International Academic Research Consortium Journals (IARCJ)
International Journal of Agricultural Science and Technology
ISSN: 2360-9888. Volume 12, Number 3
Pages 1-9 (April, 2018)
DOI:4272514527811231
www.arcnjournals.org

Agricultural Extension and Advisory Services Providers' Perception of the Use of E`-Extension Tools for Services Delivery in Imo State Nigeria

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Abstract: *The understanding of attitude of extension service providers toward the use of e- extension tools is germane for the deployment and use of the technology. Therefore, this study investigated the attitude of Agricultural Extension and Advisory Services Providers(AEASPs) toward use of e-extension tools in Imo State. Data were collected from a total of 130 extension staff of the Imo ADP, with the aid of a questionnaire. Data obtained were analyzed descriptively. Results show that 68.4% of the respondents had tertiary education. E-extension tools available included facebooks(86.6%), youtube(91.6%), twitter(98.3%), whatsapp(100%), zoom(98.35) among many others. The extension providers generally had a positive attitude toward use of E-extension tools as they agreed that their use fastens services and farm information delivery. However, they face the challenges of erratic power supply(100%), poor network coverage(100%) and high cost of gadgets(77.5%). It is recommended that government at all levels should provide enabling environment for extension workers to thrive by provision of strong network coverage, regular power supply, training of extension personnel among others.*

Keywords: *E-extension, ICT tools, agriculture, Service providers.*

Introduction

A great deal of change in the life of the society is taking place nowadays with the development of Information and Communication Technology (hence, ICT), particularly the advancement of cell phones and the Internet. Thus, according to Warner and James (2009) ICT has brought the society into a more decentralized and democratized manner of communication which could hardly be found in earlier days. Thus, it is unsurprising that ICT begins to diversify, leading to the existence of various informing manners. Leeuwis (2009) asserts that the new variations of communication media are integrated with each other, thus the boundaries between those media diminish. For instance, it has been widely recognized that telephones and the Internet begin to replace the mass use of radios and televisions in having interactions with a group of audience. Bringing the benefits of the current development in ICT into agriculture, it turns out to be advantageous to the development of agricultural information system, mainly as the media of communicating innovations in farming works. The use of ICT in the development of agriculture requires certain process of education and capacity building as some technical difficulties and lack of skills to implement it are still shadowing over head (Mulyandari, 2011).

There is a dire need to utilize information technology to access the most recent information at a reduced cost relative to the existing system, which is plentiful with human imperfections and affectations (Adekoya, 2007). This is where the issue of methodology comes into play. Extension methods are devices implemented to set up situations in which new information and knowledge can pass freely between extension workers and their intended audiences (Obibuaku,1983). Mass extension methods such as television, radio, circular letters, newspapers, banners, magazines, and brochures were successfully used in several countries to carry out extension educational programs (Qamar, 2016). Modern communication tools play a key role in improving the availability of market information and farmer assistance in developing countries (InfoDev, 2009).

E-extension is the delivery of extension service using web tools, which allow online sharing, collaboration, and networking (Renwick,2009). Examples of these web tools include websites, networking software, online sharing tools such as emails, blogs, and surveys, video conferencing, instant messaging, community-based telecenters, and mobile phones. E-extension could also be termed as a network of institutions that provides a more efficient alternative to the traditional extension system of agriculture (Philipine Extension Portal,2012). E-extension as a modern mode of communication can be used to improve the effectiveness and efficiency of extension services (Hemmati and Sefidian, 2006). It is a collaboratively built Internet-based environment to enhance face-to-face and paper-based transactions, which can also be used as an electronic tool delivering sound and the latest information on agriculture (Kramer-Leblanc and Greg, ,2010). In addition, ICTs are also very useful for sharing the market prices of commodities and taking proper marketing decisions (Mukhebi, Kundu, Okolla, Wambua, Ochieng, Fwamba, 2007). ICTs can be defined as consisting of the hardware, software, networks, and media for the collection, storage, processing, transmission, and presentation of information (voice, data, text, images), as well as related services (World Bank,2009).

Realizing the positive role of agricultural extension in the development of agricultural production, several awareness programs for farmers through television, radio, newspapers, booklets, and brochures to furnish them with up-to-date information regarding the cultivation of important crops have been conducted by stakeholders in agriculture (Ministry of Agriculture,2005). In Nigeria and other countries of the world, there is a lack of an integrated and accurate agricultural information system, which is a serious obstacle to agricultural sustainability. The recent developments in agricultural information systems have made it particularly important to deliver needed information in due time for farmers, engineers, and public and private officials (Ministry of Economy and Planning,2010).

Agricultural extension brings about changes through education and communication in farmers attitude, knowledge and skills. The role of agricultural extension involves dissemination of information; building capacity of farmers through the use of a variety of communication methods and help farmers make informed decisions. Sinkaye, (2005) equates help in extension to empowering all members of the farm households to ensure holistic development. The Nigerian extension service is bedeviled by several problems as identified by Agbamu (2005). These include inadequacy and instability of funding, poor logistic support for field staff, use of poorly trained personnel at local level, ineffective agricultural research extension linkages, insufficient and inappropriate agricultural technologies for farmers, disproportionate Extension Agent: Farm Family ratio and lack of clientele participation in program development. Others are poor input supply, irregular evaluation of extension programmes and policy, institutional and programme instabilities of National agricultural extension systems.

Some of the recommendations to improve the service are to make its content more relevant to farmers, alternative sustainable financing option, well trained, and adequate staffing, and the use of participatory extension approach under stable policy and sustainable institutional arrangement. Agricultural extension is addressed under support services in the Agricultural Policy under the objective "to teach rural people to raise their standard of living with minimum assistance and by their efforts" The strategies to adopted includes;

• Provision of training facilities and infrastructures.
• Establishment of effective communication channels among research, extension and farmers.
• Effective utilization of extension service as agent for technology transfer.
• Establishment of demonstration farm and rural processing centres. and,
•Encouragement of the private sector to invest in agricultural information dissemination (Sinkaye, 2005;Agbamu,2005).

As far as agriculture is concerned, information and communication technology(ICTs) are new technology that cannot be ignored in Africa especially for development in all sector agriculture inclusive. This is because ICT is one of the main driving forces that can bring about development and change in this present digital age. It was in the light of this that Emenari (2004) noted that the great transformation in the lives of the people especially in the developing countries depend on advances in ICTs. The rapid development of ICTs is expected to have major influence on the livelihood of people across the world, social researchers has revealed that adoption of ICTs can be a major fuel for economic and community development in rural areas (Osiakade et al.,2010).As noted by Onwubalili (2004) " the tremendous changes are quite glaring in every facet of lives and touches simplest of domestic services to corporate and limitless industrial applications.

A positive attitude is an important requirement for ICT usage. Attitude determines how one perceives an object and importance he attaches to it. Based on the work of Shiro (2008), rural communities have a very positive attitude towards ICT and they welcome any ICT project to be developed in their areas. However, their lack of ICT knowledge prohibits them from using ICT frequently. Dixon (2009) has stressed that frequent usage and exposure to ICT must be considered if someone wants to form a positive attitude towards ICT. When people frequently use and expose to ICT, it will inform them that ICT is helpful and beneficial to them thus creating a positive attitude towards ICT usage. Zhang and Aikman (2007) have revealed that attitude can be a mediator on the role of attitude toward object on behavioral intention. In this case, related development government agencies or private companies should understand that a positive attitude toward a particular ICT would lead potential users especially the rural communities to decide to accept or use the ICT.

According to Kerlinger (1973), attitude is an organized predisposition to think, feel, perceive, and responding to a psychological object or idea. The direction and outcome of a social action is determined more than anything else by the person's set of beliefs and disbeliefs . Attitude is a "psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly and Chaiken, 1993). The attitude and perception of Nigeria extension workers towards E-extension had not been studied on this topic before. Therefore, this study was carried out to determine their perceived attitude towards E-extension use for agricultural sustainability in Nigeria.

Methodology

The study was carried out in Imo State Agricultural Development Programme (IMO ADP). Imo State is located in the Southeastern zone of Nigeria. The population of the study consists of all extension technical Officers, extension supervisors and extension field agents of Imo Sate

ADP. Stratified random sampling technique (a sampling technique used when the sample does not constitute a homogenous group) was used in selecting the extension respondents for the study. The first strata composed of 18 Technical Officers (ZEOs & SMSS), drawn from the three agricultural zones (see table). The second group comprised 39 Block Extension supervisors (BES), while the third strata comprised of 113 Extension Agents (EAs). Due to the small number of the ZESs/SMSs and BESs, all 18 and 39 were sampled, while 73 EAs were randomly selected from 113 EAs, making a total of 130 extension officers. Data collected with questionnaire were analyzed using descriptive statistics. This includes use of percentages presented in frequency distribution tables to achieve objectives 1and 3. While objective 2 was achieved on a four point likert-type scale of strongly agree, agree, disagree and strongly disagree on a four point weighting scale of 4,3,2 and 1. The weighted mean were added to give 10 divided by 4 to give 2.50. Any value less than 2.50 was not accepted while values of 2.5 and above were taken as positive

Results and Discussion

Extension tools for Services Delivery

Several e-extension tools abound for service delivery as indicated in the chart. They include face book (86.6%), YouTube (91.6%), Twitter (98.3%), WhatsApp (100.0%), Videos (96.6%), emails (78.3%), mobile phones (100%), voice mail, zoom/tele-meeting (98.3%), google meet (90.8), crowd sourced mapping (82.5%), goggle classroom(97.5%), digital camera (93.3%), e-books/journals/e-data (83.3%), television (97.5%), radio(89.3%) among others. The above agrees with Anyakoha (2005) who outlined ICT and digital technologies to include the use of multimedia personal computers (PCs), laptops and notebooks with a combination of internet connectivity, digital camera / videos connected with PCs and laptops, land area network and wide area networks; world wide web (www), e books / e-journals/ e-databases, floppies, CDs and DVDs, cell phones with internet connection, moving pictures, close circuit television (CCTV)camera, computer-mediated video conferencing, virtual reality, telecommunication satellites and the use of interactive televisions and radios. Prominent among these, the computer, a major ICT tool and its applications have brought about drastic changes in farming and animal husbandry resulting in a remarkable increase in production. These include hardware, software, media for collection, storage, processing, transmission and presentation of information in any format (i.e. voice, data, text and image), computers, the Internet, CD-ROMs, email, telephone, radio, television, video, digital cameras etc. (Asenso-Okyere and Mekonnen, 2012).

Table 1: - E - Extension Tools for Service Delivery

E- extension tools	Percentage
Facebook	86.6
YouTube	91.6
Twitter	98.3
WhatsApp	100
Videos	96.6
Emails	78.3
Mobile Phones	100
Voice mail	46.6
Instagram	78.3
Zoom/telemeeting	98.3
Google meet	97.8
Google classroom	97.5
Crowd sourced mapping	82.5
Digital camera	93.3
E-books/e-journals/E-data bases	83.3
Television	97.5
Radio	89.2
Close circuit television camera	95.0
SMS	98.3

(Field survey, 2022)

Perception of E-extension by AEASPS

With a discriminating mean index of 2.50, table 2 showed a positive attitude of the Extension sources provides towards the use of e-extension tools to reach farmers. They responded as follows- reaching farmers through SMS and mobile is effective (M= 3.51), mobile and effective and good understanding agriculture information (M=2.98), disseminating of agro-information through web is effective (M=3.21), improving /increase effectively of extension staff (M=2.86), minimizes work load of extension staff (M=2.70), makes effective agro-informative and extension activities (M=3.01), saves cost and time of reaching farmers (M=2.67), spreads agro-information very fast (M=2.84), makes for establishment of better communication (M=2.86), increases extension workers responsibility (M=2.74), improves rural livelihoods of staff(M=3.10) better than traditional face to face method (M=2.10), fast in linking all farm stake holdings (M=2.97), makes for people centered, cross sectional system (M= 2.84), enhance research extension interaction (M=2.86).This overall mean value indicates that the respondents general ly had a positive attitude towards the use of E-extension. This corresponds to similar studies analyzing attitudes of extension workers towards the use of ICTs with identical results conducted in different countries (Adekunle et al.,2007; Albirini, 2004). Majority of the respondents (90.6%) agreed with the statement, “Contacting farmers through mobile and SMS is effective”, with the highest mean value of 4.31; (SD = 0.73), and 88% of the respondents with the second highest mean value of 4.21; (SD = 0.78) agreed with the statement, “Mobiles are effective in disseminating agricultural information. Whether it is a developed country or a developing country, mobile phones have become a regular part of daily life. Mobile phones have made our daily communication very easy and cheap between distant locations. They are also an important part of E-extension services; farmers and extension workers can communicate with each other easily without the hindrance of scheduling face-to-face or group meetings

Table 2: Perceived Use of E-extension tools in service Delivery

Use Perception	Mean	SD
Reaching farmers through SMS and mobile is effective	3.51	0.68
Mobiles are effective and good in disseminating agric. information	2.98	1.28
Dissemination of agric-info through mobile website is effective	3.21	0.63
Improves/increase efficiency of extension staff	2.86	1.26
E-extension tools minimize work load of extension staff	2.74	0.98
Makes effective agro-info and extension activities	3.01	1.42
Saves cost and time of reaching farmers	2.67	0.74
Spreads agro-info very fast	2.84	0.64
Makes for establishment of better communication	2.80	1.01
Increases extension worker responsibility	2.74	0.74
Improves rural livelihood of staff	3.10	1.34
Better that traditional face to face method	3.10	0.94
Fast in linking all farm stakeholders	2.97	0.84
Makes for people-centred, cross-sectional system	2.84	0.67
Enhance relevance of extension work	2.88	1.02
Serve as method of professional development	3.51	0.81
Capacity to revitalize research – extension interaction	2.86	0.76
Improves practice of extension profession	2.76	0.99

Field survey , 2022; Accepted Mean = 2.50 and above

Challenges of Using E-extension tools

Table 3 showed the challenges to effective use of E-extension tools by Agricultural Extension and Advisory Services Providers (AEASP) in Imo State. Those challenges include: Lack of experience in use of e-tools (97.5%), lack of access to remote areas (70.0%), poor network coverage (100%), erratic (867.5%). This is on the part of the farmers whom they communicate with. Other challenges include cost of extension gadgets (77.5%), delay in receipt of message (61.6%) due to network failure, lack of technical expenditure to repair (81.6%) gadgets and unavailability of repair shop (91.6%) around area of coverage. These agree with Nikola eta.,(2019) that literacy and digital skills and the availability of technologies all affect the use of digital innovations. Education and income levels are strong determinants of how (and if) people use the internet. Those with higher levels of education tend to use more advanced services, such as e-commerce and online financial and governmental services. Users with lower education levels tend to use the internet predominantly for communication and entertainment. In rural areas, where education and literacy rates are generally lower, mobile phones tend to be used mainly for communication and social media (Nikola et al.,2019). This presents a challenge for the introduction of digital agriculture applications which require more advanced digital skills. Low overall smart phone ownership in rural areas combined with the high cost of internet and limited network coverage also present challenges to the use of mobile agricultural applications and limit the scope to use social networks like Face book to facilitate agricultural support and information flows between farmers. Such availability of information could support farmers to make better farming decisions which could contribute to increasing yields, reduced environmental impacts and improved livelihoods.

The above agrees with Nwobodo and Nwabugwu (2016) who posted that extension workers in Anambra State said ICT use helped improved link linkage between research and extension; improve linkage between extension and farmers; efficiency of extension work lies

in the use of Internet resources. In a study by Albert (2014), a major constraint to effective use of ICT among extension staff is the unavailability of ICT infrastructure. Salau et al., (2008) found that poor ICT access was a major challenge also among extension staff in Nasarawa State, Nigeria.

Table 3: Challenges of Using E-Extension Tools

Challenges of E-extension Use	Percentage
Lack of experience in use of e-tools	97.5
Lack of access to remote areas	70.8
Poor network coverage	100
Erratic/Unreliable power supply	100
Illiteracy/low level of education	87.5
Cost of e-extension gadgets	77.5
Delay in receipt of massage	61.6
Lack of technical experience (to repair)	81.6
Unavailability of repair shops	91.6

Field survey, 2022

Conclusion

The new normal in information delivery and sharing using latest e-tools is affecting the lives of all in the society today. These tools include Facebook, YouTube, Whatsapp, mobile phones, voicemail and many more. Farm people including farmers and extension workers use these latest devices too. There is a positive attitude towards the use of such tools. Using them makes information sharing fast and effective, reduces workload, saves cost and time and does not limit time of contact. Despite cost of purchase, low network coverage, repair cost among others, extension workers appreciate the use of e-tools in reaching clients. Network coverage be improved for efficient service.

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