



VillageMath Educational Review

Network for Grassroots Science and Mathematics
Education (The VillageMath Network)

Department of Mathematics Education
Federal University of Agriculture, Makurdi, NIGERIA

Volume 1, Issue 1

July, 2020

CODEN: VERIAU

Evaluation of the Implementation of Agricultural Education Programme in Colleges of Education in Taraba and Adamawa States, Nigeria

Garba Emmanuel Ekele, Joyce Akper Doom, and Innocent Okpa Ngbongha

Department of Agricultural Education,
Federal University of Agriculture, Makurdi, Benue State, Nigeria
Corresponding Author: ekelegarba@gmail.com

DOI: 10.5281/zenodo.3937224

Article History: Received 27th June, 2020; Revised 8th July, 2020; Published 9th July, 2020.

Copyright © 2020 by Author(s) and The VillageMath Network

This work is licensed under Creative Commons Attribution 4.0 International (CC BY 4.0)

<https://creativecommons.org/licenses/by/4.0/>



How to Cite this Article:

Ekele, G. E., Doom, J. A. & Ngbongha, I. O. (2020). Evaluation of the Implementation of Agricultural Education Programme in Colleges of Education in Taraba and Adamawa States, Nigeria. *VillageMath Educational Review (VER)*, 1(1), 78-89.

<https://ngsme.villagemath.net/journals/ver/v1i1/ekele-doom-ngbongha>

Abstract

This study evaluates effective implementation of agricultural education programme in Colleges of Education. The study was carried out in Taraba and Adamawa State, Nigeria. Survey research design was adopted for the study. Two research questions and one hypothesis were formulated to guide the study. The population of the study was 53 made up of 48 lecturers and 5 laboratory technologists. There was no sampling. The instrument used for data collection was a questionnaire and checklist. A 77-item structured questionnaire titled “Programme Course Contents and Facilities Questionnaire” (PCCFQ) was developed from literature reviewed. The Cronbach Alpha method was used to determine the internal consistency of the instrument on programme course content which yielded a reliability co-efficient of 0.69. Fifty three (53) questionnaire were administered and were retrieved for data analysis. Mean and standard deviation were used to

answer research question two and checklist was used to answer research question one, while t-test was used to test the null hypothesis at 0.05 level of significance. Findings from the study revealed that respondents rated all the programme course content appropriate while the checklist showed that most of the facilities were rated moderately available. It was recommended amongst others that the National Commission for Colleges of Education (NCCE) should reshuffle the programme course contents such that Psycho-productive skill course dominates the curriculum of the programme to further enhance their appropriateness. It was concluded that effective implementation of agricultural education programme in Colleges of Education in the study area is based on the successful evaluation and implementation of programme course content and availability/adequacy of facilities.

Keywords: Evaluation, Implementation, Colleges of Education, Programme, Agricultural Education

Introduction

Agricultural education programmes in tertiary institutions are usually evaluated to determine the extent of implementation of the programme and to see what improvement are required. Evaluation is central to human activities. Ekele (2019) states that evaluation is the process of determining the degree to which the objectives of an educational activity have been achieved. In other words, evaluation seeks to determine the discrepancy that may exist between some aspects of the programme and in order to identify the weakness inherent in agricultural education programme that might had been implemented.

Agricultural education can be formal, informal and non-formal (home, school and community). It involves acquisition of knowledge, skills and attitudes in various areas of agriculture. It involves competencies that must be possessed by the learner independently in the chosen agricultural occupation. In addition, it is the training and education received by recipient in the area of agriculture from primary, secondary, monotechnics and colleges of education to university (Ekele, 2015). This training and retraining is carried out in the form of a programme.

A programme in agricultural education can be seen as advanced arrangement of items, events, actions, activities involved in imparting knowledge, skills and attitudes in agriculture to learners at any time and level (Agbulu & Olaitan, 2002). Agricultural education programme in colleges of education is designed in such a way that it will assist the trainee to acquire competencies in occupation of their choice. A college of education according to National Policy on Education (NPE, 2004), is a tertiary institutions that offer agricultural education programme (amongst other programmes) which provide knowledge, a skills and principles to students who have passed through post-primary school education.

The principles of agricultural education as explained by Osinem (2008) include structured and organized instructions, supervised agricultural experience and career development support activities. Osinem (2008) further enumerated the objectives of agricultural education to include the following; demonstrate desirable work ethics and habits, applied basic agricultural competencies and background knowledge in agriculture and related occupations, analyzed entrepreneurial skills needed by individuals preparing to enter agriculture and related occupation, acquire leadership and participatory skill necessary for the development of productive citizens in our democratic society, gain effective social and interpersonal communication skills, be aware of career opportunities in

agriculture and set career objective, acquire job-seeking employability and job retention skills, advance a career through a programme of continuing education and life-long learning, recognize the interaction of agriculture with government and economic systems at the local, state, national and international levels, recognize how new technologies impact agriculture and how agriculture impacts the environment. All these principles are linked to vocational agriculture.

The scope of vocational agriculture according to Ekele (2015) covers the occupational areas for which workers/students or trainee are trained or prepared for employment. These areas include general agriculture, soil science, crop production, animal production and entrepreneurship. Knowledge, skills and competencies are acquired in these areas which would enable the recipient to be employed in vocational agricultural occupation. Vocational agriculture also aims at giving agricultural training or retraining to individuals, under supervision and control of an expert. The programme in vocational agricultural education is designed in such a way that it will assist the individual to acquire competencies in occupation of their choice. Students can be creative when they are committed to work and hence development will follow as emphasis will be on job creation. However, for students to progress in the skills acquired in the learning process, the appropriateness of the programme content must be considered before effective curriculum implementation process.

Curriculum implementation involves all the day-to-day activities which school management and classroom teachers undertake in pursuit of the objectives of a given curriculum. Obanya (2011) asserts that curriculum implementation involves curriculum delivery. It is the transformation of curriculum policies into action. It involves putting into practice the officially prescribed courses of study, syllabuses, and subjects (Idowu, 2017). Putting into practice the official curriculum requires an implementation agent. In this study, the lecturer is identified as the agent of curriculum implementation. Implementation is said to take place when the lecturer personality, the teaching materials and the teaching environment interact with the learner for the purpose of achieving the stated objectives in the classroom (Nnamani & Oyibe, 2015). In the context of this study, curriculum implementation is the process by which lecturers and laboratory technologists utilize recommended content in teaching and learning of vocational agricultural education programme in Colleges of Education. The teaching and learning process involving students who are at the prime of their youthful age is of immense catalyst to their growth.

As explained by Okafor (2011), Nigerian youth could be empowered economically, if they are exposed to necessary skill acquisition which is possible through effective curriculum implementation process. Therefore, vocational agricultural education graduates should be equipped with the basic skills, knowledge and attitude to drive the economy. It is in line with this policy that the NCCE which is the apex regulating body for colleges of education in Nigeria recommended thirty six (36) credits in General Education components. Six (6) credits in Teaching Practice, General Studies fourteen (14) credits and Technical and Professional Agricultural Components have seventy two (72) credits while the Students Industrial Work Experience Scheme (SIWES) carries two (2) credits. According to the National Commission for Colleges of Education (NCCE, 2012) all these requirements were for effective and efficient preparation of vocational agricultural education students at all levels of education in the country. Also the recommended mode of teaching-learning of vocational agricultural education courses are by lectures, tutorials, fieldtrips/excursions, practicum, laboratory work and practical as deemed appropriate for each

course. Appropriate programme contents and adequacy of facilities are effectively evaluated using context and input evaluation model.

Context evaluation as reported by Zhang, Zeller, Griffith, Metcalf, William & Misulis (2011) includes examining and describing the context of the programme under evaluation, conducting a needs and goals assessment, determining the objectives of the programme and determining whether the proposed objectives will be sufficiently responsive to the identified needs. Put differently, it helps in making programme planning decisions. Input evaluation provides information on the resources available for executing a programme and they could be utilized to attain a desired goal. Furthermore, it aids in structuring decisions to determine programme designs. Jacobs (2008) submitted that input evaluation provides information on resources available and how resources may be used to achieve desired ends. Jacobs (2008) further opines that input evaluation may entail the assessment of staff, physical facilities, equipment and other resources involved in a programme.

Statement of the Problem

The researchers through preliminary investigation observed that the graduates of Colleges of Education in the study area have difficulty in formulating feeds for animals, raising nursery for crops and are ineffective in crop husbandry management. It is disturbing to discover these inadequacies among graduates of Agricultural Education programme and the natural question to ask is if the programme was properly implemented or if graduates of the programme were properly taught with appropriate programme course content or adequate facilities. There is therefore need for evaluation of implementation of agricultural education programme in the Colleges of ducation under consideration.

Purpose of Study

Specifically, the study sought to determine;

- i. Adequacy of available facilities in the Colleges of Education.
- ii. The use of appropriate programme course content as recommended by NCCE.

Research Questions

- i. What are the available facilities in the Colleges of Education?
- ii. What are the appropriate programme course content as recommended by NCCE?

Hypothesis

- i. There is no significant difference in the mean rating of the responses of lecturers and laboratory technologists in Colleges of Education on appropriateness of programme course content.

Methods

The study adopted descriptive survey research design. The study was carried out in Taraba and Adamawa States of Nigeria. Two research questions and one hypothesis guided the study. The population of the study was 53 which consists of 27 lecturers and three laboratory technologists from the Department of Agricultural Education, College of Education Zing, Taraba State, Nigeria. 21 lecturers and two laboratory technologist from Federal College of Education, Yola, Adamawa

State, Nigeria. There was no sampling as all the population was used for the study. The instrument used for data collection was a questionnaire for (programme course content) and checklist for the facilities. A 77-item questionnaire titled “*Programme Course Contents and Facilities Questionnaire*” (PCCFQ) was developed from literature and used for data collection. The instrument on appropriateness of course content has a 4- point response scale of Highly Appropriate (HA), Appropriate (A), Moderately Appropriate, (MA) and Not Appropriate (NA) with corresponding value of 4, 3, 2, and 1. For the checklist, the response options are Number Required (NR), and Number Available (NA) recommended as minimum standard by NCCE. The item questionnaire on appropriateness of course content was subjected to face validity by three experts, two from the Department of Agricultural Education, Federal University of Agriculture, Makurdi and one from the Agricultural Education Department, Taraba State University. Cronbach Alpha method was used to determine the internal consistency of the instrument on (appropriate course content) which yielded coefficient of 0.69. One research assistant was involved in the administration of the questionnaire to the respondents. 52 copies of the instruments were administered to the respondents and 49 retrieved and analyzed using mean and standard deviation to answer the research questions. The real limits of numbers were utilized for decision making in answering research question one as follows: Highly Appropriate = 3.50 – 4.00, Appropriate = 2.50 - 3.49, Moderately Appropriate = 1.50 - 2.49, Not Appropriate = 1.00 – 1.49. For the checklist, In deciding on the items for answering research questions two, simple percentage was used as follows: 00 to 39% = Not available, 40 to 59% =Rarely Available, 60 to 79%= Available, 80% and above =Highly Available. Any item that does not meet the stipulated recommended minimum standard set by the NCCE was regarded as (NA) Not Adequate, while items that meet the recommended minimum standard were regarded as (A) and Adequate.

Results

Research Question One

What are the available facilities in the Colleges of Education?

Table 1: Availability of Facilities Recommended by NCCE for Implementing Agricultural Education Programme in Colleges of Education in Adamawa and Taraba States

S/ N	Material Resources	Number Required	Number Available (Frequency)	Percentage %	Remark
1	Class room	1	1	100	Highly Available
2	Laboratory for crop and soil	2	1	50	Rarely Available
3	Livestock skeletons	10	6	61	Available
4	Individual students plot	1	1	100	Highly Available
5	Experimental plot for research	1	1	100	Highly Available
6	Fish pond	2	1	50	Rarely Available
7	Facilities for Bee keeping	5	1	20	Not Available
8	Staff offices	1	1	100	Highly Available

9	Departmental library	1	1	100	Highly Available
10	School farm for arable crop	1	1	100	Highly Available
11	Functional tractors	1	0	0	Not Available
12	Disc harrows	1	1	100	Highly Available
13	Disc plough	1	1	100	Highly Available
14	Ridger	1	1	100	Highly Available
15	Incubator and hatchery	3	2	75	Available
16	Honey extractors	4	1	25	Not Available
17	Surgical kits	4	1	25	Not Available
18	Castrators	5	1	20	Not Available
19	Eggs Candles	4	2	50	Rarely Available
20	Prismatic Compass	4	2	50	Rarely Available
21	Ranging poles	8	4	50	Rarely Available
22	Measuring Chain (Gunter's Surveyor)	2	1	50	Rarely Available
23	Theodolite	1	1	100	Highly Available
24	Water pumping Machine	6	3	50	Rarely available
25	Seed sowers	5	1	20	Not Available
26	Plant lifters	5	0	0	Not available
27	Green house	1	0	0	Not available
28	Rotary Planters	5	1	20	Not Available
29	Rain gauge	2	1	50	Moderately Available
30	Maximum and Minimum thermometer	4	2	50	Moderately Available

Analysis of data in Table 1 revealed that functional tractors, surgical kits, castrators, plant lifters and facilities for bee keeping are rated not available as evidenced in their percentage score of 25% and below. Other facilities with percentage score ranging from 50% to 100% were rated moderately available, rarely available, and highly available. Hence, majority of the facilities were rated moderately available.

Research Question Two

What are the appropriate programme course content as recommended by NCCE?

Table 2: Mean Ratings and Standard Deviation of Respondents on Appropriateness of Programme Course Content for Implementation in Colleges of Education in Adamawa and Taraba States (N=49)

S/N	Content Required for Training	\bar{X}	Std	Remark
YEAR I				
1	Introduction to Vocational and Technical Education	2.75	.83	Appropriate
2	Introduction to Agriculture	3.04	.85	Appropriate
3	Agricultural Biology	2.90	.91	Appropriate
4	Agricultural Mathematics	2.81	.87	Appropriate
5	Agricultural Physics	2.93	.55	Appropriate
6	Introduction to Agro-Climatology	3.03	.90	Appropriate
7	Agricultural Chemistry	2.69	1.01	Appropriate
8	Practical Agriculture 1	3.58	.82	Highly Appropriate
9	Introduction to Crop Production	3.34	.78	Appropriate
10	Introduction to Rural Sociology and Extension	3.36	.92	Appropriate
11	Arable Crop Production	3.09	.80	Appropriate
12	Introduction to Animal Science	3.07	.69	Appropriate
13	Youth Organization in Agriculture	2.85	.70	Appropriate
14	Principles of Agricultural Economics	2.87	.68	Appropriate
15	Agricultural Methodology	2.72	.66	Appropriate
16	Introductory Soil Science	2.96	.68	Appropriate
17	Agric Finance	2.84	.81	Appropriate
YEAR II				
18	Tree Crop Production	2.97	.75	Appropriate
19	Poultry Production	2.90	.80	Appropriate
20	Introductory to Genetics	2.78	.72	Appropriate
21	Principles of Agricultural Economics	2.73	.71	Appropriate
22	Farm power and machinery	2.88	.86	Appropriate
23	Curriculum Development in Agriculture	2.95	.55	Appropriate
24	Fish Production	3.42	.76	Highly Appropriate
25	Animal Nutrition	3.31	.72	Appropriate
26	Entrepreneurship in Agric Education	3.21	.81	Appropriate
27	Entrepreneurship in Vocational and Technical Education	3.15	.84	Appropriate
28	Research Method in Agricultural Education	3.33	.69	Appropriate
29	Soil Fertility	3.25	.87	Appropriate
30	Principles of Crop Protection	2.87	.89	Appropriate
31	Crop Improvement	2.88	.76	Appropriate
32	Livestock production (Ruminants/Non Ruminants)	3.00	.85	Appropriate
33	Principles of Farm Management	2.94	.70	Appropriate

34	Practical Agriculture IV/Field Trip	2.96	.80	Appropriate
35	Land Survey and Farm State Planning	3.03	.61	Appropriate
36	SIWES	3.08	.97	Appropriate
YEAR III				
37	Seminar in Agricultural Education	2.65	.91	Appropriate
38	Environmental Education in Agriculture	3.50	.85	Highly Appropriate
39	Animal Health	3.23	.72	Appropriate
40	Food Product Technology	3.44	.98	Appropriate
41	Basic Agricultural Water Engineering	3.62	.61	Highly Appropriate
42	Horticulture	3.66	.68	Highly Appropriate
43	Agricultural Development and Policy	3.63	.66	Highly Appropriate
44	Bee keeping/Snail/Cane Rat Farming	3.67	.62	Highly Appropriate
45	Animal Breeding	3.80	.69	Highly Appropriate
46	Agric Marketing and Cooperative	3.50	.54	Highly Appropriate
47	Project/Teaching Practice	3.60	.57	Highly Appropriate

N= number of respondents, \bar{X} = mean of respondents Std = Standard deviation of respondents

Analysis of results in Table 2 revealed that mean rating of programme course content as rated by respondents ranges from 2.73 to 3.62 which indicates that all the 47 items are either appropriate or Highly appropriate for running the programme in colleges of education. The 47 programme course contents were all rated appropriate.

Hypothesis

There is no significant difference in the mean rating of the responses of lecturers and laboratory technologists in Colleges of Education on appropriateness of programme course content.

Table 3: t-test Analysis of Mean Ratings of Responses of Lecturers and Laboratory Technologists on Appropriateness of Programme Course Content used in Colleges of Education in Adamawa and Taraba States

Status	N	Mean	Std.	Df	Sig.	Alpha Value	Remark
Lecturers	48	2.865	.601	52	.285	.05	NS
Lab Technologist	5	2.173	.775				

N= Number of respondents, Std = Standard deviation, df = degree of freedom, Sig. = p-value; $p > 0.05$, NS = Not significant.

Analysis of the results in Table 3 above shows a p-value of .285 which is greater than the alpha value of .05. This indicates that there was no statistical significant difference between the mean ratings of the responses of Lecturers and Laboratory Technologists on appropriateness of programme course content used for training NCE students in colleges of education in the study area. Therefore, the hypothesis of no significant difference for the two groups of respondents (Lecturers and Laboratory Technologists) on appropriateness of programme course content was accepted. This further showed that significance difference does not exist in the responses of lecturers and laboratory technologists.

Discussion of Findings

The findings of the study in Table 1 revealed the 30 facilities recommended as minimum standard for the implementation of Vocational agricultural education programme in Colleges of Education in Adamawa and Taraba State, only two items (plant lifters and green house) were Not available. Among the available ones, facilities such as such Class room, Livestock skeletons, Individual students plot, Experimental plot for research, Staff offices, Departmental Library, School Farm for arable crop, Functional tractors, Disc harrows, Disc plough, Ridger, and Theodolite were highly available. Meanwhile, Laboratory for crop and soil, Fish pond, Eggs Candles, Prismatic Compass, Ranging poles, Measuring Chain (Gunter’s Surveyor), Water pumping Machine and Rain gauge were moderately available while Facilities for Bee keeping, Incubator and hatchery, surgical kits, Seed Sowers and Rotary planters were rarely available. The finding of this study was in conformity with the findings of Lamidi (2016) that material resources recommended as minimum standard by the NCCE for implementation of Agricultural Education programme of Colleges of Education were averagely available in Federal Capital Territory. However, Arokwu as cited in Nwafor and Eze, (2012) found out that instructional materials such as textbooks were available in schools. This finding contradicts the findings of Osarenren–Osaghae and Irabor (2012) who found out that the human and material resources on ground for the teaching and learning of skill-based courses in the Nigerian public universities did not match the minimum standard requirement recommended by the National Universities Commission. Finding from Table 1 was in line with study by Okafor (2011) that availability and adequacy of material resources in a higher institution

is one of the determinants of the quality of training to be provided by the institution and the level and quality of skills to be acquired by trainee.

The findings from research question two on Table 2 revealed that all the forty seven (47) items contents were perceived as appropriate for implementing programme course content in Colleges of Education in Adamawa and Taraba State. Out of the forty seven contents, Practical Agriculture 1, Fish Production, Environmental Education in Agriculture, Basic Agricultural Water Engineering, Horticulture, Agricultural Development and Policy, Bee keeping/Snail/Cane Rat Farming, Animal Breeding, Agric Marketing and Cooperative and Project/Teaching Practice were perceived as highly appropriate programme course contents. The findings from Table 2 was in agreement with findings from hypothesis tested on Table 3 which revealed that there was no statistical significant difference between the mean ratings of the responses of Lecturers and Laboratory Technologists on appropriateness of programme course contents. These findings was in line with the work of Akanmu, Adejare and Johnson (2016). They found out that 86% of the teachers perceived that the Agricultural Science curriculum content were suitable for student's performance. Similarly, Asogwa, (2017) found that teachers of Agriculture perceived all the six contents of medicinal crops for integration into the curriculum of Agriculture in junior secondary schools as highly relevant. The findings of this study is also in accordance with the National Commission for Colleges of Education (NCCE, 2012) which specified subject matter contents such as Introduction to Vocational and Technical Education, Introduction to Agriculture, Agricultural Biology, Agricultural Mathematics, Agricultural Physics, Introduction to Agro-Climatology, Agricultural Chemistry, Practical Agriculture 1, Tree Crop Production, Poultry Production, Introduction to Genetics, Principles of Agricultural Economics, Farm power and machinery, Curriculum Development in Agriculture, Fish Production, Animal Nutrition, Seminar in Agricultural Education, Environmental Education in Agriculture, Animal Health among others as basic requirements for effective and efficient preparation of Vocational Agricultural Education Students at all levels of Education in the country.

Conclusion

Effective implementation of agricultural education programme in Colleges of Education in the study area is based on the successful implementation of programme course content and availability/adequacy of facilities. Findings from the study revealed that all the programme course content were rated appropriate by respondents for agricultural education programme. Facilities available were moderately adequate for the programme. Some of the facilities were not available for use and implementation of the programme and this translates to dearth of competence on the part of trainee, hence, the need for effective implementation of the programme. Thus, the study has shown that the programme is far from being adequately implemented as recommended by NCCE.

Recommendations

Based on the findings, the following recommendations were made.

- i. Facilities that were rated rarely or moderately available should be given attention in terms of purchase and use. Facilities rated inadequate (not available) should be promptly provided by stakeholders in the various colleges of education in the study area.

- ii. The National Commission for Colleges of Education (NCCE) should reshuffle the programme course contents such that Psycho-productive skill course dominates the curriculum of the programme to further enhance their appropriateness.

References

- Agbulu, O. N. & Olaitan, S. O. (2002). *Comparative Vocational Technical Education Systems in U.S.A., Great Britain and Japan: Lessons for Nigeria*. Abogom press, Makurdi- Nigeria.
- Akanmu, S. A. Adejare, S.O. & Johnson, U. (2016). How Effective is the Nigerian Senior School Agricultural Science Curriculum? A Survey of Evidence from Content development to product. *European Scientific Journal*, 12(4), 1857-7881.
- Asogwa, V. C. (2017). Teachers' perception of integrating medicinal crops into the curriculum of Agriculture in junior secondary schools for food and health security in Enugu state. *Journal of Agricultural Education Teachers Association of Nigeria*, 2(2): 23-30.
- Ekele, G. E. (2015). *Fundamentals of Farm Management, Extension & Agricultural Education*. Makurdi: Otis Digital Press
- Ekele, G. E. (2019). *The Making of Agricultural Education-: Programme Evaluation, Competencies & Theories*. Makurdi. Selfers Publishers.
- Idowu, S. O. (2017). *Implementation of the Nigerian civic education curriculum to develop effective citizenship in young learners: Stakeholders perspectives* (Doctoral dissertation, Brunel University London).
- Jacobs, F. H. (2008) Child and Family Programme Evaluation. Learning to enjoy complexity. *Applied Developmental Science* 7 (2): 62-75
- Johnson, J. (2010). Promoting interaction among students in Distant Education. Educ. Media inter. *Beverly Hills*: Sage publishers.
- Lamidi, A.M. (2016). Methods for minimizing wastage of material resources in agricultural education programme in colleges of education in federal capital territory (FCT) and Nassarawa state, Nigeria. Unpublished (Project Report). Department of Agricultural Education, Federal University of Agriculture, Makurdi.
- National Commission for Colleges of Education (2012) *Minimum Standard for Nigeria Certificate in Education*. Vocational and Technical Education (2012 edition) Abuja NCCE.
- Nnamani, V. S. & Oyibe, O. A., (2015). An Investigation into Students' Preference of Instructional Methods used in Teaching and Learning of Social Studies. *International Journal of Learning and Development*, 5(1), 1-9.
- Nwafor, C.E., & Eze, S.O. (2012). Availability and Utilization of Instructional materials in teaching basic science in selected secondary schools in Abakaliki education zone of Ebonyi state, Nigeria. *Global Journal of Bio-Science and Biotechnology*, 3(3): 292-295.
- Obanya, P. (2011). *Politics and the Dilemma of Meaningful Access to Education: The Nigerian Story*. CREATE Pathways to Access. Research Monograph No. 56.
- Okafor, E. C. (2011). The role of vocational and technical education in manpower development and job creation in Nigeria. *Journal of research and development* 2 (1) 152 – 159.

- Osarenren-Osaghae, R. I. & Irabor, Q. O. (2012) Availability and Adequacy of Human and Material Resources for the Teaching and Learning of Skilled-based Courses in Nigeria Public Universities. *Journal of Sociology Anthropology*, 3, (1): 15-27 (2012).
- Osinem, E. C. (2008) *Managing Agricultural Education and Training*. Resources, Principles and methods. Enugu: Belong international Publishers.
- Zhang, G., Zeller, N., Griffith, R., Metcalf, D., William, J. & Misulis, K. (2011). Using the context, input, process and product Evaluation Model (CIPP) as a comprehensive framework to guide the planning, implementation and assessment of service-learning programme. *Journal of Higher Education and outreach engagement*. 15 (4) 57 – 83
publication/314231823