

Assessment of the Availability and Usage of Instructional Facilities for Effective Teaching and Learning of Agricultural Science in Nigerian Air Force Secondary Schools

Dahiru, D A (PhD)¹, Akinpade, BO², Aluko O O³

¹Department of Agricultural Education, University of Agriculture, Makurdi Benue State, Nigeria

²Department of Animal Science, University of Ilorin, Kwara State, Nigeria

³Department of Agricultural Education, Delta State University, Abraka, Nigeria

Abstract: The study assessed the availability and usage of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools. Two research questions and hypotheses were formulated from purpose of the study. The design of the study was survey research design. The population of the study was 820 Agricultural Science Teachers and Students of the (13) NAF secondary schools. The sample size was 30 Agricultural Science Teachers and 120 Agricultural Science Students from SS3 since they are preparing for WAEC and NECO. Simple Random Sampling Technique was used to determine the sample size for the study. The instrument for data collection was a structured questionnaire called Instructional Material Assessment Questionnaire (IMAQ) this consists of 13 structured items. The instrument was validated by three experts. The instruments were subjected to reliability coefficient of 0.89. The researcher with the help of five assistance distributed the 150 questionnaires and were all retrieved within 7 days. The data was analyzed using mean and standard deviation, while the hypothesis was tested using t-test at 0.05 level of significance. The finding indicates that instructional facilities were inadequate and the available instructional facilities were not fully utilized in teaching Agricultural Science. The researcher recommended that NAF Directorate of Education should provide adequate instructional facilities for teaching of Agricultural Science. Agricultural Science Teachers should make use of available instructional materials in order to teach effectively.

I. INTRODUCTION

Agriculture will continue to be the bedrock of Nigeria's economic growth and sustainable development. It comprises all aspects of human activities. It is the act, art, a cultural necessity and science of production of goods and services through cultivation of land and management of plants and animals which creates an activity web-chain that satisfies social and economic needs. Agriculture is the mainstay of mankind; therefore wise nations all over the world give it a priority, developing and exploiting this sector for the upkeep of their teeming population, the earning of revenue for development purposes; as well as employment for steaming

down crimes, corruption, kidnapping, prostitution, thuggery, terrorism and other social vices (Jiriko, & Olounaiye, 2015).

Decades ago, Nigeria was an agro-economy-based nation. Nigeria's economy was sustained through agricultural production such as Cocoa, Groundnut, Oil palm, rubber etc. Though the practice then was mostly the use of crude implement. Agriculture then seems sustaining because everybody had interest and it appeared to everybody's major source of family sustenance (Modebelu, & Nwakpadolu, 2013).

Education is arguably the basic component in the development of any country in the world. It is the pillar of development of any nation. Education ensures that the needs and aspirations of individuals are met. This means that education can only provide and meet the aspirations and needs of individuals when it is taught with the right instructional facilities to help the learner understand and learn better. Education is seen as a key to national development and cannot be achieved without sustainable investment in human capital through teaching and learning. This is why education reforms in Nigeria have been committed to making the issue of teacher and student quality and its development the cornerstone of the strategy to improve education quality and increase learning outcomes.

The Nigerian Air force secondary schools were established to provide human and material resources for effective teaching and learning in line with global best practices. To achieve the National Education objectives (Nigerian Air force Directorate of Education, 2020). The Nigerian Educational Research and Development Council (NERDC, 2012) Developed Agricultural Science curriculum for secondary schools to represent the total experience to which students must be exposed to the contents and educational objectives. The objectives of secondary schools Agricultural Science curriculum was structured to; stimulate and sustain students' interest in agriculture, enable student's acquire basic knowledge and practical skills in agriculture, prepare students

for further studies in agriculture and prepare students for basic scientific knowledge and attitude required for entry in agriculture occupation.

One of the indicators of an effective and efficient teacher is the ability to channel students' behaviour towards set educational goals and objectives. Such teacher must be an expert in his professional area as well as a good classroom manager (Koko, 2013). The author further states that every teacher must exhibit acceptable leadership behaviour and mastery of the chosen subject area to command the recognition and acceptance of the students. The quality of a teacher is dependent on his preparation for professional role as distinct practitioner.

Effective teaching of any subject will not only stimulate student's interest in the subject but will also enhance their achievement in the examination. To achieve effective teaching and learning process, there is the need for the use of instructional facilities (Mathew & Onyejebu, 2013).

Instructional facilities are the different teaching aids or apparatus which a teacher employs to facilitate his or her instruction for the achievement of the stated objectives. Achimugu (2017) posited that lack of and non utilization of instructional facilities is one of the major causes of students' poor academic performance. Instructional materials are those things which are used to help the teacher to teach effectively or better, to enable the learner to learn better (Abdul-Raheem, 2016). Okobia in Dahiru (2021) averred that instructional facilities are the material resources employed by teachers to make teaching and learning effective and productive.

The important role played by instructional facilities in enhancing students' academic performance cannot be overemphasized. The teaching of Agricultural Science in Nigerian secondary schools should not be treated with levity since agriculture contributes immensely to the economy growth of Nigeria and provide millions of job to the unemployed youths.

The teacher alone cannot provide all the needed condition for an effective teaching and learning process, other supporting materials should be provided. The students learn better when most of the senses are appealed to. The instruction and use of instructional facilities in Agricultural Science education has added a new dimension in the positive promotion of the teaching and learning process. It provides the much need sensory experiences needed by the learner for an effective and meaningful behavioural change. Dahiru (2021) averred that instructional facilities are meant to help teachers implement Agricultural Science curriculum effectively and improve the quality of education for effective academic performance of Agricultural Science students in schools.

Statement of the problem

The mass failure in Agricultural Science by students of Nigerian Air force secondary schools in external and promotional examinations lately is of great concern to parents,

educators, and NAF authority. This mass failure may be connected to unavailability and non usage of instructional facilities by Agricultural Science teachers in NAF secondary schools.

It is evident that most of the Nigerian Air Force secondary schools authorities have a very lukewarm attitude over the provision of needed tools, equipment and farm inputs required for effective teaching of Agricultural Science. This nonchalant attitude tends to retard the effort of some Agricultural Science teachers in Nigerian Air force secondary schools. Despite the emphasis placed by government at all level on agriculture as the only alternative to oil whose value to the nation's economy has dived.

The policy of government at all level to diversify the economy by engaging in agricultural production and functional Agricultural Science education leave much to be desired. In view of this difficulty most Agricultural Science teachers still resort to the theoretical method of teaching. This undoubtedly, is contrary to the improvement of Agricultural Science education, which is greatly needed at this period of the economy depression and food shortage with emphasis on practical oriented learning. Hence the researcher felt the need to assess the availability and usage of instructional facilities in teaching and learning of Agricultural Science in Nigerian Air force secondary schools.

Purpose of the study

The major purpose of the study is the assessment of the availability and usage of instructional materials in teaching and learning of Agricultural Science in Nigerian Air force secondary schools. Specifically, the study seeks to;

1. Ascertain the availability of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools.
2. Determine the usage of instructional facilities by Agricultural Science teachers for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools.

Research Questions

The following research questions were raised to guide the study.

1. What are the available instructional facilities in teaching and learning of Agricultural Science in Nigerian Air force secondary schools?
2. How often are Agricultural Science teachers using instructional facilities in teaching and learning of Agricultural Science in Nigerian Air force secondary schools?

Research Hypothesis

The following null hypotheses were formulated for the study and tested at 0.05 level of significance.

1. There is no significant difference in the mean responses of Agricultural Science teachers and Students on the availability of instruction facilities for effective teaching and learning of Agricultural Science.
2. There is no significant difference in the mean responses of Agricultural Science Teachers and Students on the extent of the use of instructional facilities for effective teaching and learning of Agricultural Science.

II. METHODS

The study adopted survey research design. Two research questions were developed and answered by the respondents, while two hypotheses were formulated and tested at 0.05 level of significance. The area of study was all the Nigerian Air force secondary schools namely, Air force secondary school Makurdi, Uyo, Ikeja-Lagos, Ibadan, Kaduna, Kano, Yola, Porthacourt, Enugu, Girls Military School at Jos, Girls Secondary School at Abuja, Shasha-Lagos, and Air force Military School Jos. The population of the study was 820 Agricultural Science Teachers and students in SS3. The sample size of the study was 30 Agricultural Science Teachers and 120 Agricultural Science Students. Simple Random Sampling Technique was used to determine the sample for the study. Instrument used to collect data was a 13 structured items questionnaire titled Instructional Facility Assessment Questionnaire (IFAQ) developed by the researchers. Each item had a four linkert point scale of Strongly Agree (SA) (4), Agree (A) (3), Disagree (D) (2), and Strongly Disagree (SD) (1).

Three experts validated the instrument : one from Department of Agricultural Education, the other from Department of Agricultural Engineering, the third expert was from the field of test and measurement in the Department of Education Foundation and General Studied (EFOGENS) all from the University of Agriculture Makurdi, Benue State. Their corrections and suggestions were effected on the initial draft to produce the final copy of the questionnaire. The instrument was administered to similar characteristics at Command Secondary School Makurdi to test the internal consistence of the items. This gave Cronbach Alpha Coefficient of 0.89, meaning that the questionnaire items are highly reliable.

With the help of five (5) research assistants 150 copies of the questionnaire were administered to the respondents and were retrieved within 7 days and were analyzed. t-test statistics was used to test the hypothesis at 0.05 level of significance, while mean and standard deviation was used to answer the research questions. Since the item was based on 4 point linkert scale with midpoint of 2.50, items with mean rating of up to and above 2.50 were regarded as agree while items with mean rating below 2.50 were regarded as disagree.

III. RESULTS

Research Question 1: What are the available instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools?

Table 1: Analysis of Mean and Standard Deviation of the Responses of Agricultural Science Teachers and Students on the availability of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools

	Instructional Facilities	Teachers		Students		Remarks
		X1	SD1	X2	SD2	
1	Computer	2.58	0.89	2.55	0.69	Available
2	Television	2.28	0.82	2.32	0.98	Not available
3	Video tape	2.22	0.71	2.11	0.98	Not available
4	Power point	2.42	0.93	2.35	0.88	Not available
5	Interactive Board	2.56	0.99	2.65	0.88	Available
6	Radio	2.66	0.98	2.57	0.97	Available
7	Textbooks	3.99	0.76	3.98	0.83	098 Available
8	Charts	3.22	0.77	3.26	0.96	Available
9	Projector	2.96	0.95	2.87	0.83	Available
10	Chalk/White marker board	4.00	0.99	4.00	0.89	Available
11	School farm	3.76	0.87	3.64	0.98	Available
12	Specimens	2.43	0.96	2.33	0.88	Available
13	Tractor	1.96	0.96	1.89	0.93	Not Available
	Grand Total	2.84	0.89	2.79	0.90	

Table 1 shows that item 1,6,5,7,8,9,10 and 11 had their mean value above 2.50 criterion point, indicating that the above items were available in teaching and learning of Agricultural Science in NAF secondary schools. While item 2,3,4,12&13 had their mean value below 2.50 criterion point, indicating that the items were not available in teaching and learning of Agricultural Science in NAF secondary schools.

Table 2: Analysis of the Mean and Standard Deviation of the Responses of Agricultural Science Teachers and Students on the usage of instructional facilities for effective teaching and learning of Agricultural Science Nigerian Air force secondary schools

S/N	Instructional Facilities	X1	SD1	X2	SD2	Remark
1	Computer	3.00	0.82	2.95	0.85	Often Used
2	Television	2.31	0.86	2.22	0.89	Not Used
3	Video tapes	2.26	0.89	2.16	0.99	Not Used
4	Power point	2.36	0.98	2.32	0.88	Not Used
5	Interactive Board	2.39	0.96	2.36	0.92	Not Used
6	Radio	2.44	0.97	2.32	0.92	Not Used
7	Textbooks	4.00	0.98	3.99	0.96	Often Used
8	Charts	3.33	0.85	3.36	0.86	Often Used
9	Projector	2.46	0.86	2.37	0.88	Not Used
10	Chalk/white marker board	4.00	0.96	4.00	0.84	Often Used
11	School farm	2.33	0.99	1.98	0.88	Not Used
12	Specimens	2.32	0.82	2.43	0.92	Not Used

13	Tractor	1.73	0.81	1.99	0.91	Not Used
	Grand Total	2.69	0.90	2.65	0.90	

Data in table 3 reveals that item 1, 7, 8 &10 had their mean value above 2.50 criterion point, indicating that the items were used in teaching and learning of Agricultural Science in NAF secondary schools. While item 2,3,4,5,6,9,11,12 &13 had their mean value below 2.50 criterion point, indicating that the items were not used in teaching and learning of Agricultural Science in NAF secondary schools.

Table 3: t-test Analysis of the Mean Responses of Teachers and Students on the availability of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force Secondary Schools

Respondent	N	X	SD	DF	t-cal	t-crit	Decision
Teachers	30	2.84	0.89	1480	.2746	1.96	Available
Students	120	2.79	0.90				

The result in table 2 reveals that the t-calculated is 0.2746 while the t-critical or table value is 1.96. Since the calculated value is less than the critical value, we uphold the null hypothesis and reject the alternative hypothesis. Based on this decision, we conclude that there is no significant difference in the mean rating of the responses of Agricultural Science Teachers and Students on the availability of instructional facilities in teaching and learning of Agricultural Science in Nigerian Air force Secondary Schools.

Table 4: t-test Analysis of the Mean Responses of Agricultural Science Teachers and Students on the use of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force Secondary Schools

Respondent	N	X	SD	DF	t-cal	t-crit	Decision
Teachers	30	2.84	0.89	1480	.2746	1.96	Available
Students	120	2.79	0.90				

The result in table 4 reveals that the t-critical or table value was 1.96, while the t-calculated value was 0.2178. Since the t-critical or table value is greater than the t-calculated value we accept the null hypothesis and reject the alternative hypothesis. Based on this decision, we conclude that there is no significant difference in the mean rating of the responses of Agricultural Science Teachers and Student on the usage of instructional facilities in teaching and learning of Agricultural Science in Nigerian Air force Secondary Schools.

IV. DISCUSSION

The findings in Table 1 show that instructional facilities needed by Agricultural Science Teachers are not readily available for effective teaching and learning of Agricultural Science. This is in contrast with Nigerian Air force Directorate of Education (2020) which mission and vision was to provide human and material resources for effective teaching and learning in line with best global practices. Abdul-Raheem (2016) averred that instructional facilities help the teacher to teach effectively or better and also enable the

learner to learn better. Dahiru (2021) in agreement with Abdul-Raheem (2016) asserts that instructional facilities are used by teachers to make teaching and learning more effective and productive. In the opinion of Achimugu (2017) instructional facilities stimulate learner's interest in the topic. Lack of and non-utilization of instructional facilities is one of the major causes of students' poor academic performance.

The findings in Table 2: show that Agricultural Science Teachers rarely used instructional facilities in teaching of Agricultural Science. This is in contrast to the opinion of Mathew and Onyejebu (2013) who averred that the use of instructional facilities help teachers to teach effectively and make teaching easy for the learner to understand the lesson practically and lively. Ogwo (2015) asserts that a teacher who uses instructional facilities to deliver his/her instruction will cover more facts at short interval than one who only uses oral speech for instruction. The author further states that when instructional facilities are used, students see and conceptualize what is being taught much easier than when nothing is used as teaching aids. This is in agreement with Nigerian Education Research and Development Council (2012) which stated that the appropriate usage of instructional materials helps Agricultural Science teacher to stimulate and sustain students interest in agriculture, enable students acquire basic knowledge and practical skills in agriculture, prepare students for basic scientific knowledge and attitude required for entry in agriculture occupation.

V. CONCLUSION

Based on the findings of the study, the following conclusions were made:

1. There is no significant difference in the mean rating of the responses of Agricultural Science teachers and students on availability of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools
2. There is no significant difference in the mean rating of the responses of Agricultural Science teachers and students on the usage of instructional facilities for effective teaching and learning of Agricultural Science in Nigerian Air force secondary schools.

VI. RECOMMENDATIONS

In view of the importance of instructional facilities for effective teaching and learning of Agricultural Science, the following recommendations were made;

1. Nigerian Air force secondary school heads should provide adequate instructional facilities for teaching and learning of Agricultural Science.
2. Agricultural Science Teachers should be made to use available instructional facilities to teach Agricultural Science.

3. Nigerian Air force authority should provide adequate instructional facilities to all the Air force secondary schools.

REFERENCES

- [1] Abdul-Raheem, B.O. (2016). Effects of Instructional Materials on Secondary Schools Students Academic Achievement in Social Studies in Ekiti State, Nigeria. *World Journal of Education* 6(1)32-39
- [2] Achimugu, L. (2017). Evaluation of the Availabilty and Utilization of Instructional Materials for Teaching Chemistry in Senior Secondary Schools. *International Journal of Novel Research in Education and Leraning*. 4(3) 33-43
- [3] Dahiru, D.A. (2021). Evaluation of Agricultural Science Curriculum Implementation in Air ForceSenior Secondary Schools in North Central Nigeria. Unpublished PhD Thesis Department of Agricultural Education, University of Agriculture Makurdi, Benue State, Nigeria.
- [4] Eya, P.E. (2005). Instructional Materials Production in a Challenging Educational System. *University of Nigeria Journal of Curriculum and Media Technology* 2(1); 146-154.
- [5] Jiriko, R.K. and Olorunaiye, E.S. (2015). Availability and Utilization of Instructional Materials for Teaching of Agricultural Science in Secondary Schools in Kaduna South and Chikun Local Government Area of Kaduna State. *Journal of Educational Research and Review* 3(1) Jan 2015
- [6] Koko, M.N. (2013). *Organizational Behaviour; Concept and Division*. Port-Harcourt: Bengray Publishing Company.
- [7] Mathew, C.N. and Onyejebu, C. (2013). Effect of Use of Instructional Materials on Students Cognitive Achievement in Agricultural Science. *Journal of Educational and Social Research* 3(5) Aug 2013.
- [8] Modebelu, M.N. and Nwagpadolu, G.M. (2013). Effective Teaching and Learning of Agricultural Science for Food Security and National Sustainability. *Journal of Educational and Social Research* 3(4) July 2013.
- [9] Nigerian Air force Directorate of Education (2020) Mission, Vission of NAF Schhools. Retrieve from <http://www.doedn.gov.ng> on 18th March, 2021.
- [10] Nigerian Education Research Development Council (2012) . Senior Secondary Education Curriculum. NERDC Press Ltd, Lagos, Nigeria.
- [11] Nwokolo, O.C. (2005). Instructional Materials Utilization in the Teaching and Learning of Biology in Secondary Schools. *University of Nigeria Journals of Curriculum and Media Technology Research* 3(1) 19-24.
- [12] Ogwo, B.A. (2015). Modern instructional Techniques and Their Applications in Technical Vocational Education. (TVE) Programmes and Monotechnics. A Paper Presented at Moshood Abiola Polytechnics 24th Aug. 2005. Pp32.