

**INNOVATIONS
IN
TEACHING
AND
LEARNING**

Edited by
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ONE ARTICLE

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INNOVATIVE APPROACHES IN TACKLING
THE PROBLEMS OF TEACHING AND LEARNING
OF AGRICULTURAL SCIENCE IN SECONDARY SCHOOLS

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Abstract

This paper considered the problems of teaching and learning of Agricultural Science in secondary Schools. It examined issues around perception of Agricultural Science, incongruent policies and practices of teaching Agricultural Science, attitudes of students and teachers, school authorities towards Agricultural Science as a subject, and mode of delivery of the subject. The paper went ahead to present innovative strategies such as Young Farmers Clubs, Students Work Experience Scheme among others that can be used to improve the teaching and learning of Agricultural Science in the secondary schools.

Introduction

Agricultural science is one of the core subjects in the secondary school curriculum in Nigeria. Despite this fact, only few schools accord the subject parity of esteem or status with other subjects like Mathematics, Physics, Chemistry and Biology. Students and teachers in other subject areas see Agricultural Science as an unfortunate but obligatory chore, and accordingly has been given the barest minimum of time allocation. Although Agricultural Science was made a core subject in the Junior Secondary School Curriculum and a vocational subject at the Senior Secondary School curriculum under the 6-3-3-4 system of education, very little emphasis has been given to teacher's professional training in the subject, largely as a result of misguided belief that any one can teach Agricultural Science without the requisite professional

training. This cannot be so for any other subject like Mathematics, Physics, and Biology. Obviously, possession of training specifically in Agricultural Science should be the first priority in the minds of those saddled with the responsibility of employing Agricultural Science teachers. This will go a long way in ensuring high quality and maintaining high standard of teaching and learning of Agricultural Science in schools. Failure of which, the objective of studying Agricultural Science in post primary school, which among others include exposing students' to occupation and opportunities in the field of agriculture will be defeated. As stated by Agbulu (2004), majority of students openly reject Agricultural Science subject with the wrong belief that it is meant for their grand fathers in the villages. He further maintained that, this apathy towards Agricultural Science as a profession by the younger generation may continue with the advent of high technology where emphasis is being shifted to Computer and Information Technology Education as the new noble profession. What then is the way out of these problems? How can Agricultural Science subject be made more attractive to students in secondary schools? It is therefore the purpose of this paper to examine the demands for innovative approaches in the teaching and learning of Agricultural Science in secondary schools, the paper also identified appropriate innovative approaches in the teaching and learning of Agricultural Science in secondary schools.

The Nation and Agriculture 2

Prior to the advent of oil boom Agriculture was the corner stone of Nigerian economy (Ajayi, 2006), Nigeria was noted for high productive performance in term of food and cash crop for agro- allied industries. Agricultural practice at this time was purely subsistence farming and more people were living in the rural areas who were fully engaged in agricultural production. Two farmers according to Ajayi (2006) were enough to feed ten people sufficiently. Unfortunately, in the present day situation, ten farmers can not sufficiently provide food for eight people despite the fact that we have all the sophistication and the considerable increase in production, both by expanding the area under cultivation, improving yield from the cultivated area and by adopting intensive methods. We have failed to produce to meet the demand of our rapidly growing population. Agriculture has been relegated to the

bottom of the ladder and its former bloomy state has been changed into gloomy state. The falling trend in our agricultural production has been attributed to such factors as the growth of oil production, population explosion, scarcity of labour, land tenure system, natural factors, negative attitudes of the youths toward farming as a career, the rural urban migration of the young school leavers and a host of other factors (Okuneye, 1983, Hartmans, 1984). Clearly, change from an agricultural based economy to an oil economy contributed to reducing the value of agriculture. Summarily, government policies and implementation processes have not been effective in contributing to the lack of interest in the subject by both students and teachers.

The Need for a New Approach

For agriculture to actually regain its past glory and at the same time, reduce rural urban migration of the rural youths, it is necessary to develop agricultural programmes for the school boys and girls because the young people of today are the farmers of tomorrow. This can be achieved through practical emphasis on vocational agriculture in the school so that the students will be able to farm on their own and be self employed and by extension employers of labour. Agricultural Science education for youths should be one of the major goals of the secondary school programmes. The involvement of well organized youth organizations in agriculture will contribute or increase value for agriculture and enhance relationship between farmers and agricultural extension workers. The students who are mostly youths form about 40% of any community (Ajayi, 2006). Because of their literacy level and scientific knowledge acquired in secondary school Agriculture Science, they usually help in the formation of various agricultural clubs / co-operative societies and adoption of improved agricultural practices.

Teaching and Learning in School

Teaching and learning according to Ilari (2004) are two sides of the same coin; you can not have one side without the other. For any instruction to be effective learning must take place. Teaching according to Brown (1982) is an attempt to help some one acquire, or change some skills, attitude, knowledge, idea or appreciation. In other words the teachers' task is to create or influence desirable changes in behavior or in tendencies towards desirable or expected behavior in the students.

Teaching embraces many kinds of processes, behaviors and activities that no single theory can explain adequately. However the primary aim of teaching is to bring about the desired learning in the individual. Teaching can therefore be said to have taken place when there is an established evidence of desired change in the learner. Both the teacher and the learner have a part to play in the teaching learning process. There must be readiness on the part of the learner and there has to be responsibility, skill, attitude, and the mastery of the subject matter on the part of the teacher. If there is no readiness from the learner, there will be no successful teaching. The learner should indicate interest to learn as the teacher indicates interest to teach. When the student has not learned the teacher has not taught. Learning has also been defined as a change in behaviour or performance, which is as a result of experience and practice, and which makes individual face later situations differently (Denga, 2002). This, according to him is because not all changes in behaviour result in improvement, though such changes may also be styled learning.

Learning is not a mere product or acquisition of tangible skills or body of knowledge. It is a process involving the development of habits, attitude, perceptions, interest, preferences, social adjustment, acquisition, roles etc. Learning takes place in and outside the school environment, thus there must be opportunity to practice what has been learned in and outside the school, especially in practically oriented subject like Agricultural Science

5 Innovative Approaches in the Teaching and Learning of Agricultural Science.

Vocational agriculture is better taught through learning by -doing. It requires active involvement of all participants in exhibiting psycho-productive activities on plots of land or in laboratory and demonstration grounds (Agbulu, 2002).

There are various innovative approaches for dynamic teaching and successful learning of Agriculture Science in secondary schools which include the following:

a) Young Farmers Clubs Approach - Under this approach young people between the ages of 12-20 years come together to form an organization in which members are encouraged to learn about better

farming and home making. The members are under the supervision and guidance of the Agricultural Science teachers in collaboration with the agricultural extension personnel and local voluntary leaders.

The members of the club elect their officers, plan their own programmes, execute and monitor these programmes. They carry out relevant farming activities in the related areas. They also engage in useful programmes for youth welfare besides emphasizing agricultural production activities, for example, sports, drama, sell of labor, crafts, social activities etc. Through these activities; they disseminate information related to the new strategies of agricultural production. Above all, the results of the new practice will encourage others to adopt the strategies. This practice will also attracts and encourage more students to participate by translating what is learned to immediate profitable ends.

b) Participatory Approach - This approach involves the principle of learning that includes active involvement and interaction which is very relevant in the teaching/learning of Agricultural Science in the secondary schools. The principle of participatory approach recognizes the participation of students which is necessary for successful learning. Students learn by doing, so opportunities for practice are very crucial. Participation allows the students to internalize what was external to him. It breaks the adage of teacher know it all. Teachers listen to and learn from the students as well. They plan and implement farm activities together.

The principle involves feedback, reinforcement, practice and repetition (Ilori, 2004). Regarding feedback, learning is maintained or is increased when students are reinforced for their progress. Feedback which is an integral part of participatory, approach allows teachers, students and extension workers to learn lessons from their practices (Holly, 2000). Feedback informs one of progress or mistakes made and help remedy faulty learning. Regarding reinforcement, desirable behavior that is encouraged or rewarded is said to be strengthened, and such behaviors tend to be repeated. Reinforcement is a source of motivation for the students to continue his efforts at learning. Regarding practice and repetition, a student learns factual material best by being exposed again and again over a period of time. Practice and repetition should result in long term remembering.

A central value of participatory approach lies in the freedom to air and practice one's own views and learn from it as well as the views of others.

Participation allows for cross-fertilization of ideas and is open to critical analysis of situations. Thus students are more likely to question previous practices and present ones and have inputs into proposed strategies. In this way agriculture will be made more practical and stimulating for the students and teachers alike.

c) Students Work Experience Scheme This is popularly known as industrial attachment which is a mandatory component of training at higher levels in courses such as engineering, information technology, education etc. This can be borrowed and applied at elementary level in the teaching and learning of agriculture at the secondary school levels. Practice of this can be by way of planned excursions to specific farm projects owned by individuals and agencies for a period of three days to one week depending on the choice of each school. Students will have opportunity to see such farm projects orchards, fish ponds, pig farms, poultry, rice, Soya beans, etc in real life and interact with the local farmers freely. This again will further motivate and encourage the Agricultural Science students and others not offering agriculture to become more interested as they learn and observe practical ways to be self-employed in agriculture. The students' vision of agriculture may be enlarged beyond what is presently only within the school environment. Possible fall out from this approach may be students' initiative by starting farm projects at individual, group and community levels even before they are in the secondary school.

Argument against this approach on the ground that it is not provided for in the syllabus is not valid because inter-school sports/games are allowed to take place without undue interruption to the school calendar.

d) Use of Guidance/Counseling Services in the School Guidance services are formal programmes run by the school to make guidance operational and available to students. Counseling on the other hand is a personal and individual interview or interaction between the client experiencing a problem and a counselor who tries to offer help. The purpose of these services in school is to provide vocational career

guidance/counseling to the students to make them aware of the existence of different vocations including agriculture. Guidance and counseling help student to have better understanding of themselves and the world of work. Through the use of test and non test techniques students are better informed about their interest, aptitudes and abilities which enhance their informed choice of careers. The counselor exposes students to specific jobs and characteristics, requirements as well as opportunities available for such in the society.

This is done to assist them make appropriate choices of a vocation, for instance in agriculture, career options could be animal production, crop production and others. This helps students develop initial ideas of autonomy in the world of work now and here after. According to Denga (1983) vocational counseling/guidance services make the learners as far as possible become aware of the world of work with minimum problems. In trying to achieve this, the school counselor has to carry out some inter-related activities which include the following:

- i. Carry out test/observations on students to determine their areas of interest, aptitudes and abilities appropriate for specific careers.
- ii. Interact with students, parents and teachers to ensure support for students preferred career based on interest, aptitude and abilities.

Conclusion

Secondary school students will always be manipulated and they will definitely take action on the study of Agricultural Science based on sentiments as long as the teaching approaches remains static. However, if the strategies suggested which encourage reflective thinking and problem solving approaches are adopted in the teaching/learning of Agricultural Science, the students may be more willing to take a personal position on the choice of Agricultural Science as a vocation without any external influence.

Recommendations

In view of the above conclusion the school counsellor should considered the following recommendations which are aimed at helping students develop interest Agricultural Science.

- I. Help students overcome problems of how to study and other

- personal - social and academic factors that might hinder effective learning of Agricultural Science.
- ii. Advocate with the school authority and teachers on the need for students work experience in Agricultural Science. This should be in addition to encouraging the school authorities to provide adequate resource for practical agriculture in school.
 - iii. Convince the school authority to source for and support refresher courses for teachers of Agricultural Science subject in order to update their knowledge and skills for teaching.
 - iv. Invite local farmers and specialist to talk to students on relevance and prospects of careers in Agricultural Science.
 - v. Giving out occupational information to the students at the right time and seeing that they understand the relevance of the information.

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