistic society, individuals are born in strong and tight groups that offer life long protection for unconditional loyalty (Hofstede, 1991). This loyalty to a group also means sharing ideas with community members:

"Even if certain groups of people in Africa can not read and write, information can also be passed by those who can read and write to the illiterate, hence everyone in the community benefits from it".

"In case of the old generation, which is mostly illiterate, the young ones are able to impact the knowledge to the old".

On the other hand, significant cultural changes may occur when the young ones know more than the elderly.

Economic benefits: save time and money, bring new opportunities

The internet offers a lot of economic benefits like efficiency, but these might be mainly Western values. Would people in rural African areas consider them benefits as well? According to the participants, the answer is yes, they do experience a lot of economic benefits. The most important economic benefit is that internet saves a lot of money and time of travelling. It enables people to buy goods, like books and cars, without having to travel themselves. Furthermore it saves a lot of money on travelling and logistics because people know when to go to pick something up, instead of going and finding out it's not there and having to return, which is often the case in rural areas in Zambia.

Internet has improved the economy in rural areas because people gained a lot of knowledge on practicing new farming methods and on how to market their produce. Internet enables small income generating activities from which women can benefit, such as making soap out of Jatrophe. Next to that, opening an internet cafe is seen as way of making money by itself.

Also, internet is seen as an enabler for other developments:

"I strongly feel that out of technology other developments can be born in rural areas hence through these developments people will be able to sustain their lives".

"Internet will make people masters of their own destiny. Once they are introduced to internet, they'll be able to search for information. Not me telling them what to do, but themselves doing it".

Comparable stories about farmers in rural communities in Uganda and Tanzania were found by Kozma, R. (2007). Information from the internet contributed directly to their

economic and social improvement by teaching them how to improve their productivity and negotiate better prices at the market. Additionally, due to the internet an American company was able to outsource work to Macha, which meant an extra income for a lot of villagers (www.link.net.zm).

3.3. Internet and the Zambian culture

Internet builds the African culture but also changes it

Like all new things introduced in a community, internet can have an impact on culture. It is virtually intrinsic to the concept of culture that different people will possess different values, beliefs and motives. (Segall M.H., Dasen P., Berry J.W., Poortinga Y.H., 1990) These values, beliefs and motives can change once the internet is introduced in a community because people change the way they communicate, learn and do business, for example.

"I was thought that I shouldn't dream, "because there are no resources to make it anyway (...). Whenthey introduced the internet in rural Zambia, things started to change." (Pais A., 2006).

When asked about the impact on culture, participants mainly feel that internet has a positive impact on the culture. Being able to communicate much easier, having access to information, being able to develop oneself and much more benefits are experienced.

"Internet can build our African culture because communication wise, our community has changed for the better, since people can communicate with each other within few minutes unlike long-time when beating drums, smoking of fire and blowing trumpets were the only means of communication".

On the other hand, some people have mixed feelings about the influence internet can have on culture, since most websites are western and African content is still scarce. Especially young people are influenced by Western music, ways of dressing and dancing, which might not be appropriate in African culture.

"...it can destroy the African culture because young people are exposed to western culture, which has a bad impact to daily morals. For example exposing the bellies and putting on mini skirts, which is a taboo in Africa."

"Internet in other ways will either, build or destroy our culture because of the powerful influence it has in people's lives. Truly speaking, most of things exposed on the internet are from the western world and very little is from Africa. I do not want to loose my culture".

How the internet can preserve African culture

At the moment, most content on the internet is about things happening in the West and websites generated in the West. To give an example, a simple Google search finds 41.000.000 sites in the .nl domain (websites in the Netherlands) and only 154.000 sites in the .zm domain (Zambian websites). Internet can be a means of preserving the African culture but more African websites are needed. Most participants feel that African websites are needed for Africans themselves, to read about their own culture



and not just about others. And African websites are needed for people all over the world, to learn about the way Africans live, what they believe in and how they behave.

“We can preserve the culture by creating websites and making every information on culture available on the internet. So Zambians all over the world can use the information to teach their children where they came from”.

“To make sure that there is cultural information on African culture, I strongly feel that we have to publish some websites ... so that people from other parts of the world can see what is happening in our African world”.

Expectations and hopes about the internet

People who have not used the internet yet already have some expectations about it. Some expect to be able to improve the quality of their education, and know more about what's happening around the globe. Others merely expect to get information and to share that to the benefit of all. Pupils hope to find pen pals from other parts of the world which will help them to understand other people's way of life. Also communication between pupils and parents will be easier. In Zambia this is very important since most secondary schools are boarding schools where students stay at school. A chief expects life to become cheaper, because he can send information via e-mail instead of having to travel. This means looking after a lot of people will be easier. Also, teachers have to cover long distances to collect their salaries and sometimes find their money is not there yet. Via the internet they will know whether the money is there. Others expect to discover ideas on new crops they can try and ideas about what to do with their villages. Students also expect the internet to bring lots of things like equality as everyone in the community will have access, first hand information and information on projects in other communities. Salesmen expect to find prices on goods like vehicles and game.

“I also hope to teach women who have not gone to school, since materials will just be downloaded from the internet this will later reduce the number of illiterate people in the community”.

“Personally I think we are living in a time of change, it is a world of computers, and we have to go with that change. We shouldn't lack behind”.

“Once internet is implemented in my area, I would take it to my next chieftdom until we complete the development cycle”.

3.4. Introducing the internet in a new community

Sensitisation

When introducing the internet in a new community, a lot of things need to be done. On the technical, practical and political challenges other papers have been written such as Joseph, K. and Andrew, T (2006), Pais, A. (2006-2) and Pais A. (2007). This paper focuses on the social and psychological things that need to be done for people to actually start using the internet. The first step is **sensitising** the community about the internet, which means informing people on what internet is, what it can do for them and how people can benefit by using it.



“Before implementing internet, it’s vital to sensitise and educate the community so that they are aware of what Internet is all about and its uses since it will be part of our life in the near future”.

Training

After sensitisation **training** is needed on how to use a computer and thereafter use the internet. It could be a formal training, but it can also be community members informally showing others how to use the internet. This was also found by Joseph, K. and Andrew, T (2006), who set up information kiosks with computers in rural areas so that children could surf the internet. Unlike olden days trainers would play a minor role to introduce the people to use computers or mobile phones, the agenda must be left to the users. It is amazing how almost illiterate people, especially kids would start operating on it within the first week itself.

Not mentioned by the participants because they are unaware of them but very important is to also train people about the risks of the internet, such as security and privacy.

Easy access

Having **easy access** to the internet is an important condition to start and stimulate the use of internet. On the one hand, this means cheaper access to computers in areas where there are no computers. On the other hand it is about distance. Of course, participants who have a computer and internet at their homes or at their workplace use the internet the most. And participants who had to travel to an internet café (like a 30 minutes walk) used the internet far less. Not surprisingly, a study on the access of ICT in Senegal households found similar results. Households with greater access to ICT do make use (i.e. take up the opportunity) of that access. The urban dwellers have a greater access and take up that opportunity. While those in the rural area have less access, they nevertheless clearly take up what opportunity there are (Batchelor and Scott, 2007).

So, after sensitisation and training, and having easy access to the internet, people can start using the internet. Interestingly, there was nobody who said that money is a problem. Maybe that is because most people don’t know exactly the costs of using the internet. In practise a lot of times it is some technical problem that prevents people from using the internet, such as no electricity.

“To make communication effective in rural areas, there is need for technologist to invent solar computers for use in rural areas where there is no electricity so that Internet can be availed in those places hence widen the coverage areas”.

4. Conclusions and recommendations

As for the first hypotheses: People in rural areas do benefit from internet in their daily life, we conclude that people and communities in rural Zambia do benefit from ICT both socially and economically. Internet enables them to reach out and become masters of their own destiny.

Base on our study, the most important **social benefits** are:

- Internet enables people to keep their network and enlarge it by communicating with friends, family and others
- Internet enlarges the world of people in rural areas by giving access to information
- Internet brings knowledge and supports education

The most important **economic benefits** are:

- Reduction of commute time
- Saving money in a lot of different ways, such as only travelling to pick up something when you know it is actually there in stead of having to return multiple times
- Bringing new opportunities and using them, such as learning new farming methods or opening an internet café to make a living.

People that use the internet do benefit themselves but also much others in the community benefit as information is shared.

As for the second hypotheses “People in rural areas come up with innovative ways of using ICT and services not yet known in western and urban areas, because of their different context”, no evidence is found in this study for new innovative ways of using the internet. People use the internet basically for the same things as people in Western countries do, such as to communicate, to search for information and to buy things. However, the internet is even more important in rural areas because of lack of alternatives, such as telephone lines, libraries, newspapers, roads in good condition, and public transport.

Furthermore, the internet can have a positive impact on the culture in rural Zambia; however, more African content should be developed and placed on the internet. For example African institutions, schools, universities, government and businesses should make their websites. In that way, Africans will recognise content from their own culture, country and background. This is important to ensure that the internet will not be seen as a technology for and from the West, but as something for everybody.

When introducing the internet in a new community, three steps are important:

- **Sensitisation** should take place, by telling the community about the internet and what it can do for them.
- Then **training** is needed on how to use a computer and thereafter use the internet. It could be a formal training, but it can also be community members informally showing others how to use the internet. An important recommendation here is to train people about the risks of the internet, such as security and privacy, because they are unaware of them at the moment.
- Finally, having **easy access to the internet** at home or at work, would enable a lot of people to use internet more often and benefit more from it.

About the authors

Paula van Hoorik works at TNO Information and Communication Technology, a Dutch organisation that applies scientific knowledge with the aim of strengthening the innovative power of industry and government. She has a M.Sc. in Economic Psychology and is currently working as consultant in the field of customer experience and change management. She has eight years of experience on a wide range of projects concerning end user behaviour. In these projects she aims at making innovations really work for end users. She does customer needs analyses, usability studies, focus groups, gives training and a wide variety of workshops and develops management games. In the time she has interviewed hundreds of people about how they use all kinds of ICT and what they think and expect from it.

Fred Mweetwa grew up and lives in the rural area of Macha, Zambia. He is Executive Director of rural innovations hub Vision Community Center Macha, Station Manager of Vision Community Radio Macha, and Secretary of the Board of LinkNet Multi-Purpose Co-operative Society. He studies via internet at the University of South Africa. His interests are history, community development and showing visitors to Macha around in the rural area.

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Appendix: questionnaire

To people who are already using the internet, the questionnaire was based on:

- When did you first use internet?
- Who helped you?
- What did you use it for?
- How have you benefited from using internet as an individual?
- What are the social and economic benefits of using internet?
- Can internet help preserve African culture?
- How is it going to preserve culture?
- Can internet destroy relationships among families?
- Why do you use internet?
- Would you know the steps that are needed before internet is implemented?

To those who have not yet used internet, but are expected to do so in a short period of time, the questionnaire was based on:

- What have you heard about internet?
- What do you expect from the internet?
- How are you going to use internet?
- What benefits is it going to bring in your life?
- Will it have social and economic benefits?
- Will it help preserve culture?
- Would you know the steps that are needed before internet is implemented?