

Rural Youth are Agriculture Information Brokers

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Abstract: *This paper is based on the results of digital information flow in Malawi and also how young people in rural towns and villages disseminate agriculture videos to farmers. The surveys were carried out in 60 rural towns and villages of 12 districts of Southern Malawi from November 2014 to September 2016.*

The first question which the research was trying to find out was; How entertainment movies are distributed through the informal network, focusing on videos for mobile phones in Malawi. The second question which the research was answering is the role of tech savvy youth in distributing agricultural information to farmers.

This study uses both qualitative and quantitative research methods. We mostly collected data during interviews. The study participants were 20 farmers, 95 individuals working in burning centers, 3 Music centers, 4 Artist, 1 Education Institutes, 3 Video shows, 2 Bookstores, 2 Telecenters, 1 Prison, 2 Agro Input Shops

We found that information technology speeds up video messages to farmers and farmers easily understand the messages without the assistance of the extension workers. The youth are opinion leaders of the community when it comes to Information technology, because they are using it to earn a living and also use it to disseminate information services. Information technology removes gender barriers as women can access a message which they want. The gap between the farmer and extension workers is reduced because of Information Technology.

We conclude that these informal networks of information dissemination using information Technology by the youth can enhance development in the rural areas if properly given support

Keywords: *agriculture; farmers; information sharing; information technology; youth; videos*

Introduction

Like many Sub-Saharan African countries Malawi's economy is driven predominantly by the agricultural sector that accounts for two third of the GDP and nearly 80 percent of employment (World Bank 2013).

The agriculture sector still remains one of the major beneficiaries of Malawi's national pie. It received 15% of the National Budget—second to the education sector (allocated 18 percent), followed by the health sector (10 percent allocation). For example, the agricultural sector received USD\$267,782,426.78 of government funding in 2017/18 (Malawi National Annual Budget, 2017).

The Farm Input Subsidy Program (FISP) is estimated at 30.5% of the government agricultural budget, targeting 1.5 million beneficiaries. The Agricultural Development budget is estimated at 37.8% of government agricultural spending. The Agriculture Extension and Advisory Services are part of Development budget.

Agricultural extension and advisory services in Malawi are provided mainly by the public sector. The private sector, non-profit organizations and donor-funded projects recently embarked on extension activities (1990s). These key actors provide farmers technical information and supporting services geared toward improving rural livelihoods

Extension Advisory Services providers in Malawi use many training methods, including: (1) Face to face training of groups or clubs, (2) demonstrations, (3) individual visits, (4) farmer field schools, (5) field days, (6) exchange visits or tours, (7) model villages, (8) farming clusters, (9) lead farmers (farmer-to-farmer), (10) agricultural shows, (11) mass media such as radio and (12) farmer participatory research (Ragasa et al., 2015; Simpson et al., 2012). Among all these methods, face to face is the most dominant training method.

Despite the efforts of the government of Malawi, in the Department of Advisory and Extension Service, the farmer to extension officer ratio in Malawi is estimated to be between 1,800 (Kaunda, 2011) and 2,514 to 1 (GoM, 2015). Similar trends are observed in other African countries like as Ethiopia, the Democratic Republic of Congo, Uganda and Kenya. This low ratio extension/farmer does not favour the main extension method which is face to face farmer training.

Recently with the fast penetration of ICTs in Africa, videos have been introduced as extension tools (Van Mele et 2010, Bentley et al. 2014, Okry et al. 2014). They proved to greatly impact on farmers learning (Zossou et al 2009, Karubanga et al.2017, Zoundjiet al. 2018) and proved, in some circumstances, to be more effective than face to face training (Karubanga et al 2017) and FFS (Ongachi et al. 2017).

According to Malawi Communication and Regulatory Authority (MACRA), 2015 National Household and Individual access to and usage of ICT Survey found out that the ICT equipment prices have gone down and a lot of people can afford to buy ICT equipment. In the same study it found out that 85% of households in Malawi has a mobile phone. This is an opportunity for the development of agriculture Applications that will bring extension messages to the farmers easily. Since the youth are tech savvy it will be easy for them to be attracted to farming. This study therefore sought to investigate the genuine way of making videos available to farmers

Methodology

We conducted two rapid reconnaissance surveys. A rapid reconnaissance survey is an extremely useful tool to quickly gain a broad picture of a subsystem (Bester 2001).

A mix of short questionnaires and informal interviews were used to collect data. The questionnaires covered aspects related to how entertainment movies are distributed through the informal network, focusing on videos for mobile phones in Malawi. Informal interviews were conducted around aspects such as gender of the end users, the type of equipment, the language of the video, gender of the DJs. the informal interviews also allowed us to triangulate information collected using the questionnaires.

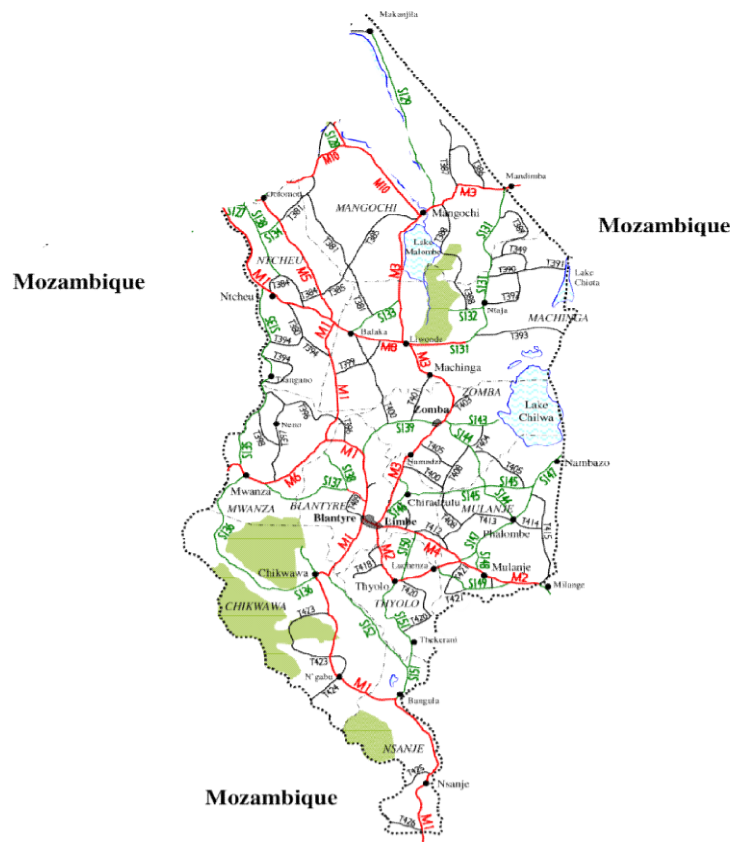


Fig 1: Research sites

Table 1: Legend

#	Districts	GPS Coordinates	DJ Sample Size
1	Blantyre	35.02016449 - 15.65399265	4
2	Mwanza	34.51927185 - 15.60335636	8
3	Chikwawa	34.79068756 - 16.02131271	9
4	Nsanje	34.79064941 - 16.02130127	4
5	Thyolo	35.14503860 - 16.06729698	6
6	Mulanje	35.50842667 - 16.02699661	10
7	Phalombe	35.65766144 - 15.79297256	5
8	Zomba	35.46841431 - 15.49416351	10
9	Machinga	35.29701996 - 15.17675495	7
10	Mangochi	35.25993729 - 14.48057556	4
11	Balaka	35.17281342 - 14.84989357	1
12	Chiradzulu	35.19074631 - 15.75601864	2

Key

● District

— Road

The first survey was conducted from 1st to 12th December 2014 in 60 trading centres (small market towns) of 12 districts in southern region of Malawi (see figure 1)

Table 2: Categories of groups who were involved in the survey

Category	Respondents	Sample size
Artist	Musicians, Video producers, Comedians	4
Music centres	Owners, Assistants	3
Small shops	owners, shop assistants	7
Burning centres	Owners, managers, Assistants	37
Video shows	Owners, Assistants	2
End users	Farmers, men, boys, women	20
Book stores	Managers, Shop Assistants	3
Telecentres	Managers, Assistants	5
Prison	farm managers	1
Agro input shops	Managers, Shop Assistants	3
Education Institutes	Agriculture Curriculum designers, Agriculture subject specialist	2

As seen in **Table 2**, the study comprised eleven categories of respondents namely artists, music centres, small shops, burning centres (where content is copied onto DVDs and flash drives, organisers of video shows, end users, book stores, telecentres, prison farm managers, agro input shops, and Education Institute .

Purposive sampling technique was used to select a sample for study. The purposive sampling technique, also called judgment sampling, is the deliberate choice of an informant due to the qualities the informant possesses. It is a non random technique that does not need underlying theories or a set number of informants. Simply put, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Bernard 2002, Lewis & Sheppard 2006).

From December 1, 2014 to December 12, 2014, we made stop overs along the road in the selected 60 towns and villages to meet grassroots entrepreneurs who were distributing digital information to farmers.

Semi-structured interviews were carried out with 37 DJs (people who rip videos from DVDs to make them accessible for mobile phone viewing by farmers) selected from 37 burning centres 12 districts of Southern region of Malawi. We gave copies of the 21 videos on Rice farming, Striga Management and Honey to 37 DJs to distribute to farmers. The videos were all in Chichewa, the major local language of the area.

Qualitative data was analyzed thematically to produce a report on Digital information flow in Malawi.

The second study was conducted in 2016. In 2015 we distributed three DVDs in English, Chichewa, Yao, and Sena to 95 DJs in southern Malawi. The DVD compilations were: Rice Advice (11 videos), Fighting Striga (10 videos), Chili (7 videos)

In February 2016, we contacted 70 DJs in a follow up study out of 95 who received the DVDs. We found out that the DJs were duplicating the DVDs and selling them at an average price of 300 Kwacha and 3 gp videos were sold at average of 30 Kwacha.

In September 2016, we visited 56 randomly selected DJs who received the DVDs, to learn about their experience. During this study we also sought out farmers who had watched the videos distributed by the DJs. We formulated two hypotheses for this study

Hypothesis 1. The DJs distributed videos as a way of enhancing their business.

Hypothesis 2. The farmers who received videos from the DJs, without any contact from extension agents, watched the videos, learned valuable information and applied it creatively in their work.

Key Research Findings and Discussion

1. Gender of DJs

Each small town, and even some of the villages, now has a computer person, called a “DJ” who has a PC, assembled in-country from imported parts.

The DJs were usually in early twenties who use freeware to convert videos into a format that phone memory cards can read.

We learned that the DJs in Malawi distribute movies and music videos to a large rural audience. The DJs are mostly young male who are based in small towns and put videos on people’s GSM cell phones. (Bentley et al. 2014, 2016).

DJs were dominantly male. Only one female DJ was met in 2014. By 2014, she had been running the business for 16 years. She embarked in this business because it is viable and it can be mixed with other businesses. Apart from selling CDs, DVD videos she also repairs computers, sells cold drinks and hiring out speakers. About 40% of her customers are women. Some of them visit her shop because she is a woman, so they say ‘this is a friendly place’. Women like gospel music. Through the business she has managed to build 8 houses which she rents out.

The digital technology is now so affordable, as second hand computer can be bought at USD 50 and easy to use that any DJ can use it to rip the contents out of a DVD and copy it many times, at essentially no cost. They copy onto reusable memory cards so people can copy content without even buying a blank DVD. Those DJs who rip content from DVDs copy the contents onto their hard disk, and then format the videos for cell phones. DJs use software to format a video file as 3gp (mobile phone format). It takes 30 minutes to change a 90 minutes film.

Farmers drop into the DJ's small shop (called a "burning centre") and request Hollywood action flicks, or Nigerian or Indian movies. The films dubbed into Chichewa are a big hit, whether they follow the original story line or ad lib a new one.

2. How Many Videos were Sold

In 2015 total 1224 DVDs were distributed to 95 DJs. About 900 DVD's were distributed to 60 DJ's from Mwanza, Chikwawa, Nsanje, Thyolo, Mulanje, Phalombe and part of Zomba districts. Each DJ was given 15 DVDs (5 Chilli DVDs, 5 Striga, 5 rice DVDs).

A total of 324 DVD's were distributed to 36 DJ's of Zomba, Machinga, Mangochi, Chiradzulu and Blantyre districts. Each DJ was given 9 DVDs (3 Chilli DVDs, 3Striga, 3 rice DVDs).

Table 3: Sales of videos by DJs

LOCATION	Striga DVDs	Rice DVDs	Chilli DVDs	Striga 3gp	Rice 3gp	Chilli 3gp
Blantyre	5	9	14	27	6	11
Mwanza	28	27	36	44	8	30
Chikwawa	78	101	75	118	101	84
Nsanje	34	37	34	41	33	35
Thyolo	50	50	71	68	62	70
Mulanje	73	72	85	82	69	102
Phalombe	33	33	32	30	30	31
Zomba	53	81	48	87	99	60
Machinga	56	91	57	91	92	48
Mangochi	29	30	35	36	32	33
Balaka	5	8	6	4	5	4
Chiradzulu	12	12	14	26	10	48

So as seen in **Table 3**, by February 2016, DJs had sold 456 DVDs on Striga (a parasitic weed), 551 on rice and 507 on chilli growing and processing. This shows that 90 % of the DJs in different districts made more copies from original copies and sold them to farmers. This is evident that the youth using Information Technology can disseminate the extension messages to farmers efficiently.

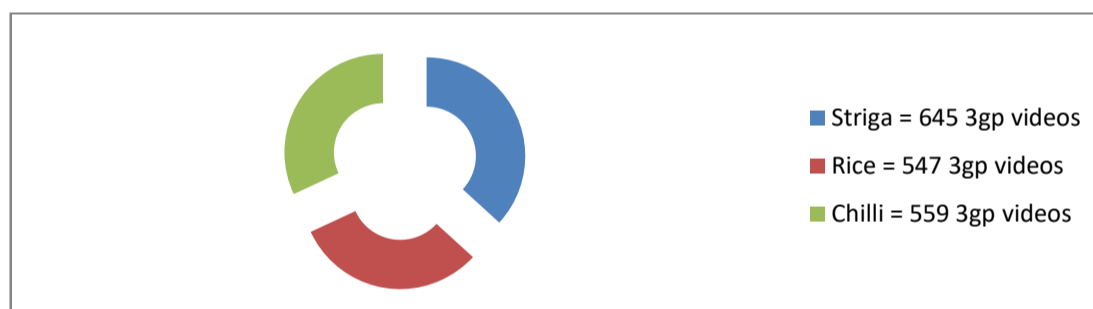


Fig 3: Production of 3gp videos (n=1751) from the original DVD of video

As seen in (Fig 3) they also sold 645 sets of videos in 3GP on Striga, 547 on rice and 559 on chilli (Bentley et al. 2016). A study revealed that 21,800 rural people watched the Access Agriculture videos as a result the distributed DVDs in 2015

3. Information Technology and Youth

Young people in rural Malawi are getting into the digital age with the same enthusiasm as the rest of the world, but without all the same equipment. The ICT market in rural Malawi is growing fast, and the young DJs are in an inherently unstable time of life, so there have been many changes since 2014.

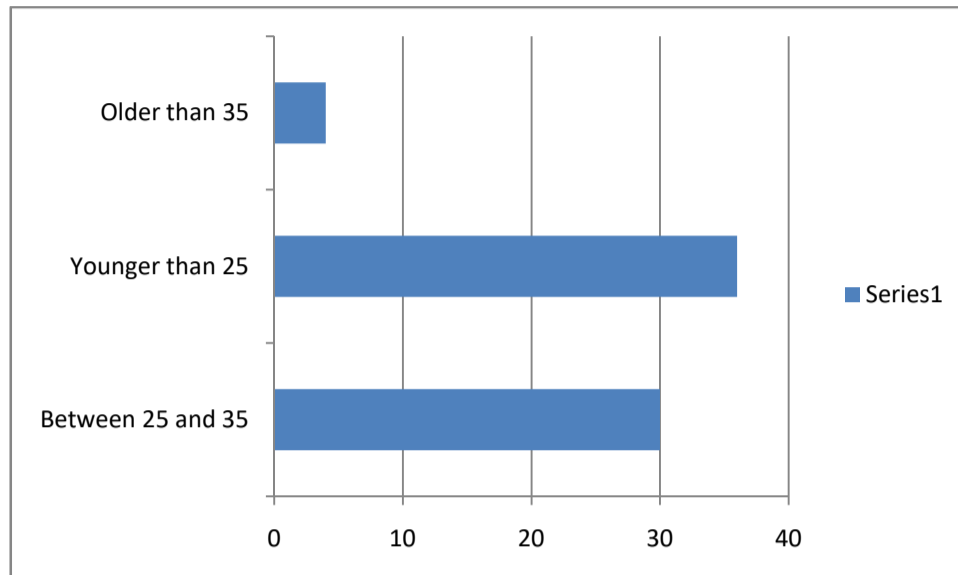


Fig 4: Age ranges of the DJ's who received the Access Agriculture videos

According to the survey we conducted in September 2016, 52 % of the 70 DJs were younger than 25 years old (Fig 4).

There is a wide range of ICT talent among DJs. Some know how to shoot music videos and even movies. Others make their own posters and adverts. Some can offer other ICT related services like photocopying and phone charging. Some know little more than how to rip a DVD and copy videos. Some are able to capitalize themselves by their selling goods and services and investing the money in new computers and other hardware.

We found out that even the disabled young people are able to run a burning centre by operating the ICT equipment that is adaptable. In 2015 one of the DJ won National award of Innovation. He won the disability award for his breathtaking skill in the music industry working as a DJ, using his feet to operate the computer controls.

At Nkhate trading centre in Chikhwawa district we found DJ Thomzy who had been converting the Access Agriculture videos into 3gp to put on farmers' cell phones since 2014. Thomzy asks for 500 Kwacha (\$0.70) to burn a DVD and 150 Kwacha for each individual learning video on a memory card. When we chides him for not having a sign to advertise, DJ Thomzy shrugs off the suggestion, saying that he is already known here. It must be true, because his shop is full of visitors. In a good week DJ Thomzy can receive not less than 150 customers.

Most of the villagers can only watch a movie at home by using their cell phone. These are just ordinary phones, not smartphones.

4. End Users and Videos

Consumers like anything in local language including national language of Chichewa. The men like action movies and the women like Nigerian movies, gospel music videos, and romance movies.

We found that rural women have little direct access to digital information, although they do seem to watch what their husbands and brothers bring home. Some men are said to shop for their wives and sisters, but we did not confirm this. Hence we feel theirs is potential business for female DJs.

A farmer in Mwanza district started growing chilli after watching a video which he obtained at a Telecentre which is run by a youthful manager. This youthful manager at the Telecenter announces of the new services at the Telecenter during village meetings. One farmer got interested when heard that the Telecenter has Chilli videos. He visited the Telecenter and collected Chilli DVD. The farmer went on to create a farmers' club and at the moment it has members over 110. Mwanza is an area where farmers had never grown chillies before but all because of the farmer to farmer video.

In Ulolo village in Phalombe district, Mr Matola obtained a video from DJ Peter Bwanali in 2015. He reported that he watched the video and noticed that his "friends" (the people in the video) were doing things differently, such as applying fertilizer, so he did it and the results were amazing. He harvested nine bags. Before, it had been three or two.

Farmers get all or most of their movies and videos from the DJs, who know their audience well.

For example, once we showed some of the farmer training videos it became clear that the DJs know about local farming, because they are from the villages and many of their friends are farmers.

Based on Africa Union Agenda 2063, Aspiration 6, point number 55, rural youth as Information Brokers are giving rural and otherwise marginalized communities access to information

The DJs are not agricultural extension worker, but there are so many DJs, and they have fairly good computer skills, that DJs are viable alternative for distributing farmer learning videos in Africa, thereby complementing extension workers.

Conclusion and Recommendations

Rural youth are becoming entrepreneurial by establishing burning centres there by reducing unemployment and creating their own jobs. At the same time, farmers never go to the DJs or music stores looking for information about agriculture. This is a habit that will quickly develop if the DJs are provided quality content in local languages. There are thousands of people in Malawi who now make their living copying videos onto memory cards for rural people. The whole occupational group simply arose spontaneously, and self-organized as a network with no formal coordination. While it would be unfeasible to systematically train them all, the DJs may start to share educational videos with farmers, if the videos are easy to get in the local language. Demand will come later, as farmers learn about the videos. Similar findings were also reported from Benin (Zoundji et al. 2016) suggesting that informal networks that involved farmers can be turned into non-conventional channels of knowledge dissemination to support the conventional extension.

In September 2017 it was reported in *The Nation* Newspaper that, poor internet and phone services forced small scale commercial farmers from Dedza, Kasungu, Mchinji and Ntchisi to cancel plans to establish social media platform for sharing information. Rural Livelihood Economic Programme (RLEEP) is promoting the use of Information Communication Technology (ICT) among farmers to increase access to agriculture related information. This is a proof that that Information Communication Technology has the most pervasive influence on attitudes and opinions in contemporary life especially in this century. If the youth are empowered with the digital skills they can supply the farmers with information.

But also ICT can be used to attract the youth into farming by making agriculture information sexy. Sessou(2015) observed that young farmers in Benin and Africa desperately need, to renew an ageing farm population and to bring new ideas into agriculture. Agriculture students like the ones studying agribusiness at

the Shonghai centre which includes Agriculture Video sessions provide new knowledge and skills. More than that, the youth are developing their passion for agriculture.

Farm radio is turning the listening clubs into ICT hubs. Alice, Dairy farmer and a member of Mpemba Bulking Group in Blantyre. Before 2017, the group which comprised of 240 farmers mostly women were losing money because the milk was being rejected at milk collection centres because it was contaminated and not good for human consumption. Alice together with her colleagues watched the DVD titled “Milk as a business” at the ICT hub established by farm radio with youthful government Veterinary extension officer Monica providing backstopping services. Alice and her fellow farmers learned, changed their perceptions in dairy farming. The farmers started keeping their milk clean and safe. They were never rejected again at Milk collection centres. This is an evident that farmers can best practice through videos with assistance of youthful extension workers who embracing technology in their work.

Wambui (2018) observed that the Kenyan youth are not only turning to farming, they are bringing their digital skills with them to rural areas. Youth are very good at using mobile apps that tell them when to plant or what fertilisers to use. Knowing very little about tree seedlings, youth are joining WhatsApp groups of fellow farmers to learn about issues like growing conditions and fertilisers.

Though the objective of the research was not to find out the willingness to pay for the advisory, but it was evident that the farmers were willing to pay for good information. This on its own is a market niche which the youth need to exploit fully. Hence there is need for further study on willingness to pay for advisory service of farmer to farmer videos.

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