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# Strategies for Effective Teaching of Practical Agriculture for Self-Employment in Senior Secondary Schools Bayelsa State, Nigeria

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**Abstract:** The main objective of this study is to examine strategies for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. The study adopted descriptive survey research design. The population of the study consist of 190 (121 urban and 69 rural) Agricultural Science teachers in senior secondary schools in Bayelsa State. The population of the study was also adopted as the sample since it was manageable. The instrument for data collection for the study was a structured questionnaire consisting of 22 items. Three research questions and corresponding hypotheses were raised for the study. Mean and standard deviation were used to analyze the research questions and the independent t-test statistic was used to test the null hypotheses at.05 level of significance. The findings revealed that, effective teaching of practical agriculture enhances students' performance in the world of work; there was no significant difference between the mean responses of Agricultural science teachers on strategies for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. It was therefore recommended that, Government should improve funding of secondary schools as practical remains the back-bone of agricultural knowledge acquired in schools.

**Keywords:** Teaching, Agriculture, Practical Agriculture and Self-Employment

## 1. Introduction

Education is a powerful instrument in the advancement of individual and nation's goal. It is through education that people acquire knowledge, skills, abilities and competencies for self-development as well as the development of the society. Secondary school education according to the Federal Republic of Nigeria (FGN) in her National Policy on Education is a form of 2 education provided for learners after primary education and which, prepares them for tertiary education [1]. According to National Policy on Education [1], the broad goals of secondary education are to prepare the individuals for useful living within the society. One of the ways of preparing students for useful living in Nigeria is through the study of agricultural science in the secondary schools. Agricultural science is geared towards the development of manual skills, knowledge and attitude required to manage agricultural resources. In this case, the teacher plans, executes and evaluates his teaching using various methods which emphasize skills acquisition [2].

Agricultural science is one of the subjects taught in secondary schools by the teachers to adequately equip the learners with the skills and knowledge required for production [3]. Agriculture, according to Nlebem [4] is the science of cultivating the soil, harvesting crops, raising livestock and also the science or art of the production of plants and rearing of animals useful to man and in varying degrees, the preparation of such products for man's use and their disposal. The subject is planned to inculcate the necessary skills required in agricultural practice for effective citizenship and also help in the national sustainability of food

security. The objective of agricultural science for secondary schools as stipulated in the National Policy of Education [1] include; to stimulate and sustain students' interest in agriculture; to enable students acquire basic knowledge and practical skills in agriculture and enable them become self-reliance. Agricultural science plays a vital role in food supply, employment, rural development, raw material, foreign exchange, useful for technological development as well as being one of the basic core subjects taught in Nigerian secondary schools.

Teaching of agricultural science at the secondary level requires a solid foundation in theory and practical aspects by the teacher of agriculture. According to Obunadike and Omeye [5], teaching is the process of developing the cognitive, affective and psychomotor powers of the learner through giving the learner knowledge of facts about subject matter, reinforcing and also developing in the learner certain physical or manipulative skills. Teaching in the view of Ayeni [6], is a process that involves bringing about desirable changes in learners so as to achieve specific outcomes. Adunola [7] maintains that teachers need to be conversant with numerous teaching strategies that take recognition of the magnitude of complexity of the concepts to be covered. Shimave, kesiki and Yani [8] noted that, the introduction of agricultural science in 3 the secondary school system is a strategy for increasing agricultural productivity on a long-term basis. Teaching strategies are methods and techniques that a teacher will use to support their students through the learning process. Teaching methods are plans of action designed to achieve learning programme design for a learner. It could be a master plan or program procedure schedule to achieve a particular objective. Chang [9] sustained that teaching methods work effectively especially if they suit learners' needs since every learner interprets and responds to questions in a unique way. The goals of teaching Agricultural Science cannot be achieved without practical skills particularly in secondary schools in Bayelsa State.

Agriculture is a practical oriented subject and therefore requires practical activities and experiences in the field. Practical can be considered as a physical activity an individual engages in, in order to master a specific skill or to attain a specific objective. Okoli [2] affirmed the importance of involvement of the students in practical exercise by stating that the training of would-be farmers today is the duty of the teacher. Nlebem and Raji [10] asserted that teaching of agricultural science was accompanied with practical work on the school farm. Practical can be considered as a physical activity an individual engages in, in order to master a specific skill or to attend a specific objective. With these objectives in mind, the education industry is expected to provide effective and adequate practical training in Agricultural science to students in order to enable schools and colleges provide qualified and competent graduates that can ensure food sufficiency in the country. The introduction and teaching of practical agriculture, facilitates the process of acquisition, of the conceptual knowledge and practical skills that prepare students for a career in agricultural sector and thereby becoming self-employed.

Self-employment is a means by which an individual works for himself/ herself instead of working for an employer that pays salary or wages. Abdulkarim [11] described self-employment as act of working for oneself. Self-employment is the act of generating one's income directly from customers, clients or other organizations as opposed to being an employee of a business or person. According to Umar and Abubakar [12], Self-employment is the act of generating income directly from a consumer as opposed to being an employee of another person, firm or government. Ayuba in Nwosu and Ojo [13] also noted that, anyone who uses his/her own resources or borrowed funds for income generation in activities other than wage or salaried employment is self- 4 employed. Saliu, Onuche and Abubakar [14] affirmed that, practical farming has a lot to do with the kinds of skills and entrepreneurial knowledge acquired that may be used in real-life situations.

The researchers observed that, most of the secondary school students lack basic production skills which could assist them to succeed in skilled agricultural enterprise and as such students that graduate from schools still lack basic skills that would enhance their functionality in today's society. Lack of practical agricultural activities in our public secondary schools today has hindered students' ability to acquire skills for self-employed and self-reliance. Products still wallow about in search of white-collar jobs instead of becoming self -employed and employers of labor. The inability of these young adults to find jobs propel them into social vices such as stealing, prostitution, fighting, drug abuse, fraud, hostage taking, kidnaping etc. If everyone is gainfully employed and self-reliant, there will be no problem about poverty. Unemployment, is key factor that drive youths or young school leavers into scrupulous act or causing havoc in our society and states etc. It was based on this background that it became necessary to examine the strategies for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria.

### *1.1. Purpose of Study*

The main purpose of this study is to examine the strategies for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. To study specifically intend to:

1) determine the teaching methods required for effective of teaching practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria State.
2) find out teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria State.
3) find out the constraint of effective teaching of practical agriculture for self-employment in senior secondary school in Bayelsa, Nigeria State.

### *1.2. Research Questions*

Three research questions were stated to guide the study.

1) What are the teaching methods required for effective of for teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria?
2) What are the teaching strategies to encourage students' participation in practical agriculture for self-employment in secondary senior schools in Bayelsa State, Nigeria?
3) What are the constraints of effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria?

### *1.3. Hypotheses*

The following null hypotheses formulated were tested at 0.05 alpha level.

1) There is no significant difference between the mean responses of Agricultural science teachers in urban and rural area on the teaching methods required for effective of teaching practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria.
2) There is no significant difference between the mean responses of Agricultural science teachers in urban and rural area on teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria.
3) There is no significant difference between the mean responses of in Agricultural science teachers in urban and rural area on constraints of effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria.

## 2. Methodology

The study adopted descriptive survey research design. The population 190. It consists of (121 Urban and 69 Rural) Agricultural science teachers in senior secondary schools in Bayelsa State, Nigeria. The population of 190 respondents was also the sample. A structured Questionnaire (SETPASESSSQ) was developed by the researchers for data collection. The instrument consists of two section, 1 and 2. Section 1 sought for the bio-data of agricultural science teachers, while section 2 contained twenty-two items which were divided into three (3) sub-headings in line with 6 the 3 objectives. Each was used to was used to address each objective raised for the study. A four - point rating of Strongly Agree (AS), Agree (A), Disagree (D) and Strongly Disagree (SD) of 4, 3, 2 and 1 point, respectively was used for section 2 of SETPASESSSQ. The date collecting instrument, SETPASESSSQ was face-validated by three experts (Agricultural educationist, and two test -Evaluators) from Niger Delta University (NDU), Nigeria. Corrections and additions from these experts were included in the final draft of the SETPASESSSQ. Cronbach alpha was used to establish the reliability index of the instrument which was 0.93, and was judged to be good enough for this study. Three research questions and corresponding hypotheses were raised for the study. A total of one hundred and sixty-eight (168) questionnaires were retrieved from the respondents (115 urban and 53 rural). The mean and standard deviation were used to analyze the research questions. Acceptable criteria of 2.5 and above were adjudged, "agree" while items below the cut-off point of 2.5 were rejected. The Independent t-test statistic was used to test the null hypotheses at.05 level of significance.

## 3. Results

Research question

1) What are the teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria?

***Table 1.*** *Table showing the teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria.*

| S/N | Item statement | Urban Agric. Science Teachers N=115 | | Decision | Rural Agric. Science Teachers N=53 | | Decision |
|---|---|---|---|---|---|---|---|
| | | $\bar{x}1$ | SD1 | | $\bar{x}2$ | SD2 | |
| 1 | The use of demonstration method in teaching practical agriculture | 2.77 | 1.13 | Agreed | 3 | 0.98 | Agreed |
| 2 | The use of project method in teaching practical agriculture. | 2.83 | 1.01 | Agreed | 2.89 | 1.01 | Agreed |
| 3 | The use of field trip techniques in teaching practical agriculture. | 2.97 | 1.03 | Agreed | 3 | 0.98 | Agreed |
| 4 | Simulation is one of the innovative teaching strategies that can be used for teaching practical oriented topics. | 3.14 | 0.92 | Agreed | 2.91 | 1.04 | Agreed |
| 5 | The use of problem-solving method in teaching practical agriculture. | 2.82 | 1.02 | Agreed | 2.89 | 0.99 | Agreed |
| 6 | The use of discovery method of teaching practical agriculture. | 2.84 | 1.05 | Agreed | 2.94 | 0.95 | Agreed |
| 7 | The use of enquiry method in teaching practical agriculture | 2.81 | 0.98 | Agreed | 2.85 | 0.95 | Agreed |
| | Grand Mean and Standard Deviation | 2.88 | 1.02 | 2.93 | 0.99. | | |

Data presented in Table 1 shows the mean and standard deviation of Agricultural science teachers in urban and rural area on the teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary schools. The Table revealed that all the seven (7) items had their mean ($\bar{\chi}$) values ranging from 2.77 to 3.14 and were all above the cut-off point of 2.50. However, the grand mean score of 2.88 for urban Agricultural science teachers and 2.93 8 for rural Agricultural science teachers was also greater than the cut-off mean score of 2.50 with the standard deviation score of 1.02 and 0.99 This implied that all the respondents agreed that the seven (7) statements were the teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary

schools in Bayelsa State, Nigeria

2) What are the teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary senior schools in Bayelsa State, Nigeria

***Table 2.*** *Table showing teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary senior schools in Bayelsa State, Nigeria.*

| S/N | Item statement | Urban Agric. Science Teachers N=115 | | Decision | Rural Agric. Science Teachers N=53 | | Decision |
|---|---|---|---|---|---|---|---|
| | | $\bar{x}1$ | SD1 | | $\bar{x}2$ | SD2 | |
| 8 | Individual plot allocation to students for practical farm. | 2.93 | 1.03 | Agreed | 2.89 | 1.01 | Agreed |
| 9 | Grouping of students to enable them participate in practical agriculture. | 2.63 | 1.09 | Agreed | 2.89 | 0.99 | Agreed |
| 10 | Use of innovative teaching strategies in teaching practical agriculture. | 2.93 | 0.95 | Agreed | 2.91 | 0.97 | Agreed |
| 11 | Giving students assignments, write-ups, and projects to aid them to participate effectively in the practical. | 2.87 | 1.03 | Agreed | 2.92 | 1.09 | Agreed |
| 12 | Teaching agricultural practical in the morning. | 3 | 1.07 | Agreed | 2.92 | 1.02 | Agreed |
| 13 | Use of concrete objects in teaching practical agriculture. | 2.64 | 1.1 | Agreed | 2.74 | 1.04 | Agreed |
| 14 | Supervision and evaluation of students individual and group projects. | 3.45 | 1.16 | Agreed | 2.85 | 0.99 | Agreed |
| | Grand Mean and Standard Deviation | 2.92 | 1.01 | 2.87 | 1.02 | | |

Data presented in Table 2 depicts the mean and standard deviation of Agricultural science teachers in urban and rural area on teaching strategies to encourage students' participation in practical agriculture for self-employment in secondary senior schools in Bayelsa State, Nigeria. The Table revealed that all the seven (7) items had their mean ($\bar{\chi}$) values ranging from 2.64 to 3.45 and were all above the cut-off point of 2.50. However, the grand mean score of 2.92 and 2.87 were also greater than the cut-off mean score of 2.50 with the standard deviation score of 1.01 and 1.02. This 9 implied that all the respondents agreed that the seven (7) statements were teaching strategies to encourage students' participation in practical agriculture for self-employment in secondary senior schools in Bayelsa State, Nigeria.

3) What are the constraints of effective teaching of practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria?

***Table 3.*** *Table showing the constraints of effective teaching of practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria.*

| S/N | Item statement | Urban Agric. Science Teachers N=115 | | Decision | Rural Agric. Science Teachers N=53 | | Decision |
|---|---|---|---|---|---|---|---|
| | | $\bar{x}1$ | SD1 | | $\bar{x}2$ | SD2 | |
| 15 | Inadequate funding. | 2.82 | 1.09 | Agreed | 2.91 | 1.08 | Agreed |
| 16 | Lack of land for establishment of school farms. | 2.88 | 0.92 | Agreed | 2.85 | 1.06 | Agreed |
| 17 | Inadequate equipment and training infrastructure. | 2.9 | 1.03 | Agreed | 2.87 | 1.11 | Agreed |
| 18 | Poor method of instruction. | 2.79 | 1.1 | Agreed | 2.96 | 0.98 | Agreed |
| 19 | Acute shortages of qualified teachers. | 2.87 | 1.03 | Agreed | 2.94 | 1.13 | Agreed |
| 20 | Emphasis on theoretical knowledge rather than practical agriculture. | 2.86 | 1.11 | Agreed | 2.98 | 1.03 | Agreed |
| 21 | Weak agricultural policies. | 3.23 | 0.96 | Agreed | 2.96 | 0.94 | Agreed |
| 22 | Students' immaturity for farm practice. | 2.71 | 1.08 | Agreed | 2.91 | 1.06 | Agreed |
| | Grand Mean and Standard Deviation | 2.88 | 1.04 | 2.92 | 1.05 | | |

Data presented in Table 3 depicts the mean and standard deviation of Agricultural science teachers in urban and rural area on the constraints of teaching practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. The Table revealed that all the eight (8) items had their mean ($\bar{\chi}$) values ranging from 2.71 to 3.23 and were all above the cut-off point of 2.50. However, the grand mean score of 2.88 and 2.92 was also greater than the cut-off mean score of 2.50 with the standard deviation score of 1.04 and 1.05. This implied that all the respondents agreed that the eight (8) statements were constraints of teaching practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. 10.

***Table 4.*** *t-test analysis of research hypothesis one.*

| Location | N | Mean | SD | Df | T | P-value (Sig) | Chosen alpha level | Decision |
|---|---|---|---|---|---|---|---|---|
| Urban | 115 | 2.88 | 0.994 | 166 | -0.268 | 0.627 | 0.05 | Not sig |
| Rural | 53 | 2.92 | 0.969 | | | | | |

Result in Table 4 shows that, there is no significant difference between agricultural science teachers in urban and rural area on teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria. The p-value found for the 166 degree of freedom was 0.627, which is greater than the chosen alpha level of 0.05. T (166) = -0.268, p = 0.627. Since the P- value is greater than the chosen alpha

level, thus the null hypothesis is accepted. This indicates that, there is no significant difference between the mean responses of agricultural science teachers in urban and rural area on teaching methods use for effective teaching of practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria.

***Table 5.*** *t-test analysis of research hypothesis two.*

| Location | N | Mean | SD | Df | T | P-value (Sig) | Chosen alpha level | Decision |
|---|---|---|---|---|---|---|---|---|
| Urban | 115 | 2.76 | 1.03 | 166 | -0.687 | 0.601 | 0.05 | Not sig |
| Rural | 53 | 2.87 | 0.99 | | | | | |

Result in Table 5 shows that, there is no significant difference between agricultural science teachers in urban and rural area on teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria. The p-value found for the 166 degree of freedom was 0.601, which is greater than the chosen alpha level of 0.05. T (166) = -0.687, p = 0.601 since the P- value is greater than the chosen alpha level, thus the null hypothesis is accepted. This mean that, there is no significant difference between the mean responses of agricultural science teachers in urban and rural area on teaching strategies to facilitate students' participation in practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. Therefore, the null hypothesis is accepted.

***Table 6.*** *t-test analysis of research hypothesis three.*

| Location | N | Mean | SD | Df | T | P-value (Sig) | Chosen alpha level | Decision |
|---|---|---|---|---|---|---|---|---|
| Urban | 115 | 2.76 | 1.01 | 166 | -0.97 | 0.93 | 0.05 | Not sig |
| Rural | 53 | 2.92 | 1.03 | | | | | |

Result in Table depict, no significant difference was found between agricultural science teachers in urban and rural area on constraints in teaching practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. The p-value found for the 166 degree of freedom was 0.930, which is greater than the chosen alpha level of 0.05. T (166) = -0.970, p = 0.930 since the P- value is greater than the chosen alpha level, thus the null hypothesis is accepted. This means that, there is no significant difference between the mean responses of Agricultural Science teachers in urban and rural area on constraints in teaching practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria.

# 4. Discussion of the Findings

The hypothesis result in Table 4 shows that, Agricultural Science teachers in urban and rural area had no significant difference on their views on the teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria. The null hypothesis is therefore accepted. This is supported by the finding of research question one which revealed teaching methods required for effective teaching of practical agriculture in senior secondary school in Bayelsa State, Nigeria. Furthermore, it was also observed from Table 1 that, the grand mean score of 2.88 and 2.93 was greater than the cut-off mean score of 2.50. The study found that 7 (seven) teaching methods required for effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria were to include: demonstration method, project method, field trip techniques, problem solving method, individualized, techniques, collaborating method and enquiry method.

The findings of this study are in agreement with Daluba N. E. [15], who state that to arrest students' attention, interest, and curiosity and promote their performance, the use of activity- 12 stimulating and student-centered approach like digital learning, demonstration, method, class projects, and tours and field trips instead of depending on the conventional lecture approach needs to be embraced.

The result in Table 5 showed that Agricultural Science teachers in urban and rural areas had no significant difference on their view on teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria. The null hypothesis is accepted. It was observed from Table 2 that, the grand mean score of 2.92 and 2.87 was greater than the cut-off mean score of 2.50. The study found that 7 (seven) out teaching strategies to encourage students' participation in practical agriculture for self-employment in senior secondary school in Bayelsa State, Nigeria to include: individual plot allocation to students for practical farm, grouping of students to enable them participate in practical agriculture, and giving students assignments, projects to aid them to participate effectively in the practical. The findings of this study is in agreement with the finding of Yaro, Gadu, & Pev [16], who observed that Use of concrete objects enables students participation in practical agriculture, Effective training enhances students' participation in practical agriculture, Grouping of students enable them participate in practical agriculture and Quality teaching methods enhance students participation in agriculture Foster students participation in practical agriculture in Senior Secondary Schools in Taraba State. The finding of this study is in support of the finding of Idenyi and Owo [17], who carried a study to determine the extent to which exposing students to utilize the school farm has helped to improve their skill acquisition in farming and it was found by their study that students exposed to field

experiences such as in the farm are very competent, create labour opportunities for others and highly enterprising.

The result in Table 6 showed that agricultural science teachers in urban and rural area had no significant difference on their view on constraint of effective teaching of practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria. The null hypothesis is accepted. It was observed from Table 3 that, the grand mean score of 2.88 and 2.92 was greater than the cut-off mean score of 2.50. The study found that 8 (eight) constraints of effective teaching practical agriculture for self-employment in senior secondary schools in Bayelsa State, Nigeria were among others: inadequate funding; lack of land for establishment of school farms; inadequate equipment and training infrastructure; poor method of instruction; acute shortage of qualified 13 teachers. The finding of this study is in line with Otekunrin, [18], which observed that the major challenges confronting effective teaching and learning of agricultural science in public secondary schools in Nigeria are, lack of instructional materials, inadequate exposure of the students to practical agriculture, traditional methods of teaching and inadequate funds to manage practical-oriented Agricultural Science. This finding also agrees with Samuel, Fawole and Badiru [19], who found major constraints to the teaching and learning of agricultural skills among public second cycle institutions as lack of interest, inadequate equipment in agricultural laboratory and lack of home gardens.

# 5. Conclusion

Agriculture is one of the subjects that prepare individual to earn a living either on a regular paid job or through self-employment. Self-employment plays a significant role in reducing poverty, promoting economic growth, expanding employment, improving the quality of employment and developing entrepreneurial economy. Hence effective teaching of practical agriculture in secondary school enhances students' interest agriculture, makes them more effective, self-reliant, resourceful, and capable of solving farming problems, and as a result significantly improves their crop productivity.

# 6. Recommendations

Based on the findings, the following were recommended;

1) Government should make land available for practical agriculture in all secondary schools in Bayelsa State.
2) Government should improve funding of secondary schools as practical remains the backbone of knowledge acquired in schools.
3) Teachers of agricultural science should expose the students to practical activities in the farm/laboratory.
4) Students should be sensitized on the relevance of agriculture to them and the society at large.

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