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COMPETENCY IMPROVEMENT NEEDS OF AGRICULTURAL SCIENCE TEACHERS FOR EFFECTIVE SCHOOL FARM MANAGEMENT IN TEACHING MAIZE PRODUCTION FOR SELF-RELIANCE IN ENUGU EAST LOCAL GOVERNMENT AREA.

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Abstract
This study focused on determination of competency improvement need of Agricultural Science teachers for effective school farm management in teaching maize production for self-reliance in Enugu East L.G.A. Three research questions guided the study. The study was carried out in Enugu East L.G.A of Enugu State. Population for the study was 35. These comprises of 10 Principals, 20 vice principals and 5 supervisors in area of study. There was no sampling because the population was manageable. A 29 competency item questionnaire was developed and used to collect data. The questionnaire was validated by three experts. The reliability co-efficiency of the instrument was determined using Cronbach Alpha which yielded a co-efficiency of 0.68. Thirty five copies of the questionnaire were administered to the principals, vice principals and supervisors and were all retrieved. Data obtained were analyzed using mean. It was found that teachers of Agriculture need improvement in all the identified competencies in planning and evaluation of activities involved in maize production in the school farm while they do not need improvement in competencies such as clearing of the maize farm, tilling and making ridges, planting of seeds and weeding of maize farm. It was therefore recommended that short duration programmes, workshops and seminars should be organized for Agricultural science teachers to update their knowledge.

Keywords: Competency, Improvement, School Farm, Maize Production and Self-Reliance

Introduction

School farm is an area specially earmarked for agricultural activities by the school. It may be in the school or at a fairly walking distance to the school. Olaitan and Mama (2001) stated that school farm is a field laboratory specially designed for the purpose of imparting agricultural knowledge and managerial skills to the students in the school through practice. The school farm is a land laboratory where students learn agriculture by doing it. In the context of this study, school farm is a piece of land selected for teaching students practical to complement theory in maize production. It is a demonstration farm where different crops are produced including maize.

Maize botanically known as *Zea mays* is a member of the grass family (Poaceae). It is a cereal crop which produces grains that can be used as food by human beings as well as livestock. Maize has a very high demand by the populace. It is a crop that matures 70-105 days from the date of planting depending on variety and planting starts by late March Acquaah (2005). This implies that maize can be produced two or three times in a planting season. A cob of maize can be sold for fifty or one hundred naira depending on the size, this has led many youths to go into maize production and enterprises. Students are taught to produce crops including maize in school and on graduation the students use the knowledge gained to go into the enterprise.

Teaching is the process of helping an individual to learn through instruction. Aneke (2009), described teaching as a process of impacting knowledge, facts, skills, attitudes, interest and aptitude by a knowledgeable and more experience person to a less knowledgeable and inexperienced individuals. Nwana (2008), described teaching as formal education situation in which deliberate effort is made by a teacher to transmit to students predetermined knowledge, skills and attitudes with the aim to positively change the behavior of the student. Anike (2009), defined teaching as a systematic activity deliberately engaged in by somebody to facilitate the learning of the intended worthwhile knowledge, skills and value by another person and getting the

necessary feedback. In this study, teaching is a formal situation deliberately engaged in by the teacher of Agricultural science to enable students become equipped in maize production through practice in the school farm. Teaching is carried out by teachers.

A teacher is an individual that has been trained pedagogically and in subject matter to equip him with competencies that will enable him teach learners effectively. The teacher of agriculture is a subject matter specialist and has a significant influence in a well-organized Agricultural science programme. Asouzu (2010), defined a teacher as some one that has undergone the necessary and recommended training in a teacher preparatory programme and is charged with the full responsibility of managing the behavior of the students. With reference to this study, a teacher is a person trained pedagogically in instruction and technically in skills in Agricultural production and has the responsibility of equipping students with skills in maize production. The students addressed in this study are individuals in secondary schools that offer agricultural science as a subject and are taught crop production such as maize. They are expected to be exposed in theory and practical involved in crop production such as maize. Crop production as explained by Iwena (2002), involves sowing or planting of crops and the progression from young plants through the subsequent phase of growth and development to harvesting of economic crop yield. Maize production in the context of this study refers to processes involved in growing maize which include pre-planting, planting and post planting activities that are carried out at different stages. Pre-planting activities include; selection of suitable site, clearing, stumping and ridging. It is also expected that they should be exposed to relevant planting operations that will enhance the yield. These operations include selection of viable seeds, sowing of the seeds, maintaining correct spacing and accurate seed rate. Further they are required to be taught post planting operations such as supplying, thinning, fertilizer applications, weeding, pest and disease control and harvesting. But in most cases the school farm handled by the teachers to teach the student do not perform

satisfactory. The plants look scanty, stunted and Yellowish. This might be as a result of incompetency on the part of the teacher.

Observation also shows that most schools and teachers of agriculture do not take care of the school farm and this affect most of the arable crops in the school farm (maize inclusive) for instance Hornby (2006) noted that most students on graduation do not know how to plant cassava stem and other arable crops. This might be that the teachers who would have taught them were not competent in school farm management. For effective teaching of maize production to students, the teacher must be competent in school farm management.

Competency was described by Chibuike and Okafor (2015) as skills which an individual needs in a particular job or a particular task. Moore (1997) described competence as a successful performance of a task through the use of knowledge, skills, attitude and judgment. With reference to this study, competence is the ability of teachers of Agricultural science to possess required knowledge, skills, attitudes and judgment for successful management of school farm in teaching students practical in maize production. Studies have shown that teachers do not manage teaching of practical in the school farm effectively. For instance Hornby (2006) noted that students do not know how to plant cassava, Olaitan and Mama (2001) also observe that students do not help their parents in agricultural activities after graduation. This they attributed to students not being well groomed by their teachers in the practical aspect of agriculture in schools. Teachers not teaching these student to be competent might be because they too are not competent. Therefore there is need to improve teachers competency. Teacher's competency might be improved through exposing them to seminars, in-service training, symposium, workshops which are usually organized by Extension workers.

- Extension workers, who serve as mediator between the research institute and the farmers (Teachers), they bring to their knowledge, new innovations, techniques and other matters concerning improved farming, when these teachers are exposed to these skills, their competency will improve.
- Improvement was described by Ifeanyieze in Aneke (2014) as a means of changing situation for better. This study view improvement as a means of enhancing the competencies of teachers in school farm management for effective teaching of maize production to students to make them competent to produce more maize to meet up with the market demand.

Students who offered Agricultural science in secondary schools are expected to acquire skills in maize production after graduation for self-reliance. Self-reliance is the ability of the student to depend on themselves, utilized those skills taught them in the school farm in the production of maize after graduation. Self-reliance according to Bassey (2009) is that which presupposes the attainment of the individual's financial and economic autonomy without necessarily resorting to begging. Furthermore, Abanyam (2014) posited that self-reliance refers to dependence on one's own abilities, judgment or resources or independence. It thus means the ability to rely on oneself to do whatever should be done.

Observation and interaction of the researcher revealed that most of these secondary school graduates who offered Agricultural science while in secondary school could not assist their parents in agricultural activities including maize production. Rather, they are interested in non-agricultural activities in towns and cities such as keke riding, forex browsing, internet fraudulent activities and other vices. For instance Aneke (2014), noted that many youths leave farming which they studied in school for Okada riding (Motor cycle, tricycle driver, Keke-napepe) in order to make fast money instead of going into agriculture that has many entrepreneurial gateways. Anike (2009),

also noted that parents blamed teachers for not directing their children ctively towards agricultural activities including maize production, hence their children lost interest in Agriculture.

Since Agricultural science teachers have the sole responsibilities of using the school farm to equip students with skills such as planting, sowing of seeds, fertilizer application, among others. This implies that student could rely on themselves to produce maize to earn their living. This will make these students employers of labour rather than job seekers. But the situation is that these students are not competent in maize production and could not meet the market demand. Not meeting the market demand for maize products will lead to inadequate supply of staple food (Maize) and low raw materials supply from maize for industrial use. Hence the need to carry out this study aiming at determining the competency. Improvement need of agricultural science teachers for effective school farm management in teaching maize production for self-reliance in Enugu East L.G.A.

Specifically, the study sought to find out competency improvement needs of Agricultural Science teachers in.

1. Planning for maize production in the school farm
2. Implementing activities in maize production in school farm
3. Evaluation of maize production activities in the school farm

Method

The design adopted for the study was a survey design. Nworgu (2006) stated that a survey research design is one in which a group of people or items are studied by collecting and analyzing data from a few people or items considered to be representative sample. The data could be collected using either observation, interview schedule or questionnaire. Questionnaire was used to collect data for the study. Three research question guided the study in line with the purpose of the

study. The area of the study was Enugu East L.G.A of Enugu State. Enugu East has 10 public schools. The population for the study was 35 made up 10 principals, 20 vice principal (10 Vice PrincipalAcademics and 10 Vice Principal Administration) who were grouped in principal cadre and 5 supervisors attached to the L.G.A. There was no sampling because the population was manageable.

The instrument for data collection was a competency item questionnaire which has three sections containing 29 items. Section A was on planning for maize production. Section B was implementing activities involved in maize production while section C was on evaluation of maize production activities in the school farm. The questionnaire was validated by three experts. Two from the Department of Technology and Vocational Education and one from measurement and evaluation in science and computer education, all from Enugu State University of Science and Technology. The reliability Co-efficiency of the instrument was determined using Cronbach Alpha and a reliability co-efficient of 0.68 was obtained. A four point scale of highly needed, needed, moderately needed and not needed was provided for the respondent to place a tick in the response column that best described the level of possession of the competencies involved in maize production. A decision was reached that any item that has mean rating of 2.50 and above do not need improvement while any item whose mean was less than 2.50 it means improvement is needed.

Research Question 1

What are the areas teachers of agriculture need improvement on their competencies in planning for maize production in the farm?

Result

Table 1:

Mean ratings of principals and supervisors on the areas teachers of agriculture need improvement on their competencies in planning for maize production in the school farm.

S/N	Items	X	Decision
1.	Formulate specific objectives for maize production	2.34	Needed
2.	Review the objectives periodically	2.17	Needed
3.	Draw up program plan's for maize Production	1.62	Needed
4.	Decide on the farming and cropping system to adopt on maize production	1.57	Needed
5.	Budget for the farm	1.45	Needed
6.	Plan for the procurement of farm viable seeds, fertilizer etc	1.51	Needed
7.	Select soil conservation practices for application in maize production	2.23	Needed
8.	Select appropriate tool and equipment necessary for maize production	2.31	Needed
9.	Plan for procurement of insecticides for pest control	1.54	Needed

The analysis of data in Table 1 revealed that all the 9 competency items on planning for maize production had their mean scores ranging from 1.45 to 2.34. These mean scores do not reach the

bench mark of 2.50 indicating that teachers of Agriculture need improvement in planning for maize production.

Research Question 2

In which areas do teachers of agricultural science need improvement in implementing activities involved in maize production in the school farm.

Table 2:
Means ratings of principals and supervisors on the areas teachers of agriculture need improvement in implementing activities involved in maize production in the school farm.

S/N	Items	X	Decision
1.	Clearing of the maize farm	2.82	Not Needed
2.	Layout of the maize farm	1.37	Needed
3.	Tilling and making ridges	2.65	Not needed
4.	Planting of seeds	2.71	Not needed
5.	Maintaining correct spacing	1.68	Needed
6.	Fertilizer application	2.28	Needed
7.	Weeding of maize farm	2.54	Not needed
8.	Supplying of ungerminated seeds	1.62	Needed
9.	Thinning of over populated seedlings	2.38	Needed
10.	Applying insecticides for pest control on the farm	1.78	Needed

The analysis of data in Table 2 above shows that 4 competency items such as items 1,3,4 and 7 do not need improvement by Agricultural science teachers for implementing activities in maize production with means of 2.82, 2.65, 2.71 and 2.54 respectively while 6 out of the 10 competency items has mean ratings of 1.37, 1.62, 1.68, 1.74, 2.28 and 2.38 for items 2. 8, 5, 10, 6 and 9

respectively in implementing activities involved in maize production. These items had mean scores below 2.50 indicating that teachers need improvement on the activities stated in implementing activities that will boost maize production in the school farm.

Research Question 3

What are the areas teachers of Agricultural science need improvement in evaluating maize production activities in the school farm?

Table 3:
Mean ratings of principals and supervisors on the areas teachers of Agricultural Science need improvement in evaluating maize production activities in the school farm.

S/N	Items	X	Decision
1.	Develop a list of objectives indicative of performance in maize production	2.37	Needed
2.	Develop skill evaluation form (rating scale)	2.28	Needed
3	Develop psycho-productive multiple choice test items	1.74	Needed
4	Analyze and interpret skill ratings	1.69	Needed
5	Administer, compute and interpret psycho-productive multiple choice test	2.14	Needed
6	Record evaluation grades	2.29	Needed
7	Analyze grades recorded by teachers	1.57	Needed
8	Provide feedback to students	1.54	Needed
9	Make provision for further correction	1.77	Needed
10	Keep evaluation records	2.17	Needed

Analysis of data in Table 3 revealed that all the 10 competency items on evaluation of maize production activities by teachers had mean ratings ranging from 1.54 to 2.37. These items had mean ratings below 2.50, indicating that these teachers need improvement on their competencies for evaluating maize production in the school farm.

Discussion of results

The result of the study in Table 1 revealed that the teachers of Agricultural Science need improvement in all the competency items in planning for maize production in the school farm, these include formulating specific objectives, reviewing the objectives periodically, draw up program plans for maize production, budget for the school farm among others. The findings of the study are in agreement with the study of Olaitan, Eze and Alaribe (2010). These authors found that teachers of Agricultural science need improvement in formulation of objectives, review of objectives and budgeting for school farm in a study they carried on competencies improvement need of teachers in school farm management and emphasized the need for improvement of teachers competencies through in service training.

The study of Amusa (2009) is in agreement with the current study. The author carried out a study on competency improvement needs of farmers in cocoyam production in Ekiti State Nigeria and found that farmers require improvement in competencies in planning, planting, post planting, processing, preservation and storage of cocoyam.

The result in Table 2 shows that 6 out of 10 competency items involved in implementing activities in maize production were areas which teachers of Agricultural Science need improvement. These activities include laying out of the maize farm, maintaining correct spacing, fertilizer application among others. Low competency of these activities will not enable them teach maize production effectively to students. The findings of the present study were in line with the findings of Dibio (2005) in a study he carried out to determine requisite skills required by

teachers of Agriculture for improving the teaching of yam production in secondary schools in Enugu State. The Author found that for effective teaching of agriculture, the teacher should be competent in choosing the appropriate site, laying out of the farm, supplying of ungerminated seeds, thinning of overpopulated seedlings and applying insecticides for pest control. Also Ugwu (2002) noted that teachers could not coordinate and implement activities in the schools, resulting to students not acquiring the skills that will make them competent in crop production. Also Mama and Olaitan had observe that most schools do not have competent teachers to handle the practical aspect of agriculture and that had led to teaching of agriculture theoretically. A case such as that might affect students acquisition of skills in crop production (maize inclusive) and hence not attaining the self-reliance level expected to meet with their needs. These teachers therefore, need improvement for them to teach student effectively.

The result in Table 3 which sought to determine the competencies needed to be improved by teachers of agricultural science in secondary school in evaluation of activities involved in maize production shows that competencies such as developing a list of objectives indicative of performance in Agriculture, develop skill evaluation form (rating scale), develop psycho-productive multiple choice test items among others need improvement by teachers of Agricultural Science. Anike (2009) noted that most agricultural science teachers do not evaluate practical/psycho productivity of the students and as such made the student not to be competent in practical agriculture. Not being competent in practical agriculture will make these students to perform poorly in agricultural production. Therefore these teachers need improvement in evaluating students' practical agriculture. Evaluation which is the final judgment of what is learnt is very vital to ascertain the extent of improvement. These teachers therefore, need improvement for them to effectively evaluate the students.

Conclusion

It is the wish of this Nation to produce graduates who can be self-reliance after graduation. But the situation as observed by Olaitan and Mama (2001) shows that secondary school graduates who offered agricultural science could not assist their parent in agricultural activities. These graduates are rather interested in non-agricultural activities in towns and cities. This could be attributed to the teachers of agricultural science not having the competencies that could make them impact knowledge required for effective teaching of the students. The teachers appeared not to have been teaching the required skills in maize production in the school farm, a situation which has continued to discourage the students from developing interest in farm work. If these students are discouraged due to not being taught to be competent, by the teachers, they would not be able to produce enough staple food including maize for the fast teaming population. This will result to hunger in the near future, hence the need for the study to determine competency improvement need of agricultural science teachers for teaching maize production in secondary schools for self-reliance.

Recommendations:

1. The identified competencies in planning, implementation and evaluation activities in maize production should be utilized in organizing re-training programmes in form of in-service training for teachers of agriculture.
2. Short duration programme, workshops and conferences should also be organized for agricultural science teachers.
3. Extension workers should be encouraged to pay regular visits to teachers in schools to help them improve on their obsolete ideas

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