RURAL WOMEN'S ACCESS AND USE OF INFORMATION COMMUNICATION TECHNOLOGIES (ICTS) IN NSUKKA AGRICULTURAL ZONE OF ENUGU STATE

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Abstract

The study sought to examine rural women's access and use of information communication technology (ICT) in Nsukka agricultural zone. A multi-stage random sampling technique was used to select 90 respondents who participated in the study that was conducted in 2008. Primary data was obtained using a validated semi-structured interview schedule. A focus group discussion (FGD) was conducted to obtain in-depth knowledge on the subject matter. Data from the study were analyzed using descriptive statistics. Results showed that the most available ICT infrastructure in the study area were radio (100%), video (97.8%) and television (94.4%) for audiovisual/broadcast technology; posters (73.3%), calendars (70.0%), and books (61.1%) for print technology; and the global service for mobile telecommunication (GSM) (63.3%) for the computer/telecommunication technology. Results further showed that radio ($\bar{x}$= 2.99), television ($\bar{x}$= 2.89), GSM ($\bar{x}$= 2.63), video ($\bar{x}$= 2.58), posters ($\bar{x}$= 2.09), calendars ($\bar{x}$= 2.09), and books ($\bar{x}$= 2.09) were the ICT infrastructures mostly accessible by the rural women. On the other hand, the most commonly used ICT infrastructure were radio ($\bar{x}$= 4.50), television ($\bar{x}$= 3.89), and video ($\bar{x}$= 3.54). The study concluded with a recommendation that various governmental and non-governmental agencies should embark on vigorous development of ICT infrastructure especially the modern ICTs in the rural areas so as to empower rural women to utilize the abundant opportunities ICTs offer. Such opportunity will help them develop socially, economically and especially in agricultural production which form over 70% of rural occupation.

Key words: rural, women access, use, ICT, agriculture

Introduction

The role of information communication technology (ICT) has been to provide important link between agricultural research, extension and farming communities, especially in the transfer of information and support for agricultural development (FAO,

2004). ICT has contributed in disseminating information and technologies needed to ensure development in communities. According to Ozor (2003), ICTs are sets of technologies that facilitate communication and processing, storage, retrieval and transmission of information by electronic means. While ICT can be interpreted as including a wide range of media, new ICTs are used to denote the use of computers and communication systems between computers (CTA, 1999). According to Asian Development Bank (ADB) (2003), ICT has become a powerful tool in providing developing countries with unprecedented opportunities to meet vital development goals for more effective communication than before. ICTs have many potential applications to agricultural development because, they bring about new information services to rural areas, where rural women as the users will have greater control than before over current information channel (Meera,Thamtani and Rao, 2004). Information communication technology as a source, vehicle or a machine through which information is conveyed or disseminated from one place to another, helps the rural people to acquire knowledge and participate very efficiently in rural work to achieve a sound goal. ICTs, especially those with internet connection are a fantastic opportunity that rural women should utilize. Such ICTs are choice tools for development and for creating awareness on agricultural produce. While the hardware refers to the physical equipment, software involves the technological know- how to operate, expand and maintain technology and the organizational skills needed for planning the structures to longterm management of the technology (Uguru, 2001). Sensitizing women and promoting their access to ICTs, would give them the means to assert their emancipation to ensure their economic independence and take control of their rural work. The International Fund for Agricultural Development (IFAD) is supporting internet based system that strengthens local capacities of poor rural women; improves the living standards of rural women and their use of ICTs; and also give other assistance to rural women. The Technical Center for Agricultural and Rural Co-operation (CTA) works towards improving the dissemination of information for the benefit of rural women through improved adoption of new technologies. CTA has a rural radio support programme that supports rural radio and development of audiovisual aids in African Caribbean and Pacific (ACP) countries. The programme was launched in 1990 and distributes information packages consisting of taped interviews accompanied by a complete transcript and radio talks. Traditional media and new ICTs have also played a major role in diffusing information to the rural women and providing access to acquire knowledge, technology and services. The traditional media have been used very successfully in developing countries and rural radio in particular has played a major role in delivering agricultural messages

(CTA, 1999). Print, video, television, films, slides, picture, drama dance, folklore, and group demonstration, have also been used to speed up the flow of information to rural women for agricultural improvement.

In Africa, women's living conditions have worsened and their incomes have diminished (Rachael, 2006). Depending on the region, they have lost social gains and become more vulnerable. The institutional, legal, socio-economic and cultural constraints which women have been unable to escape in many countries, have denied them access to opportunities that are available to men (Rachael, 2006). This is critical because in most rural areas of Africa, women combine their roles as housewives with the production of over 70% of food for subsistence and commercial purposes. They are involved in the direct production, processing, preservation and marketing of agricultural commodities. Good information flow therefore is an integral part that promotes sustainable development. It would be essential to free women's productive potentials by adopting specific measures that give them access to information, training, technology and technical assistance in order to promote sustainable development. Information technology, info highways, information products and services etc are concepts and realities that have become new development paradigms that most often exclude women. Women's access to ICT training is limited in rural areas, because most training is given in far away city centres where they cannot conveniently reach. In rural areas, some of the rural women are illiterate and most pictographic and audio-visual information usually has some text that go with it. This means that these individuals are disadvantaged and lack the basic skills required to harness the benefits of ICTs (CTA, 2002). The problem of content and barrier in languages (as information available through ICT is mostly in English) causes problems to rural women who cannot read and write. The information gap in ICT knowledge between the rural and urban populations can be widened if the local content and languages of the rural population are not taken into consideration. These call for "significant investment and support for local content" (Arokoyo, 2003). The major ICT used in agricultural extension delivery in Nigeria have been radio and television. Rural women's access and use of the media most often are limited, even where they are available. Lack of basic amenities, like power supply, has equally hindered the use of various media. Similarly, some cultures relegate women to the background, this denies them good access to new technologies including ICTs. Women produce more than half of the world's food (World Bank, 2000), yet they face many problems in addressing agricultural and rural development issues. These may include weak extension services, non-adoption of technologies, low status, heavy workloads, poor access to credit (Munyua, 2000) and most importantly poor access to ICTs. When new technologies are introduced, they are seen as a

domain for men, and women have often been left out of initiatives associated with new ICTs. Rural women however, have wisdom and indigenous knowledge that is rooted on culture, traditions, value and experience. Their method of communication and information exchange can be complemented with the new ICTs (FAO, 2004).

The questions to ask therefore are; what are the current ICT infrastructure available, accessible and used by rural women in the area? This question forms the main focus of the paper.

Purpose and objectives

The overall objective of the study was to ascertain rural women's access and use of information communication technology in Nsukka agricultural zone. Specifically, the study was meant to:

1. determine the current ICT infrastructure available in the area;
2. ascertain rural women's access to the current ICT infrastructure in the area; and
3. determine the level of use of available ICT infrastructure in the area.

Methodology

The study area is Nsukka Agricultural zone. The zone is situated in the derived savanna climatic belt of Enugu State of Nigeria. It lies between longitude of 07^0 42^1 E and latitude 06^0 52^1 N of the Greenwich meridian. The total annual rainfall is about 1844.5mm per annum. It has a land area of 5,500km and an estimated population of about 1.7 million persons (NPC, 1991). The major economic activity of people in the zone is agriculture. A small proportion of them engage in trading while a reasonable number of them are in the civil service. Agriculture is so indispensable that even the traders and civil servants still engage themselves in farming activities.

The population of the study consists of all rural women who make use of information communication technologies in Nsukka agricultural zone. There are six local government areas in Nsukka agricultural zone. These are: Udenu, Uzo-Uwani, Igbo-Eze South, Igbo-Eze North, Isi-Uzo and Nsukka. Among these local government areas, three local government areas namely, Udenu, Nsukka and Igbo-Eze South were randomly selected. From each local government area, two towns were randomly selected bringing the number to 6 towns. Two villages were randomly selected from each town to give a total of twelve villages. From each village, ten rural women were randomly selected giving a total of 120 rural women for the study. Table 1 shows the towns, villages, households selected, and the number of respondents selected for the study. However, valid responses were obtained from only 90 respondents.

Table 1 Population and samples for the study

Town	Imilike-Agu	Ogbodu-Aba	Ovoko	Iheaka	Edem	Edeobara	Total
No of villages selected	2	2	2	2	2	2	12
Total No of households	805	630	940	951	850	725	4403
No of respondents	20	20	20	20	20	20	120
Valid responses	**14**	**16**	**15**	**15**	**20**	**14**	**90**

Primary data for the study were collected using a semi-structured interview schedule. Also, focus group discussions (FGD) were conducted in each of the six selected towns in order to obtain in-depth information on the study. The interview schedule served as reference material for the focus group discussion. The interview schedule was validated by academic staff in the Department of Agricultural Extension, University of Nigeria, Nsukka.

In order to determine the current ICT infrastructure available in the study area (objective one), a list of ICT infrastructure categorized into audio-visual/broadcast technologies, print technologies, and computer/telecommunication technologies was provided for the respondents to check for each item's availability or unavailability. Any item with a score of = 50% is considered to be significantly available in the area and vice versa. To ascertain the level of access respondents have on the available ICT infrastructure (objective two), a three-point Likert-type scale of "full access = 3"; "limited access = 2"; and "no access = 1"; was utilized. A cut off mark of 2.0 was used to select ICT infrastructures accessible to rural women in the study area. Any item with a mean score of = 2.0 is considered accessible and vice versa. Similarly, a five-point Likert-type scale of "all the time" = 5; "regularly" = 4; "occasionally" = 3; "rarely" = 2; and "never" = 1, was used to determine the level of use of available ICT infrastructure by respondents in the study area (objective three). Items equal to or above the cut off mark of 3.0 were considered as being used by respondents in the study area and vice versa.

Data from the study were analyzed using descriptive statistics. Objective one was analyzed using percentage scores while objectives two and three were analyzed using mean score statistics.

Results and discussions

Rate of availability of ICT infrastructure

Data in Table 2 show that the most available (100%) audiovisual/broadcast technology was radio. Others available in this category were video (97.8%) and television (94.4%). Under the print category, the most available technologies were posters (73.3%), calendars (70.0%), and books (61.1%). The only most available computer/telecommunication technology was the GSM (63.3%).

Table 2 Percentage distribution of respondents according to the ICT infrastructure available in the area (n=90)

ICT infrastructure	Percentage (%)
Broadcast /Audiovisual technologies	
Radio	100
Video	97.8
Television	94.4
Cinema	36.7
Media van	30. 0
Print technologies	
Newspapers	17.8
Magazines	15.6
Posters	73.3
Calendars	70.0
Newsletters	43.3
Leaflets	31.1
Pamphlets	46.7
Bulletin	46.7
Books	61.1
Computer/telecommunication technologies	
Landline telephone	43.3
GSM	63.3
Rainbow net	20.0
Computers	45.6
E- mail	17.8
Internet	23.3
Compact disk	23.3
Fax	31.1
GIS geographic information system	22.2
Printers	37.8
CD-Rom	30.0

Cut off mark = 50%

Among the entire ICT infrastructure studied, radio was the most available. This may be as a result of its low cost, durability, and ability to convey information or message as fast as possible. Majority of rural women rely on radio message more than other ICT infrastructure because it is always available in different sizes and forms and gives out information readily. From the FGD conducted in the sampled communities, the rural women confirmed that every household has a radio set. Many diffusion studies have shown that as far as agricultural extension work is concerned, radio has proved to be one of the most important and most effective means of disseminating agricultural information and innovations in the developing societies where the greater majority of the people are illiterates (Uguru, 2001). Radio is affordable and adaptable to local conditions as it can be used without electricity. This makes its availability to be high.

Video and television are also good channels for information delivery in the rural areas. In a farm where there is disease outbreak, video can be used to collect the pictures of the disease or the damages it has caused to the plant to seek for diagnosis. Television set combines sight and sound thereby increasing the possibility of understanding the subject matter. TV programmes have been also found to be useful in dissemination of useful agricultural innovations to rural people.

Posters are large notices often with pictures on it that is displayed in a public place to transfer information to people. Usually, information and pictorials on posters are catchy to attract passers-by (Maunder, 1973). Calendars are charts showing the days, weeks and months of a particular year, it uses a list of dates or events of a particular type for information. An agricultural calendar indicates what a farmer should be doing at each time of the year. It shows when the farming season begins and the best time to start such farming operations as clearing, tillage, planting, weeding, and harvesting (Uguru, 2001). Posters and calendars are also cheap and reliable sources of information, hence they are readily available. Books are printed or written sheets fastened together within a cover, so that the pages can be turned freely to search for information. Books are non-electronic devices which are used for information transfer. These materials are readily available in most rural areas.

Data in Table 2 further reveal that GSM was the only computer/telecommunication technology mostly available in the study area. Its availability makes it easy for rural women to exchange/transfer idea to one another. Some of the GSM come with radio attached to it, which was one of the ICTs available in the study area; its availability may be as a result of its faster rate to disseminate information and its sizes and shapes. In 2004, the Nigeria telecommunication sector received global acclaim as one of the fastest growing mobile markets in the world with a total of 10,201,728 subscribers to mobile telecommunication (GSM) (Melody, 2001). According to Nigerian

Communication Commission (NCC) (2008), the total number of subscribers for GSM as at 30th September 2008 is 55,836,282. Top telecom providers in Nigeria include MTN, GLO, Zain, and Etisalat.

Level of access to ICT infrastructure

Data in Table 3 show that the most accessible (x= 2.99) ICT infrastructure to rural women in the study area was radio. Other accessible ICTs infrastructure were video (x=2.58), televisions (x=2.89), GSM (x= 2.63), calendar (x =2.09), posters (x=2.09), and books (x= 2.01).

Table 3 Mean scores and standard deviations of respondents' level of access to ICT infrastructure (n= 90)

ICT infrastructure	Mean ( )	Standard deviations
Radio	2.99	1.05
Video	2.58	0.97
Television	2.89	1.06
GSM	2.63	0.87
Calendar	2.09	0.90
Posters	2.09	1.11
Books	2.01	1.04
Cinemas	1.43	1.09
Newspapers	1.99	0.89
Landline telephone	1.24	0.87
Rainbow net	1.13	1.23
Computer	1.48	1.16
Newsletter	1.52	0.76
Leaflets	1.51	1.20
e-mail	1.28	1.42
Media van	1.42	0.93
Internet	1.31	0.77
Compact disk	1.49	1.22
Fax	1.29	1.24
G.I.S.	1.46	1.31
Pamphlets	1.50	0.78
Bulletin	1.64	0.86
Printers	1.51	0.99
CD- Rom	1.36	1.33
Magazines	1.98	1.42

Cut off mark =2.0

Radio as the most accessible ICT infrastructure plays important role in information transfer. The FGD conducted showed that all rural women had access to radio, which can be as a result of its cheapness and capacity to transfer information as fast as possible. Radio comes in different shapes and sizes, and at a low cost or within the reach of rural poor women. It is effective in disseminating short run requested information to people especially as most people have access to it. Corroborating this statement, Nwuneli (1985) noted that radio is the most effective media for transferring information on various social change programmes from government and other institutions to the masses living in the rural areas.

Video and television both have their roles in the transfer of first hand and second hand information to rural people. They are relatively cheap and reliable in information dissemination. They are used in refreshing past events or activities. These devices help rural women to extend and communicate knowledge. Video is reliable and easy to use for communication (Norrish, 2001).

Access to GSM by rural women in the rural areas can be one of the greatest things that happened to them in this millennium. GSM is a newer form of ICT infrastructure that makes for easy communication or transfer of information. It shortens the distance between people and reduces cost of interaction between stakeholders, friends, farmers, business people, neighbours, etc (IFPRI, 2004). It helps rural women to exchange ideas with their partners for example on prices of products, sources of inputs, availability of products, etc. Nowadays, it is easy to procure a handset with a network. Even where

one does not own a handset, it is common to find many business centres in rural areas where one can easily access the GSM. The GSM business has been described as the fastest growing area in Nigeria (www.jidaw.com/telecomproviders.html). The growth has exceeded all estimates and forecasts thereby making it very accessible.

Posters, calendars and books are print technologies. They are charts, large notices, often with pictures on them, or written sheets, which are used to display information to people. These technologies are also cheap and can be purchased and utilized by rural poor women in information exchange. Calendars, posters, and book are used to speed up information flow (Munyua, 2000). Only literate people can fully utilize the benefits that print technologies provide. However, at several occasions in the rural area, illiterate people make use of their literate children, wards, friends or neighbours to access the contents of posters, calendars, books or letters.

Level of use of ICT infrastructure

Data in Table 4 show that the mostly used (x= 4.50) ICT infrastructure by rural women in the study area was radio. Other ICT infrastructure mostly used were video (x=3.54) and television (x=3.89).

Table 4 Mean scores and standard deviation of respondents' level of use of ICT infrastructure (n=90)

ICT infrastructure	*Mean*	*Standard deviations*
Radio	4.50	0.91
Video	3.54	1.30
Television	3.89	1.27
GSM	2.67	0.80
Calendar	2.24	1.39
Posters	2.51	0.90
Books	2.10	1.05
Cinemas	1.92	1.20
Newspapers	1.67	1.08
Landline telephone	1.66	0.76
R.N.	1.33	0.87
Computer	1.48	1.39
Newsletter	1.54	0.89
Leaflets	1.37	0.94
e-mail	1.33	0.87
Media van	1.33	1.36
Internet	1.28	1.00
Compact disk	1.52	1.24
Fax	1.38	0.87
G.I.S.	1.67	0.80
Pamphlets	1.78	1.29
Bulletin	1.47	0.64
Printers	1.58	0.86
CD- Rom	1.70	1.42
Magazines	1.60	1.15

Cut off mark = 3.0

The use of radios in most rural areas is considered popular because of its inherent advantages of being cheap, appearing in different sizes, having alternative power source (cell batteries and solar energy), and wide network coverage. The women noted in the FGDs conducted that they make use of radio at home, in the farm, offices, and even in the market. Radio overcomes such obstacles as difficult topography, distance, mobility, time, and most social exigencies faced by extension workers in reaching rural people (Omensa, 1992). Nigeria has the highest number of radio listeners in Africa (Ebo, 1999) thus confirming the importance placed on radio for information dissemination and use. The *Rural Radio Forum* has been adopted by the Agricultural Development Programmes (ADPs) in Nigeria and has been used to increase communication effects of radio broadcast programmes. The radio broadcast programmes are localized

with discussions in small groups and they make use of non-battery radio distributed to the group to sensitize participation. Ogunwale et al (2000) confirmed that the use of radio as a channel for information dissemination to farmers in Nigeria has been on the increase.

Video and television were also mostly used and are useful sources through which pieces of information are transmitted to rural women. Rural women use video and television to know the results of what had existed in the past and to be able to forecast future. After the days labour, most rural people relax at their homes watching televisions and videos. This not only provides opportunity for acquiring up- to-date information but also allows them to recuperate from the toiling of the day. The successful experience with audiovisual pedagogy from Latin America has led FAO to apply the participatory video approach to ADPs in Africa (Ozor, 2003).

Conclusion and recommendations

Based on the findings of this research, it can be concluded that radio, television, and video were major audio-visual/broadcast ICT infrastructure available in the study area. In the same vein, posters, calendar, and books were the major print technologies available while only the GSM was the major computer/telecommunication technology available in the study area. The most accessible ICT infrastructure in the area were radio, television, video, poster, calendar, books, and the GSM while only radio, television, and video were mostly in use in the area.

These findings imply that most of the modern ICT infrastructure such as computers, internet, Facsimile, e-mail, and other computer accessories are not available, accessible and in use in most rural areas in Nigeria. Access and use of these modern ICTs are directly linked to social, cultural, economic, political and psychological development of a people. Most development agencies working with rural people find there jobs easy where the rural communities are ICT-complaint. Extension agents working in villages specifically need to make use of both modern and traditional ICTs in the dissemination of innovations to their clientele.

It is therefore recommended that local, national and international authorities, both governmental and non-governmental embark on vigorous development of ICT infrastructure especially the modern ones in the rural areas may be inform of telecentres or business centres so as to increase the opportunity rural people (especially women) have to access and use the ICTs. Governments should provide free education at all levels, so as to increase rural peoples' knowledge on ICTs. Rural women organizations should equally be supported by training them freely on the use of modern ICTs. This they can learn and become entrepreneurial by establishing there own business centres. Such centres help to bridge the gap between urban and rural communities and reduce the rural urban migration problem (Ozor, 2003). Credits can also be given to the rural women to establish such

centres. Alternatively, the rural women could pull resources together through cooperative unions to harness the opportunities provided by modern ICTs.

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