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IMPACT OF MODERN INFORMATION TECHNOLOGY IN IMPROVING TVET QUALITY OF THE RURAL FARMERS FOR POVERTY ALLEVIATION IN DELTA STATE.

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Abstract

The main purpose of the study was to determine the impact of modern information Technology in improving TVET quality among rural farmers for poverty alleviation in Delta State. The study utilized descriptive survey research design. Four research questions were answered and two hypotheses were formulated to guide the study. The population of the study comprised of 110 registered farmers with ADP, 57 agricultural science teachers and 25 extension agents in the three senatorial zones of Delta State (Delta North, Delta South and Delta Central) making it 192 respondents. The instrument used for data collection was structured questionnaire with 162 itetms. The reliability of the instrument was determined to be 0.89 using Cronbach Alpha reliability test. The analysis of data was carried out using mean for research questions while two null hypotheses were tested using one way analysis of variance (ANOVA) at 0.05 level of significance. The findings of this study revealed among others, that modern information technologies are not adequately available for TVET quality among rural farmers in Delta State. Based on the findings, it was recommended that government at all levels should allocate adequate funds for the provision of modern information technology (MIT), to improve TEVET quality among rural farmers in Delta State.

Keywords: *Modern information technology (MIT), rural farmers and poverty alleviation.*

Introduction

Agriculture plays a significant role in the development and growth of global and national economy. It is one of the major sectors of the Nigerian economy despite the new trend of petroleum economy. Hence, it stands as potent avenue for addressing societal challenges. According to Umaru and Zubairu (2012), a strong and efficient agricultural sector enables a country feeds its growing population, generate employment, earn foreign exchange, provide raw materials for industries, ensure environmental conservation and maintain social stability among others. An estimate in 2008 by the World Bank showed that United Nations Organization in the world as a whole, with over 50% of the population is engaged in

agriculture or dependent on it for a living (Federal Office of Statistics (FOS) 2012).

Consequently, agricultural sector is one of the largest in Nigeria's economy with dominant share of 30% Gross Domestic Product (GDP), employing more than 70% of the active labour force and generating about 88% of non-oil foreign exchange earnings, (Adegboye, 2004 and Oji-Okoro, 2011). Despite the tremendous importance of agriculture in Nigeria, production is still practiced in a small scale by rural farmers. According to Uko (2010), rural farmers account for the greater part of the population of any developing country such as Nigeria. Uko (2010) further described rural farmers as individuals living as rural areas which tend to have less access to basic amenities and as such live in poverty. Federal Office of Statistics (FOS, 2012), suggested that over 90% of the country's population comes from rural farmers who cultivate less than ten hectares of land. This shows that rural farmers form an important foundation on which the nation's economy revolves; therefore, they require qualitative Technical Vocational Education Training (TVET).

Technical Vocational Education Training (TVET) means education and training which provides skills for self-reliant using formal, non-formal or informal learning platform (Bandung, 2008).TIVETIPEDIA (2017) defined TVET as a comprehensive term referring to those aspects of educational process involving, in addition to general education, the study of technology and related science and the acquisition of practical skills, attitude, understanding and knowledge relating to occupations in various sectors of economic and social life. In order to develop a nation's economy through agricultural sector, it is important to focus on TVET so as to obtain

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knowledge and needed skills for farming. Banddung

(2018) affirms that TVET is an instrument to promote

skills needed in knowledge based societies that moves beyond narrowing defined skills. In this case when the skills are promoted quality of TVET increased mean while the quality of TVET given to rural farmers can therefore be measured by a number of factors which includes the availability of welltrained skilled instructors (Extension agents and teacher), enabling environment and modern information Technology

Modern information Technology is the science and activity of using computers and other electronic equipment to send, receive, store and retrieve information on any purpose as at when needed (Ekong, 2003). Omoigui, (2005) defined Modern information Technologies (MITs) as those technologies that are used for gathering, manipulating, processing and presenting or communicating information. The technologies could include hardware (like computers and other devices, software applications and connectivity.

There were gross inadequate information technologies for use by the rural farmers (Garrison and Adaeze, 2007). Farmer's knowledge on MITs need to be enhanced for greater output. Meanwhile such knowledge are provided by agricultural extension service

agents who help in widening their knowledge by providing innovative information to them. Osinem (2008) stated that extension service is seen as a non-formal out-of-school system designed to help rural farmers to satisfy their needs, interests and desires. The author added that extension agents are trained staff who pass information to rural farmers on the value of new technology and imbibe the practice in them. In this view, Richardson (2013) advocated that teachers of agricultural science should be involved in disseminating information on MIT to rural farmers because the teachers live with the farmers in the village and the farmers know that they are more knowledgeable than them. Agricultural science teachers are those who guide and instruct students on various skills of agricultural activities (Egbule, 2014). Further on this, the researchers view agricultural science teachers in this context to be unofficial consultant who give immediate information to rural farmers on the need of MITs. Therefore, for MIT to be of benefit to rural farmers, the work of both extension service agents and agricultural science teachers should not be neglected (Ipen, 2016). The author added that the government in this regard should provide enough fund to extension agents to facilitate their work.

In the context of this study, MIT is the use of radio talks, television programmes, posters, phones, video tapes, films, fliers to pass information that will facilitate agricultural productivity based on farmers' literate level. Farmer use MITs such as radio, television, among others to advertise their agricultural produce.

However, distinctions are often made between Modern information Technology and indigenous means of passing agricultural information. According to Okwuanaso, (2015) Modern information Technologies is information transformation technology built on potentials of electronic communication devices such as computers, and tele communication equipment for connecting and accessing various end. The quality of TVET given to rural farmers through MIT goes a long way to alleviate poverty among these farmers as poverty of the mind is one of the worst poverty. Poverty according to Bradshaw (2006) is a state of hunger, poor shelter, health, ignorance, underemployment and fear for future. Poverty alleviation therefore is the adoption of different measures to permanently improve the standard of living of the poor (Agbioko, 2010). Presently in Delta State, rural farmers have been using some of the MITs like mass media such as radio, television and cell phones. However, the rural farmers are not aware that these MITs such as radio, television, cell phone among others which they are familiar with can be used to advertise agricultural products as well as receive information that will enhance their productivity.

Rural farmers in Delta State lack necessary information and awareness that can improve their farming methods, marketing and food storage among others (Adomi, Ogbomo and Inoni, 2003).In the same vein, Agwu and Akinnnigbe (2018) reported that major challenges confronting the farmers in using MITs are lack of trained computer personnel, poor finance to procure its facilities, power fluctuation and lack of internet access in the rural areas. The author further stated that as a result of lack of relevant information and awareness among rural farmers, agriculture is practiced on a small scale which leads to low productivity. As such rural farmers in Delta State remain in poverty. Therefore, this study tends to determine the impact of Modern

information Technology in improving TVET quality among rural farmers for poverty alleviation. Specifically, the Study sought to determine:

1. Modern information Technology available to rural farmers in cassava production
2. Extent to which rural farmers utilize the available MITs in marketing cassava products
3. Factors that militating against the use of Modern information Technology in cassava production.
4. Measures to enhancing sustainable modern information technology use in marketing cassava produce.

Research Questions

1. What are the Modern information Technology available to rural farmers in cassava production?
2. To what the extent do rural farmers utilize the available MITs in marketing cassava products?
3. What are the factors that militating against the use of Modern information Technology in cassava production among rural farmers in Delta State?
4. What are the measures enhancing sustainable modern information technology use in marketing cassava produce among rural farmers in Delta State?

Hypotheses

$H0_1$: There is no significant difference in the means responses of agricultural science teachers, rural farmers and extension agents on factors militating against the use of modern information technology in cassava production among rural farmers in Delta State.

$H0_2$: There is no significant difference in the means responses of agricultural science teachers, rural farmers and extension agents on measures to adopt in enhancing sustainable TVET in agriculture using modern information technology in cassava production.

Methodology

Descriptive survey design was adopted for the study in line with Osuala (2005) because it is suitable for public opinion on existing phenomenon with the intent to determine the current conditions or practices and better plan for improvement. The study was carried out in Delta State, south-south of Nigeria. The population was 359 and a simple random sampling technique was usedto select 192 respondents (110 registered farmers, 57 agricultural science teachers and 25 extension agents). A question item tagged Use of Modern Information Technology in Alleviating Farmers Poverty Questionnaire (UMITAFPQ) was made up of four sections with a total of 62 items which was based on relevant literatures reviewed. The instrument was face validated by three experts; two experts from Agricultural Education Department and one from Computer Education Department, all from Federal College of Education (Technical), Asaba, Delta State. The reliability index of 0.59 obtained using Cronbach Alpha technique.

The responses to questionnaire items 1-20 were rated available and not available, items 21-40 were rated Highly Utilized (HU), Utilized (U), Moderately Utilized (MU) and Not Utilized (NU) while items 41-62 were rated Strongly Agree (SA), Agreed (A), Disagreed (DA) and Strongly Disagreed (SD). The researchers engage two assistants to administer to the 192 respondents and were duly completed and returned. The data collected were analysed using mean and percentage while the two hypotheses were tested using one-way analysis

Table 1: Frequency and percentage showing rural farmers, agricultural teachers and extension agent ratings of the available Modern information Technology for rural farmers in Delta State.

S/N	Item	Available		Not Available	
		Freq	Percentage	Freq	Percentage
1	Radio 190	99	2	1	
2	Television	161	84	31	16
3	Posters 190	99	2	1	
4	Notice Board	160	83	32	17
5	Bill board	38	20	154	80
6	Journals 21	11	171	89	
7	Seminar/ Conference Papers	70	37	122	63
8	Magazines	39	20	153	80
9	News Papers	37	19	155	81
10	Phone 130	68	62	32	
11	Website Nill	00	192	100	
12	Extension agents	150	78	44	22
13	Internet Nill	00	192	100	
14	Facebook	Nill	00	192	100
15	Video- tape	18	9	174	91
16	Text books	13	7	179	93
17	E-mail Nill	00	192	100	
18	Films 27	14	165	86	
19	Satellite connection	Nill	00	192	100
20	Fliers 155	81	37	19	

of variance (ANOVA) statistics at 0.05 level. Questionnaire item 1-20 were analysed using simple percentage, items 21-60 were analysed using mean (X). Statistical Package for Social Science (SPSS) version 20 was used for the statistical test probability level less or equal to 0.05 ($P<0.05$). Since the items were based on 4 point scale, the accepted mean score was 2.50 thus, mean rating of 2.50 and above were accepted while items with mean rating below 2.5 were rejected.

Results

Research Question 1

What are the Modern information Technology available to rural farmers in cassava production?

Table 1 above shows that Modern information Technology for rural farmers in the state are: radio

(99%), Television (84%), Poster (99%), Notice board (83%), Phone (68%), Extension agents (78%) and fliers (81%). However, bill board (80%, Newspapers

(81%), Internet (100%, facebook (100%), Video-tape (91%), films (86%) and satellite connections (100%) are not available.

Research question 2: To what the extent do rural farmers utilize the available MITs in marketing cassava products?

Table 2: Mean and standard deviation ofrural farmers, agricultural teachers and extension agent ratings of the extent of utilization of available information Technology for farming in Delta State.

S/N	Source of Information	X	SD	Remarks
1	Radio	3.67	0.50	HU
2	Television	3.19	0.63	MU
3	Posters	2.92	0.61	MU
4	Notice Board	2.89	0.86	MU
5	Bill board	1.71	0.91	SU
6	Journals	2.15	0.94	SU
7	Seminar/ Conference Papers	2.01	0.99	SU
8	Magazines	2.05	0.90	SU
9	News Papers	2.27	0.81	SU
10	Phone	3.21	0.81	MU
11	Website	1.34	1.00	NU
12	Extension agents	3.19	0.81	MU
13	Internet	1.11	0.96	NU
14	Facebook	1.24	1.10	NU
15	Video- tape	2.23	0.86	SU
16	Text books	2.00	0.86	SU
17	E-mail	1.11	1.06	NU
18	Films	2.29	1.04	SU
19	Satellite connection	1.24	1.12	NU
20	Fliers	3.24	0.78	MU

Key: HU = Highly Utilized, Moderately Utilized, SU = Slightly Utilized, and NU = Not Utilized.

Table 2 revealed that respondents rated item 1above 3, 5, whereas item 2, 3, 4, 10, 12 and 20 were rated above between 2.5 – 3.49, but the rest were rated below 2.5. This means that radio is highly used, while television, poster, notice board, phone, extension agents and fliers are moderately used by the farmers. Bill board, journals seminars/conference papers, magazines, newspapers, video tape, text books and films are slightly used. However, website, internet, facebook, e-mail and satellite connection are not utilized.

Research Question 3: What are the factors that militating against the use of Modern information Technology in cassava production among rural farmers in Delta State?

Table 3: Mean and Standard deviation of rural farmers, agricultural teachers and extension agent rating of the factors militating against the use of Modern information Technology for TVET among rural farmers in Delta State.

S/N	Problems facing the use of MIT include	X	SD	Remarks
1	Funds are not available to farmers to use Modern information Technology	3.36	0.51	A
2	Lack of skills to use the technology by farmers	3.17	0.94	A
3	Non-availability of modern Information technology to farmers	3.26	0.97	A

4	Negative perception of farmers on use of modern information technology.	3.43	0.83	A
5	Rural farmers are disposed to the use of modern information technology	3.33	0.74	A
6	Modern information technology are costly	3.29	0.83	A
7	Rural areas do not have access information technology	3.11	0.94	A
8	There is poor power supply in rural areas	2.84	0.87	A
9	Rural farmers are poor to buy modern information technology	2.28	0.72	A
10	Rural farmers are not computer literate	2.85	0.76	A
11	Lack of support from government	2.76	0.69	A
12	There is no workshop/conference on use of MIT.	3.33	0.59	A
13	Poor network coverage	3.09	0.73	A

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Table 3 revealed that the respondents rated the items of the instrument above 2.5. This means that they agree that the 13 items are factors militating against enhancing sustainable of modern information technology for TVET rural farmers in Delta State among farmers in Delta State.

4: Mean and Standard deviation of rural farmers, agr extension agent rating of the measures to adopt in TVET in agriculture using Modern information Tech

S/N	Measures for Effective use of MIT include	X	SD	Remarks
1	The government at all levels should allocate adequate funds for the provision of MIT gadgets in rural areas	3.35	0.51	A
2	There should be one-one training of rural farmers to help them develop technical skills in operating MIT gadgets	3.00	0.77	A
3	Mobile phones should be made available to the rural farmers and extension agents so as to enable them get cheaper access to internet connectivity	2.95	0.88	A
4	MIT gadgets such as computers, laptops among others should be distributed to all the registered farmers	3.27	0.94	A
5	The problem of inconsistency power supply should be addressed and solar energy or bio-technology should be encouraged	3.04	0.87	A
6	There should be workshops and conferences organized for extension agents so that they can educate the farmers appropriately	3.44	0.58	A
7	There should be continuity of the programs formulated by the government concerning TVET in agriculture	2.83	0.74	A
8	The government should give loan to rural farmers to enable them purchase MIT gadgets.	2.93	0.73	A
9	The leaders in the rural areas should allocate free lands to different communication companies to mount network masks in order to reduce the problems of network services	3.57	0.49	A

Table 4 revealed that the respondents rated the items of the instruments above 2.5. This means that they agreed that all the items of the instrument are measures to adopt in enhancing sustainable TVET in agriculture using Modern information Technology.

Hypothesis 1: There is no significant difference in the mean responses of agricultural science teachers, rural farmers and extension agents on factor that militate against the use of modern information technology for TVET among rural farmers in Delta State.

Table 5: Analysis of Variance (one-way ANOVA) using the mean responses of agricultural science teachers, rural farmers and extension agents on factor that militate against the use of modern information technology for TVET among rural farmers in Delta State.

ANOVA

Factors	Sum of Square	DF	Mean square	F	Sig.	Decision
Between groups	5.567	2	2.783	2.333	180	Ns
Within group	21.618	189	.114			
Total	27. 185	191				

NB: Ns = Not significant, F = f-ratio calculated, df = degree of freedom.

Table 5 shows F-ration (2.33) with associate probability of 0.180 greater than the level of significance of 0.05. Therefore the null hypothesis was upheld hence there is no significant difference in the mean responses of teachers of agricultural science, farmers and extension agents on factor that militate against the use of modern information technology for TVET among rural farmers in Delta State.

Hypothesis 2: There is no significant difference in the mean responses of agricultural science teachers, rural farmers and extension agents on measures to adopt in enhancing sustainable TVET in agriculture using Modern information Technology.

Table 6: Analysis of Variance (one-way ANOVA) using the mean responses of agricultural science teachers, rural farmers and extension agents on measures to adopt in enhancing sustainable TVET in agriculture using Modern information Technology.

Factors	Sum of Square	DF	Mean square	F	Sig.	Decision
Between groups	.244	2	.122	1.775	172	NS
Within group	13.006	189	.069			
Total	13.250	192				

NB: Ns = Not significant, F = f-ratio calculated, df = degree of freedom.

Table 6 shows F-ratio (1.78) with associate probability of 0.17 greater than the level of signifant of 0.05. Therefore the null hypothesis was upheld, hence there is no significance difference in the mean responses of teachers and extension agents on the measures to adopt in enhancing sustainable TVET in agriculture using Modern information Technology.

Discussion of the Findings

The result of the study was shown in Table 1 showed that the modern Information Technology available to rural farmers in Delta State are radio, television, posters, notice board, phones, extension agents and fliers while journals, seminar conference papers, magazine, newspaper, internet, facebook, video tape, textbooks, e-mials, films and satellite connection. These findings were in agreement with the findings of Garrison and Adaeze (2007) that conducted a study on the availability and utilization of information technology facilities by rural farmers in Benue State and found that there were gross inadequate information technologies for use by rural farmers.

Table 2 the findings of the study showed that radio is highly utilized by the rural farmers in the state of research while television, posters, notice-board, phone, extension agents and fliers are moderately used by the farmers. However, billboard, journals, seminar/conference paper, magazines, Newspaper, videotape, textbooks, and films are slightly in use, website, internet, facebook, email and satellite connections are not utilized by the farmers in the state. The findings are in consonance with the findings of other researchers like Okwuanaso, Ekong, 2013 etc. Each of these researchers, agreed that some of MITs are highly utilized by the farmers. In addition, Uko (2010) gave an interesting statement which ought to be mentioned to strengthen the findings of the present study. Uko stated that the quality of TVET given to rural farmers can be measured by the information the farmers receive through the use of MITs. In table 3, the findings indicated the factors militating against the use of modern information technology for TVET among rural farmers in Delta State are unavailable fund, lack of skills to the use of the technologies by the farmers and non-availability of the modern information technology to farmers, negative perception of farmers on the use of MIT, rural farmers are not disposed to use of MIT and cost of purchasing the technologies. These findings were in agreement with Agwu and Akinnigbe (2018) who found that lack of trained computer personnel, poor finance to procure it facilities, poor fluctuation, lack of internet access in the rural areas and high cost of it facilities that are constraint to use of information technologies among rural famers.

In Table 4, findings of the study indicated that the measures adopted in enhancing sustainable TVET in agriculture using MIT are; government at all levels should allocate adequate funds for the provision of MIT gadgets in the rural areas; there should be oneone training of the rural farmers to help them develop technical skills in operating MIT gadgets, mobile phones should be made available to the rural farmers and extension agents so as to enable them get cheaper access to internet connectivity and MITs such as computers, laptops among others should be distributed to all registered farmers. The

findings were in agreement with Ipren (2006) who carried out a research on impact of information technology in the productivity and income of rural farmers in Makurdi Local Government of Benue State. Based on the findings, it was suggested that adequate information should be provided to rural farmers by extension agents on the adoption of innovations by the farmers.

Conclusion

From the result shown in the study, it is observed that the use of modern information technologies by rural farmers and extension workers/agricultural science teachers is relatively low in Delta State. TVET programmes have not recorded progress due to lack of modern information technology. Some of the factors militating against the use of MITs for TVET in the rural areas include shortage of funds, poor internet connectivity among others. It therefore shows that it is only the indigenous based MIT and prints MIT that they have access to which among others are: mobile phones, posters, radio set, television and magazine. This proves that extension agents and agricultural science teachers in the state depend solely on print media and indigenous MIT for TVET, this can be attributed to: high cost of MIT, poverty, poor network coverage, inadequate support from government among others.

Recommendations

IT is therefore recommended that:

1. Government at all levels should allocate fund for the provision of MIT gadgets in the rural areas
2. There should be one-on-one training of rural farmers by extension agents to help them develop technical skills in operating MIT gadgets.
3. MIT gadgets such as computers, laptops should be made available to agricultural teachers and extension agents for TVET programmes in guiding the farmers.

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