

REVITALIZING AGRICULTURAL EDUCATION AND TRAINING IN TERTIARY INSTITUTIONS FOR FOOD SECURITY AND NATIONAL DEVELOPMENT IN GOMBE STATE, NIGERIA

BY

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Abstract

The study focused on revitalizing agricultural education and training in tertiary institution for food security and national Development in Gombe State Nigeria. The study was guided by three specific purposes, three research questions and three null hypotheses. Descriptive survey research design was adopted. The population of the study was 478, using Tero Yammani's formula, a sample of 214 was obtained comprising of 179 government officials and 35 senior lecturers (Federal University Kashere and Federal College of Education Technical) all from Gombe State. A 32-item structured questionnaire developed from literature was the instrument for data collection. The instrument was face validated by three experts from department of agricultural education, University of Nigeria, Nsukka. The internal consistency of the questionnaire items was determined using Cronbach alpha reliability method and an overall coefficient of 0.77 was obtained. The collected data by the researchers and two research assistants were analysed using mean to answer the research questions and t-test for the hypotheses tested at 0.05 level of significance. It was found out that respondents agreed to the various factors affecting agricultural education in higher institutions, there is no statistically significant difference in the mean response of government officials and senior lecturers on the factors affecting agricultural education in higher institutions and then respondents agreed to the roles of Government in revitalizing agricultural education in higher institutions. Based on the findings, the study recommends among others lecturers of Agricultural Education should be placing more emphasis on practical rather than theory in teaching agriculture, Government through ministry of Agriculture should provide machines and equipment to attract students to Agricultural Education in tertiary institutions for food security and national development.

Key words: food security, agricultural education and Training, Vitalize, National development

Introduction

Agriculture remains the major employer of labor either directly or indirectly. Agriculture is production of animal and crops and other allied activities that ensures survival of humans and animals. Agriculture is one of the key contributors of Nigeria and world economy as it provides food, raw materials to industries, income for farmers, revenue for government and source of foreign exchange (Bowo, Nurayati & Imleesh, 2016), in addition to source of fuel/power, recreation, tourism and aesthetic

value among other things. In view of these numerous benefits of agriculture, the Nigerian government introduce it as subject in schools (pre-vocational in primary and junior and as agricultural science in senior secondary schools); in universities as agriculture with specialized areas or as a vocational programme in colleges of education and universities as Agricultural Education.

Agricultural Education is one of the vocational programmes in colleges of education and

universities that equip learners with knowledge and skills required in productive agriculture. It is the training of head and hands of learners; that is, the use of scientific knowledge in the teaching and learning of food production through acquisition of knowledge of crop production, livestock management, soil and water conservation and other associated products for industrial and human development (Hayes & Stewart, 2016). It is a type of vocation that emphasizes preparation and participation in an occupation for social value (Wheelahan, 2015). Opposing to general education, agricultural education is skill-oriented in training of enrollee for self-reliance and job creation (Okoye & Udoudo, 2015). Agricultural education and training inculcate in students passion to engage in practical agricultural activities in crop production, livestock farming, processing, marketing and storage of farm products in order to help achieve food security and actualize objectives of sustainable national development (Balala, 2019). Agricultural education opens wide prospects for many people to be employed as it trains individuals to become self-employed for independency. It is skill-oriented programme that creates avenues for people to be engaged in different areas such as becoming a teacher/trainer, engage in animal and or crop production, fish farming, bee keeping, feed formulation or work in agro-allied industries to produce chemicals like pesticide, herbicides, fungicides, fertilizers among others (Diise, Zakaria & Mohammed, 2018). However, education at the tertiary level lays emphasis on education for self-sustenance.

Tertiary institutions generally refer to all post-secondary education, including all but not limited to universities, polytechnics, colleges of education and monotechnics. Tertiary institutions according to Famade, Omiyale & Adebola (2015), is

education given after secondary education in universities, colleges of education, polytechnics, monotechnics including those institutions offering correspondence courses. Education (Agricultural Education) at tertiary level should aim among others at; contributing to national development through higher level relevant man power training, capacity building, developing the intellectual capacity of individuals to understand and appreciate their local and external environment, acquiring physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society as well as promoting sustainable development.

The concept of sustainable national development arises from a new worldview, which ensures survival, continued progress, and maintenance of human community as dependent on continued health and viability of earth's life support systems. Accordingly, sustainability depicts a paradigm that seeks to protect the planet's life support systems to ensure longevity for humans and other species (Awan, 2020). Sustainable development is a process of strategic changes in social systems and institutions for continuity (Hoover & Harder, 2015). In the context of increasing population and consumption of natural resources of a country, sustainable national development as a model aims at a balance in economic growths, quality of life and environmental preservation, without increasing consumption of natural resources beyond the capacity of the earth (Gazzola & Querci, 2017). The deepening global problems such as depletion of natural resources, damage to natural environment, economic and financial crises and increasing consumption led to development paradigm shift from consumption to sustainable development and recognition of new courses of action such as green growth influenced by certain actions (Mensah, 2019). Achieving sustainable

development helps a nation to achieve national development.

Development is related with transformation, solid progress, industrialization, systematic and technological progress, rise of nuclear energy, electronic and biological revolution, new knowledge about man and the universe. A nation is a large community of people sharing common language, common culture, common history and having a common constitution and government (Stevenson, Balling & Kann-Rasmussen, 2017). Nigeria is a nation with common characteristics as binding principles and policies. The ultimate aim of national development must be to bring about sustained improvement in the wellbeing of individuals and bestow benefits of self-reliance and mobilization of domestic resources, transformation of the structure of rural production, small-scale industries and acquisition of technological and scientific skills (Vestergaard, Murphy, Morsing & Langevang, 2020). These aims need to be well-conceived, planned with directed policies and programmes for their realization, thus, indicating that developments are about self-reliance in every aspect of national life. As soon as individuals are made to acquire specialized skills that could enable them develop the society, then the nation becomes developed. This accounts for the difference between developed countries and the underdeveloped nations. Many factors are responsible for national development with agricultural education and training playing a vital role in preparing researchers, educators (would be teachers), extension staff, and farmers to make useful contributions. Similarly, there is a direct link between food supplies and agricultural education and training (Hermans, Klerkx & Roep, 2015). This is because finding answers to the sustainable food production problems and providing services and opportunities to people is

the role of graduates of the entire agricultural education and training. Government and graduates of agricultural education in the country make necessary contributions for the success of the programme and towards food security

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for active and healthy life (Pérez-Escamilla, 2017). Food security is a measure of the availability of food and individuals' ability to access it (Upton, Cissé & Barrett, 2016). Therefore, in the view of this study, food security is the availability and accessibility of food to all people at all times in Gombe State.

Gombe state has an estimated population growth of 3.2 % per annum while food production is growing at the rate of 2% (Mohammed, 2011). Many of the inhabitants find it difficult to eat twice a day thus unable to meet up with food security indices which stated that all people, at all times, should have physical, social and economic access to sufficient, safe and nutritious food to meet dietary needs and food preferences for active and healthy life (Pérez-Escamilla, 2017). Farmers in the state are interested in ensuring continuous food supply but factors such as floods/erosion, low capital and above all, low level of knowledge and skills acquired through agricultural education and training among others are affecting the level of their production (Akinyetun, 2018). In spite of numerous actions taken by farmers to boost food production in the state, food insecurity and under nutrition remains a serious problem. Mani, Abdullahi, Ibrahim & Yusuf, (2019) revealed that food insecurity is of great concern in Gombe State while poor agricultural education program is a serious threat to the state's objective of achieving food security

and contributing to national development in the country. Although achieving food security is desirable irrespective of the political system and socioeconomic conditions, it is an extremely high priority in developing regions of the world, where population growth coupled with increased intensity of such environmental events like floods, droughts, extreme variability in temperature or rainfall often pose a threat (Turner et. al, 2018). Farmers' efforts are not enough so, it is necessary to seek for other contributions from government and training institutions with agricultural education programme in direction of policies and other areas for enhanced production and food security. A well revitalized agricultural education program will go along way helping the state to improve its food production and hence achieve food security and national development.

To revitalize means to restore something to life, give it a new life or adding newness and vigor to that particular thing. Revitalizing agricultural education means adding new strengths and vigor to agricultural education as well as making it more attractive to individuals and organizations which will lead to creation of jobs as well as National development. This study, therefore seeks to determined ways of revitalizing agricultural education and training in tertiary institution for food security and sustainable national development in Gombe state, Nigeria. Specifically, the study identified

1. Factors affecting agricultural education in higher institutions for food security and sustainable national development in Gombe
2. Roles of government in revitalizing agricultural education for food security and sustainable national development
3. Roles of tertiary institutions in revitalizing agricultural education for food security and sustainable national development

Research Questions

1. What are the factors affecting agricultural education in higher institutions for food security and sustainable national development in Gombe?
2. What are the roles of government in revitalizing agricultural education for food security and sustainable national development?
3. What are the roles of tertiary institutions in revitalizing agricultural education for food security and sustainable national development?

Research Hypothesis

H₀₁: There is no significant difference in the mean ratings of government officials and lectures on factors affecting agricultural education in higher institutions in Gombe State

H₀₂: There is no significant difference in the mean ratings of government officials and lectures on Government roles in revitalizing agricultural education in higher institutions in Gombe State

H₀₃: There is no significant difference in the mean ratings of government officials and lectures on institutions' role in revitalizing of agricultural education for promoting food security for national development Gombe State

Three research questions in line with the specific purposes guided the study while three corresponding null hypotheses were formulated and tested at the probability of 0.05 level of significance.

Methodology

This study adopted a descriptive survey research. Hebert, Stomski, French and Rubinstein (2005) defined descriptive research design as one that describes events just as they are without any manipulation of what is been observed. The

study was conducted in Gombe State, which is located in North Eastern part of Nigeria. The population for the study was 478, while the sample of the study was 214 made up of 35 lecturers of Agricultural Education from the three higher institutions (namely: Federal University of Kashere and Federal College of Education Technical Gombe) and 179 officers in the ministry of agriculture who were contacted to participate in the study. A 32-item structured questionnaire instrument called “Questionnaire for Revitalizing Agricultural Education and Training in Tertiary Institution for Food Security and National Development in Gombe State” was developed and used for data collection. The instrument was in two parts: A and B. Part A was based on the personal data of respondents while part B with three sections was constructed to elicit responses from government officials and Lecturers on their roles in revitalising agricultural education in higher institutions for food security and sustainable national development. The instrument had a four-response options of strongly agreed (SA), agree (A), disagree (D) and strongly disagree (SD) with corresponding values of 4, 3, 2 and 1 respectively. The instrument was face validated by three experts from Department of Agricultural Education University of Nigeria, Nsukka. The internal consistency of items was determined

using Cronbach alpha reliability method and a coefficient of 0.77 was obtained. The collected data by the researchers and two research assistants were analysed using mean to answer the research questions and t-test statistics for the null hypotheses. In taking decision on the items, a mean value of 2.50-5.00 was considered as Agreed while 2.49 and below was considered as Disagreed. A hypothesis of no significant difference was upheld where the p-value was greater than 0.05 but not upheld when it was less than 0.05.

Results

The result of the study was based on the research questions answered and hypotheses tested.

Research Question 1

What are factors affecting agricultural education in higher institutions for food security and sustainable national development in Gombe
Data for answering research question one is presented in Table 1

Mean response and t-test analysis of the responses of senior lecturers of education and government officials on the Factors affecting agricultural education in higher institutions. N = 214 (35 Lecturers & 179 government official)

Note: $G \bar{X}$ = Grand means $\bar{X}_1$ mean 1,

The null hypothesis will be rejected for all items

S/N	ITEMS	GX	X1	SD1	X2	SD2	t-cal	Sig	Decision
1	Absence of demonstration in institutions	3.26	3.08	1.09	3.89	0.32	-3.179	0.002	S
2	Agricultural teacher incompetency	3.29	3.14	0.91	3.84	0.37	-3.213	0.002	S
3	Inadequacy of Agricultural laboratory facilities	3.24	3.10	0.92	3.74	0.45	-2.908	0.005	S
4	Inadequacy of farming equipment and tools in higher institutions	3.26	3.15	0.78	3.68	0.58	-2.795	0.006	S
5	Poor teaching techniques by teacher(s)	3.10	3.03	0.88	3.37	0.76	-1.525	0.131	NS
6	Poor attitude of enrollees to agricultural education higher institutions	2.80	2.67	1.01	3.26	0.81	-2.322	0.023	S
7	Quest for better jobs by competent agricultural educators.	2.73	2.62	1.09	3.16	0.60	-2.063	0.042	S
8	Inadequate funding of agricultural education programs.	3.03	2.99	0.86	3.25	0.54	-1.088	0.280	NS
9	Poor attitude of policy makers towards agricultural education	3.32	3.25	0.89	3.58	0.61	-1.517	0.133	NS
10	Non availability of machines equipment	2.87	2.74	1.09	3.37	0.60	-2.430	0.017	S

$\bar{X}_2$ = Mean 2, SD_1 = standard Deviation 1, SD_2

except items 5,8 and 9.

Note: $G \bar{X}$ = Grand means $\bar{X}_1$ mean 1, $\bar{X}_2$ = Mean 2, SD_1 = standard Deviation 1, SD_2 = standard deviation 2, no of lecturers = 36, government official = 180, S = Significant, NS= Not significant.

Table 1 above revealed that all the items had their mean scores ranging from 2.73-3.87. This therefore, indicate that all the 10 items affect Agricultural education in tertiary institutions in Gombe State. Also, the result from the hypothesis shows that significant differences exist between the mean ratings of majority of the items. However, no significant differences exist in items 5,8 and 9. Therefore, it can be concluded that there was significant difference in the mean responses of lecturers and government officials.

Research Question and Research Hypothesis 2

What are government roles in revitalizing agricultural education in higher institutions for food security and sustainable national development in Gombe state?

Data for answering research question two were presented in Table 2

Mean ratings and standard deviation of two groups respondents on government Roles in revitalizing agricultural education for food security and sustainable national development in Gombe $N = 214$ (35 Lecturers & 179 government official)

ratings of majority of the items. However,

S/N	ITEMS	GX	X1	SD1	X2	SD2	t-cal	Sig	Decision
1	Increase teachers' inducement in higher institutions	3.21	3.12	0.65	3.08	0.34	-2.071	0.040	S
2	Inservice training of teachers of agricultural education through scholarships	3.59	3.51	0.66	3.84	0.37	-2.072	0.041	S
3	Special incentives for teachers of agriculture	3.22	3.12	0.74	3.57	0.50	-2.538	0.013	S
4	Provision of agricultural facilities in schools	3.18	3.16	0.75	3.26	0.65	-0.538	0.592	NS
5	Provision of farm inputs like improved seeds, fertilizers, animals	3.43	3.41	0.78	3.26	0.65	-0.327	0.744	NS
6	Provision of machines and equipment to attract students to agricultural education	3.32	3.29	0.73	3.42	0.61	-0.690	0.492	NS
7	Funds schools of agriculture adequately	3.16	3.13	0.60	3.26	0.45	-0.886	0.378	NS
8	Establish agro-industries to absorb graduates of agriculture	3.26	3.19	0.81	3.53	0.51	-1.697	0.093	NS
9	Subsidize agricultural research	2.28	2.07	0.97	3.00	0.88	-3.760	0.000	S
10	Encourage global partnership to facilitate collaborations	2.97	2.88	1.02	3.26	0.65	-1.525	0.131	NS

From the table 2 above, all the items had their mean scores ranging from 2.97 to 3.59 apart from item 9 which has a mean of 2.28. It therefore, showed that the items were government roles in revitalizing agricultural education in tertiary institutions in Gombe State except item 9 in the table.

Also, the result from the hypothesis shows that no significant differences exist between the mean

significant differences exist in items 1, 2,3 and 9. Therefore, it can be concluded that there was no significant difference in the mean responses of lecturers and government officials. The null hypothesis will be upheld for all items except items 1, 2, 3 and 9.

Research Question 3 and Research Hypothesis 3

What are the roles of institutions in revitalizing agricultural education for food security and sustainable national development?

Data for answering research question three were presented in Table 3 below thus;

Mean Ratings and Standard Deviation of respondents on the roles of institutions in revitalizing agricultural education for promoting food security for national development. N= 214 (35 Lecturers & 179 government official)

S/N	ITEMS	in institutions, Agricultural teacher					t-cal	Sig	Decision
		GX	X1	SD1	X2	SD2			
1	More emphasis on practical rather than theory in Teaching Agriculture	3.26	3.08	1.09	3.89	0.32	-3.179	0.002	S
2	Adequate finance to carry out practical Agriculture	3.29	3.14	0.91	3.84	0.37	-3.213	0.002	S
3	Promote positive attitude of students towards practical Agriculture.	3.24	3.10	0.92	3.74	0.45	-2.908	0.005	S
4	Provision of personnel to guide the students in practical Agriculture	3.26	3.15	0.78	3.68	0.58	-2.795	0.006	S
5	Encouraging practical Agriculture to be evaluated by teachers	3.10	3.03	0.88	3.37	0.76	-1.525	0.131	NS
6	Provision of incentive measures to encourage students that perform well in practical Agriculture	3.03	2.99	0.86	3.25	0.54	-1.088	0.280	NS
7	Promoting the use of participatory approach in teaching	3.32	3.25	0.89	3.58	0.61	-1.517	0.133	NS
8	School farm shall be sited closer to where students attend lectures.	2.87	2.74	1.09	3.37	0.60	-2.430	0.017	S

Table 3 above revealed that all the items had their mean scores ranging from 2.87-3.32. This therefore, showed that all the 8 items were considered roles of institutions in revitalizing agricultural education in tertiary institutions in Gombe State. The hypothesis of no significance was rejected in most items except items 5, 6 and 7.

Discussion of findings

The findings of the study in Table 1 showed that the respondents agreed to the various factors such as absence of demonstration in institutions, agricultural teacher incompetency, inadequacy of agricultural laboratory facilities, inadequacy of farming equipment and tools in tertiary institutions, poor teaching techniques by teacher(s) etc are among the factors affecting agricultural education in tertiary institutions. This finding is supported by Asogwa, Onu and Egbo (2013) who found out that some instructional materials such as agricultural teacher incompetency, inadequacy of agricultural laboratory facilities, inadequacy of farming equipment and tools in schools are among the factors affecting agricultural education in tertiary institutions. Also, Modebelu and Nwakpadolu (2013) identified that absence of demonstration

incompetency, poor funding, poor attitudes of students towards agricultural education, inadequate qualified teachers as the challenges facing agricultural teachers in their quest to achieve effective teaching and learning of the subject. The findings of hypothesis one depicted that there is statistically significant difference in the mean response of government officials and lecturers on the factors affecting agricultural education in tertiary institutions, except in 5, 8 and 9 which indicated there was no statistically significant difference in the mean response of government officials and lecturers on the factors affecting agricultural education in tertiary institutions. It was an indication that government officials and lecturers do not vary in most of their opinions on the factors affecting agricultural education.

The findings on research question 2 showed that the respondents agreed that the roles of government in revitalizing agricultural education in higher institutions include increase in teachers' incentives, in-service training of teachers of agricultural education through scholarships, provision agricultural facilities in schools, provision of farm inputs like improved seeds,

fertilizers, animals, provision of machines and equipment to attract students to agricultural education, establish agro-industries to absorb graduates of agriculture, subsidize agricultural research, as well as proper funding of schools are government roles in revitalizing agricultural education in the state. These findings are supported by the findings of Williams (2019), who found out that factors such as increase in teachers' incentives, Inservice training of teachers of agricultural education through scholarships, provision agricultural facilities in schools, Provision of farm inputs like improved seeds, fertilizers, animals, subsidize agricultural research, as well as proper funding of schools are government roles in revitalizing agricultural education. The findings of the study on the corresponding hypothesis showed that there was no statistically difference in the mean response of government officials and lecturers on Government roles in revitalizing agricultural education in tertiary institutions except in items 1, 2, 3 and 9 of table 2. It was an indication that government officials and lecturers did not significantly vary in their opinions on Government roles in revitalizing agricultural education in tertiary institutions in Gombe State.

From the findings in Table 3, it showed that the respondents agreed to the role of institutions in revitalizing agricultural education for food security and sustainable national development include; More emphasis on practical rather than theory in Teaching Agriculture, Adequate finance to carry out practical Agriculture, Promote positive attitude of students towards practical Agriculture to mention but few. This finding was in line with the findings of Oyediran, Omoare, Dick and Shobowale (2016) who that agricultural education enables students to acquire basic knowledge and skills for self-reliant. The findings of hypothesis three depicted that there is

statistically significant difference in most of the mean responses of government officials and lecturers on institutions' roles in revitalizing agricultural education for food security and sustainable national development. It was an indication that government officials and lecturers did not significantly vary in their opinions on the roles of institutions in revitalizing agricultural education in Gombe state.

Conclusion

Based on the findings of this study, it was concluded that that Agricultural education can create jobs thereby leading to national development. However, there are number of certain factors that affect agricultural education in tertiary institutions in Gombe. The skills to be acquired are very many but some are more essential. Some factors that the study identified however inhibit skill development in tertiary institutions. Finally, the study identified role of government and tertiary institutions in revitalizing agricultural education in tertiary institutions in Gombe State.

Recommendation

Based on the findings of the study, the following recommendations were made;

1. Lecturers of Agricultural Education should be placing more emphasis on practical rather than theory in teaching agriculture.
2. Government through ministry of Agriculture should provide machines and equipment to attract students to Agricultural Education.
3. Seminars, workshops, and conferences should be organized by Extension Agents in collaboration with Ministries of Agriculture or ADPs where, teachers of Agricultural Education, and students will

be trained on how to effectively engaged in agricultural activities so as to attained food security in the state.

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