

TITLE PAGE

**INTEGRATION OF COOPERATIVE EDUCATION INTO SENIOR SECONDARY SCHOOL
AGRICULTURAL SCIENCE CURRICULUM FOR ENHANCING STUDENTS'SKILL
ACQUISITION IN ANKPA EDUCATION ZONE OF
KOGI STATE.**

BY

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APPROVAL PAGE

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The work embodied in the project is original and has not been submitted in part or in full for any other degree of this or any other University.

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DEDICATION

This research work is dedicated to my beloved husband Mr. Yahaya Paul and my children, Ojonogecha, Akor, Anone, Okpanachi, Enyojo, and Omachonu.

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Abstract

This study focused on the integration of cooperative education into senior secondary schools agricultural science curriculum for enhancing students' skill acquisition in Ankpa Education Zone of Kogi state. Five research questions were developed in consonance with what the study sought to find out. Two null hypotheses were also formulated and tested at 0.05 level of significance. The study used descriptive survey research design. The target population for the study was 230 comprising of 215 teachers of agricultural science and 15 managers of Agro-allied industries. A random sampling technique was used to obtain a total of 120 agricultural science teachers for the study. A structured questionnaire of sixty one (61) items was used to elicit response from one hundred thirty five (135) respondents comprising of one hundred and twenty (120) agricultural science teachers and fifteen (15) managers of agro-allied industries within Ankpa Education zone. The instrument was face validated by three experts. The instrument was also tested for reliability with the correlation coefficient (r) of 0.83. The data were collected and analyzed using means and standard deviation to answer the research questions, and t-test statistics was used for testing the null hypotheses. The findings from the study indicated that 10 items were identified as needs for integrating co-operative education in the teaching of agriculture in secondary schools, 20 items were identified as entry-level skills need in Agriculture for skill acquisition, 12 agro-allied enterprises were identified, similarly, 9 challenges that teachers and students could face in integrating co-operative education were identified, finally, 10 solutions were proffered in the course of the challenges facing integrating co-operative education into agricultural science curriculum. The null hypotheses tested showed that there were no significant differences between the mean ratings of responses of agricultural science teachers and managers of agro-allied industries on the integration of cooperative education into senior secondary school agricultural science curriculum for enhancing students' skill acquisition in Ankpa Education Zone of Kogi state. It was recommended that government through the Ministry of Education should encourage partnership of schools and industries through frequent field trips, excursions to enhance skill acquisition, and that challenges facing teachers in integrating co-operative education programmes should be strictly adhered to by granting in-service training for teachers at regular periods of time to promote skill advancement.

CHAPTER ONE

INTRODUCTION

Background of the Study

Agricultural Science is one of the subjects taught at both junior and senior secondary schools in Nigeria. The secondary Education normally takes place after the primary education before the secondary school. The introduction of agricultural science into the secondary school curriculum would enable school leavers appreciate the dignity of labour and teach them to be self-reliant and productive. Secondly, as stated in agricultural science curriculum (2009) is that agricultural science is to prepare secondary school students for occupation in agriculture. It is expected that Nigeria being a basically agricultural country needed informed lower and middle-level manpower that could utilize scientific knowledge to improve the quality and quantity of agricultural outputs. Considering the high rate of unemployment in Nigeria, one wonders whether this objective is vigorously pursued as it should be in the secondary school curriculum. Quality out-puts of students are sometime governed by what a particular curriculum has.

The secondary school curriculum is defined as a deliberately and systematically planned attempt to change the behaviour of the young and the inexperienced and also to enable them to gain the insight that would enable them to build a better society (Offama, 2002). The author further stressed that curriculum is a continuous process of series of activities undertaken by the school to improve upon the life of the individual. Curriculum can also be taken to be the instrument through which schools seek to translate the hope of the society into concrete reality. The curriculum can be integrated to ensure greater intellectual curiosity, improved attitude towards schooling, enhancing problem solving skills and higher development. Integration of curriculum can as well play these roles.

Integrated curriculum as simply put is the process of making connections to real life or across disciplines. These connections may be skilled-based or knowledge-based. According to Pattern (2001), three approaches to integrating curriculum exist which are:

1. Multidisciplinary approach
2. Interdisciplinary approach
3. Transdisciplinary approach

I). Multidisciplinary approach focuses primarily on the disciplines. Teachers who use this approach organize standards from the disciplines around a theme. There are many different ways to create multidisciplinary curriculum and they tend to differ in the level of intensity of the integration effort. The different ways are:

- a) Interdisciplinary Approach: this has to do with teachers integrating sub disciplines within a subject area. For example, integrated science integrates the perspectives of sub disciplines such as Biology, Chemistry, Physics and space science. Through this integration, teachers expect students to understand the connections between the different subdisciplines and their relationship to real life. The programme reports a positive impact on achievement for students who participate (<http://www.ccet.ua.edu>). Another is fusion.
- b) Fusion: In this multidisciplinary approach, teachers fuse skills, knowledge, or even attitude into the regular school curriculum. Fusion also involves basic skills. Many schools emphasize positive work habits in each subject area. Literacy across the curriculum is an example of fusion. For example, students practiced skills related to developing supported opinions on disposal of hazardous wastes in science (Pattern, 2001). Another example of multidisciplinary approach is service learning.
- c) Service learning of multidisciplinary approach: This involves community projects that occur during class time. Glenn (2001) found out that more than 80% of the schools that integrate service learning into classroom report on improve in grade point average of participating students. According to the author, such programmes foster a lifelong commitment to civic participation, sharpening people's skills and prepare students for the work place.

II). Interdisciplinary integration: In this approach is to integrate teachers to organize the curriculum around common learning across disciplines. They chunk together the common learning embedded in the disciplines to emphasize interdisciplinary skills and concepts. The last approach is transdisciplinary integration.

III). Transdisciplinary integration approach has to do with teachers organizing curriculum around students' questions and concerns. Students develop life skills as they apply interdisciplinary and disciplinary skills in real-life content (Glenn, 2001). All these could be achieved through curriculum integration.

When the curriculum is integrated, the focus should be on designing a curriculum that is relevant, standards based and meaningful for students. At the same time, the curriculum should challenge students to solve real world problems. Barab and Landa (1997) indicated that when students focus on problem solving, motivation and learning increased. Also, the senior secondary school agricultural curriculum is structured around three major concepts namely; production, protection and economics while topics relating to these concepts were organized into six units namely; basic concepts, crop production, Animal production, Agricultural Economics, and Extension in order to prepare students for future occupation in agriculture. Resources and infrastructures are needed to achieve these.

In preparing students for occupation in agriculture, resources and infrastructures such as library, laboratory, land, tools, equipments, and functional livestock should be provided. If schools are not able to secure some of these, they should liaise with any agribusiness company around and develop training agreement with them so that students could come once or twice every week to learn on the job in these companies. This is a type of co-operative occupational education which is done during school session.

Integrating co-operative education into agricultural science curriculum is very important for effective preparation of students for world of work. According to Ramsey (2010) co-operative education is a learning programme of students that help in expanding their interest and exploring

their carrier options by integrating classroom learning with practical experiences in the work place. The author further stressed that students are better prepared to make transition from high school to work. Raw (2013) stated that co-operative education experiences provide the opportunity to practice employability skills such as time management, strengthen independence, self confidence practice, and to explore vocational goals. Co-operative education is a real life learning that extends beyond the classroom. Through our co-operative education programme students alternate terms in classroom with paid work terms in position related to their field of study. This means that co-operative education is the arrangement between school and employers which enable students to receive part time vocational instruction in the school and on-the-job training through part time employment. On-the-job training is an importance of co-operative education.

One of the importance of this education is the on-the-job training. It offers the students learning at the training station which is appropriate to the occupational objectives of the students related to relevant existing carrier opportunities and is sufficient duration to enable the students developing better employable skills. Moreover, it enables the students to work in the right environment agreeing with the vocational theory which states that the training environment should be a replica of the environment the student is going to work after graduation.

Writing on the need for co-operative education, Ogbazi (1985) stated that as long as the teaching of agriculture in Nigeria is not interdependently integrated with regular supervised part time employment in work related to in-school instructions, the Nigeria schools will continue to produce students who are not adequately prepared for employment in occupations that are in harmony with their carrier objectives. Hence co-operative education is one of the strategies designed to help prepare our students realistically for employment in agriculture. Experts believe that the teachers should help the students to plan experiences in business, on the farm, at home, in agricultural establishments, at schools, or combination of the situations that is best for each student. This help to prepare the students for the world of work.

According to Olaitan (1985), emphasize that the type of education Nigeria youths need today is the type of education that would give them meaningful orientation towards preparation for the world of work, away from the present system of education in which the student cannot put the knowledge gained in the school into practice. This is because the greater percentages of youths are ill-prepared and therefore ill-equipped and therefore unproductive. However, since the teaching of agricultural science is limited to the classroom instruction, limited supply of input with no experiences through co-operative education, secondary school agricultural students graduates without basic entry-level skills in agricultural occupation. Effective teaching has this role to play.

Effective teaching of agricultural science is expected to provide students with enough background in knowledge and skills. Agricultural science does not include on-farm production of crops and livestock enterprises but also many non-farm occupations that require skills and knowledge in allied subjects such as marketing and processing of agricultural products, and servicing the agricultural industries. Skills according to Rbinson (2000) is any psychomotor, manipulative and technical tasks needed for performance in many given occupation which could be acquired through observation training and learning. In line with the above explanation, one can deduce that skills are human capability of performing technical work very well with dexterity and competence. In the same way, Osinem and Uwoji (2005) referred to skills as the ability of a person to perform an act expertly. It is that expertness, practice and ability or proficiency displayed in the performance of a task. The authors stressed that skills involved the acquisition of performance capability through repetitive performance of an operation. Therefore, there is a need to acquire skills.

Skill acquisition is the process of gaining effective and ready knowledge in developing ones aptitude and ability in a particular field. Skill acquisition is one among other policies embarked upon in Nigeria with the sole aim to alleviate poverty, youth restiveness, sophisticated crime and corruption rate, rural and urban drift, unemployment and other social vices. Skill acquisition in Nigeria secondary education level is meant to equip our students more with practical

and less theoretical knowledge on income generating skills. Mbanis (2008) noted that when youths are given adequate training in skills, they can be self employed after schooling; hence they become active partners in both community and national development.

The school in addition to providing training in knowledge and also needs to provide training in skills and this can be achieved through integration of co-operative education into the agricultural science curriculum. The school in general and the teacher of agriculture can go into agreement with government establishments such as Agricultural Development Project (ADP), Agricultural Research Institutes and Private agro-allied industries located in the community. These government and private programmes apart from helping to increase food production can serve as valuable resource centres for teaching agricultural science in secondary schools. Secondly, industrial facilities provide real life experiences on various topics in agricultural science curriculum. The industrial staff can be used as resource persons in the school and the agro-allied industrial workers can provide teacher of Agriculture Avenue for orientation on latest agricultural production methods and techniques. Co-operative education is yet to gain its rightful status.

It is unfortunate that co-operative education had not assumed its rightful status in Kogi state and Ankpa Education Zone in particular due to some logistic problems. This method of instruction if integrated into the agricultural science curriculum in Kogi State secondary schools will go a long way to reduce the present emphasize on theoretical experiences with abstract application and help to create awareness and interest in students, increase their entry-level skills for agricultural occupations.

Statement of the Problem

In Ankpa education zone of Kogi state, the teaching of agricultural science is faced with a lot of problems that hinder the realization of agricultural science objectives in the secondary schools. One of the problems is curriculum related. Egonu (1997) opined that the problem facing agricultural education is how to develop suitable curriculum that are relevant to the needs of the students. Ankpa education zone of Kogi state have secondary school graduates who lack

occupational skills and on the job experiences. This could be attributed to poor curriculum implementation and evaluation in the secondary schools has not been realized as expected especially in the area of industrial training and production. Olaitan (1993) attributed low esteem of agriculture to the school curriculum and prescribed examination which tend to be theoretical with emphasize mainly on learning.

Another problem facing the teaching and learning of agriculture in Ankpa education zone is inadequate facilities and equipments exist are obsolete. Mkpa (1990) reported that even when instructional materials are available in schools; most teachers do not use them in teaching. This led to more emphasis on theory than practical agriculture with the result that most schools complete their secondary school agricultural syllabus in the classroom only and the aim is to pass the examination rather than skill acquisition.

The researcher equally observed that lack of professional competency by teacher of agriculture in organization and administration in some schools also create problems in the teaching and learning of agricultural science in some schools, teachers of Biology are made to teach agricultural science despite the fact that such teachers are not qualified to teach agricultural science. This can be attributed to shortage of agricultural teachers. Olaitan (1998) in his opinion stated that the acute shortage of teachers of agriculture are as a result of low and irregular payment of salaries therefore make those teachers to teach agriculture at various schools move for greener pasture where they can earn more. The result is that most secondary schools graduates of agricultural science in Ankpa education zone in Kogi state could not acquire the basic skills needed for agricultural occupation and majority of the graduates are jobless or unemployed which could be attributed to various vices in the society such as cultism, armed robbery among others. Most of the unemployed secondary school graduates in the state are found roaming the streets of towns or cities in search of non-existing jobs in some sectors of the economy. This implies that if the students were equipped with necessary work-skills, the secondary school graduates could contribute positively to increase in food production and thereby becoming self reliant and their

nuisance in the town and cities reduced. Therefore, the study seeks to bridge these gaps by integrating co-operative education into senior secondary agricultural science curriculum for enhancing work skills acquisition.

Purpose of the Study

The overall purpose of this study was to integrate cooperative education into senior secondary school agricultural science curriculum for enhancing student skill acquisition. Specifically, the study sought to:-

1. determine the needs for integrating cooperative education into senior secondary school curriculum for enhancing skill acquisition.
2. identify entry-level skills required for various occupations in agriculture
3. identify the agro-based enterprises that the school could partner with for enhancing students skill acquisition
4. find out challenges teachers and students will face in integrating co-operative education in the secondary schools
5. identify the strategies for ameliorating the identified challenges of co-operative education

Significance of the Study

The findings of this study are of benefit to students, teachers of agricultural science, curriculum planners, and agro-allied industries.

The findings on the needs of integrating cooperating education programme into senior secondary school agricultural science curriculum if adopted will be of benefit secondary school graduates by exposing the students to other areas which the school lack facilities and thereby gaining experiences that would help develop abilities in solving real farming problems at their own level.

The findings of the needs for integrating co-operative education into senior secondary school agricultural curriculum will also benefit the teachers of agricultural science if adopted by

providing the teachers with useful information that would help them to improve their method of teaching.

The findings will offer information on the entry-level skills required by students. The students will gain these entry-level skills to prepare them for occupation in agriculture and also providing information on the various skills in agricultural science where they can be trained and make a living after graduation.

The findings of this study will provide information on advertisement. The agro-allied industries will benefit from this study by creating avenue through which the industries can advertise their products.

The findings on the challenges teachers and students face in integrating co-operative education into senior secondary agricultural science curriculum if adopted will benefit the curriculum planners as it will provide necessary information that will help them take measures to rectify the challenges.

Research Questions

The following research questions were developed to guide the study.

1. What are the needs for integrating co-operative education into the senior secondary agriculture curriculum in Ankpa education zone of Kogi state?
2. What are the entry-level skills required for various occupations in agriculture?
3. What are the Agro-allied enterprises the school could partner with for enhancing skill acquisition in students in Ankpa education zone of Kogi state?
4. What are the challenges teachers and students will face in the integrating co-operative education into secondary schools agricultural curriculum in Ankpa education zone of Kogi state?
5. What are the strategies for ameliorating the identified challenges of integrating co-operative education into agricultural science curriculum in Ankpa education zone of Kogi state?

Hypotheses

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

- i. There is no significant difference in the mean rating of agricultural science teachers and managers of agro-based industries on the entry-level skill of various agricultural occupation
- ii. There is no significant difference in the mean rating of agricultural science teachers and managers of agro-based industries on the challenges teachers and students will face in integrating co-operative education into agricultural science curriculum in Ankpa education zone of Kogi state.

Scope of the Study

The study is focused on integration of co-operative education programme in agricultural science curriculum in Ankpa education zone of Kogi state for enhancing skill acquisition among senior secondary school graduates. The study also identified the need for co-operative education in Ankpa education zone of Kogi state, identify agro-based industries the school could partner with for enhancing skill acquisition in Ankpa education zone of Kogi state, find out challenges the teachers and students will face in integrating co-operative education into agricultural science curriculum in secondary schools in Ankpa education zone of Kogi state, and identify strategies for ameliorating the identified challenges of integrating co-operative education into agricultural science curriculum in Ankpa education zone of Kogi state.

CHAPTER TWO

LITERATURE REVIEW

The literature for this work is reviewed under the following sub-headings:-

Conceptual framework:

- Agricultural science programmes in secondary school.
- Concept of agriculture and its importance to the development of Nigerian students
- Entry level skills needed in agriculture
- Concept of Cooperative education
- Needs for integrating cooperative education programme into secondary school curriculum.
- Challenges faced in integrating co-operative education into secondary schools curriculum.
- Suggestions for ameliorating the identified challenges
- Agro-based enterprises school could partner with.

Theoretical framework:

- Experiential learning theory.

Related Empirical Studies**Summary of Literature Review****Conceptual Frame Work:****Agricultural science programme in secondary schools**

Agriculture is a broad spectrum industry with a delivery of carrier and job opportunities. Only a small percentage of those working in agricultural industries are involved in production agriculture. The rest works in agribusiness, communication, processing and distributions that serve the farmers or total agricultural industries.

Based upon the above information, instructional programmes have been clustered to deliver instructions that will provide students with wide range of opportunities for entry level employment or further education (National¹ Policy on Education, 2004). New and emerging occupations in bio-technology, micro-technology, electronic and satellite technology in agricultural mechanics, management will necessitate a sound foundation in agriculture at the secondary level. As these new occupational area and others develop labour needs are demonstrated, additional programme and course description will develop.

There are five carriers or pathways in agricultural education as stated by Harley (2014) are:

1. Agricultural Business and Management
2. Agricultural mechanics and technology
3. Natural resources conservation and management
4. Horticultural services operation and management
5. Agricultural science

The secondary school agricultural science programme has the potential to improve the manpower needs of the country. According to Olaitan (1984), agriculture is now a profession having many areas which include; crop production, crop protection, horticulture, animal production, food processing and storage, agricultural marketing, soil science, agricultural engineering and mechanics, agricultural economics and extension, forestry, fisheries and wild life conservation. Therefore, the graduates of senior secondary school agricultural science have many job opportunities. They are either self employed or employed in government farms, private farms, plantations, Research stations, Civil service, Banks, Agro-based industries, and Ranches.

Agriculture and its Importance to the Development of Nigerian Students.

The aim of agriculture is to train young people for proficiency in agricultural occupation. Olaitan (1980) emphasizes that agricultural education will provide young people with sound knowledge of the basic principle and motivations with which they can translate this knowledge into real improvements in agricultural productivity.

Agriculture which is the backbone of most nations of the world is taught in Nigerian secondary schools as both pre-vocational subject at junior secondary level and vocational subject at senior secondary school level. According to Ukeje (1974) education is a lifelong process of imparting worthwhile knowledge, skills, value and attitude to individual for a change in behaviour. Agricultural science education is one the vocational programmed taught in secondary schools and the purpose of agricultural science education, according to Okorie (2001), is to educate present and prospective farmers for improved proficiency in farming.

The importance of agriculture should be stressed and students taught how to grow crops, develop positive attitude to agriculture and realizing Okorie (1993) that agriculture is the most important practical arts course in Nigeria:

The secondary school vocational agricultural education programme has the potential to improve the manpower needs of the country. Olaitan (1984), said that agriculture is now a profession having many areas which include crop production, crop protection horticulture, animal production, food processing and storage; soil management, amongst other. He further stated that graduates of senior secondary agricultural education have many job or career opportunities or can be self employed. Olaitan (1978) also stated that the major goals of vocational Agricultural education include: Provision of trained manpower for employment, self-employed and acquisition of technical knowledge and vocational skills.

The roles of agricultural education towards the realization of set goals as enumerated by Egbule (2002) are as follows:

- i. Producing trained personnel involved in extension services for translating research findings into field trials and commercialization.
- ii. Providing young people with sound skills and creative abilities with which they can translate into real agricultural production.
- iii. Providing training for specialized occupation in production such as plant and animals breeding, plants and animal pathology among others.
- iv. Helping students to appreciate positive values such as good feeding habits, conservation of our natural resources.
- v. Equipping students with knowledge and facts about Nigeria agricultural potentials, technology and environment.
- vi. Developing problem solving and safe practices on students and others
- vii. Preparing students for lifelong learning in agriculture.

In a similar way, Obi (2005) stated that the delivery of vocational agriculture at the secondary school level should not be handled as a science per se but rather as a vocational subject for acquisition of practical agriculture skills for meaningful living. Olaitan (1997) maintained that the basic goal of our national policy on education is to make education both functional and utilitarian. Ikeoji (1999) reported that vocational education is born out of the need for the system to make its products useful to them.

In the same way, Osinem (2008) stated that vocational agriculture provides opportunity for those who have abilities and interests inclined to agriculture to be prepared to enter the profession. He further stated that the individual may have the chance to develop in accordance with his or her ability and prepare to render to the society in which he or she belongs the particular service within the limit of his or her capabilities.

Entry Level Skill Needs in Agriculture

Entry level skill is the basic skills an individual needs to have gained before gaining employment. Richens (1999) defined entry-level skills as educational programme that provide not only job skills but also learning opportunities involving problem solving and collaboration. In the same vein, Doolittle and Camp (1999) defined entry-level skills as industry or discipline specific workplace skills necessary for entry level employment, including technical skills. This background is the foundation of the purpose of secondary school.

The purpose of secondary school agricultural science as stated in the agricultural science curriculum (2009) is to:

1. Stimulate and sustain students' interest in agriculture
2. Enable students acquire useful knowledge and practical skills in agriculture
3. Prepare students for occupations in agriculture
4. Prepare students for further studies in agriculture

The purpose of secondary Agricultural Science education is to:-

- a. Preparing people to enter and advance in agricultural occupations.

b. Job creation and entrepreneurship

c. Agricultural literacy (Phipps, 2008). The delivery of agriculture in the secondary school is facilitated by offering a comprehensive programme model that emphasizes experiential learning, including classroom and laboratory instruction, youth development through student participation in supervised agricultural experience (Talbert, 2007).

According to Pratzner (1998) vocational education is a paradigm that comprised six components. In his model, the most important subject matters should include needs and interest of the labour markets in their work, the skill required to work in the agricultural industry should inform the curriculum taught in secondary agricultural science education. Regarding the purpose of preparing students for useful employment, the acquisition of specific skills must be considered. Schunk (2000) differentiated between specific and general skills. The author stated that specific skills are those abilities that apply to only certain disciplines, and but, general skills are applicable in a wide variety of settings.

The science of agriculture does not only includes the on-farm productions of crops and livestock enterprises but also many non-farm occupations that requires skills and knowledge of allied subjects such as marketing and processing of agricultural products and servicing the agricultural industries. Olaitan (1984) stated that agricultural science is a blend of many of the basic pure and applied sciences, example, Botany, Zoology, chemistry, Genetics, Geography among others. Agricultural science is also the principles or application of scientific principles or knowledge to growing of crops and rearing of animals, for the production of food and fibre for the use of man (Olaitan, 1984)

Agricultural programme in secondary schools is expected to train youths for proficiency in agricultural occupation. Okorie (2001) lamented that vocational agricultural programmes at the secondary school level have not been fully developed. Most secondary school offering agricultural science in Nigeria lack necessary teaching facilities. Ajala (1984) noted the effect of this is that

most senior secondary agricultural graduates are half-baked and invariably most of them are jobless.

The school and the teacher of agriculture can correct this situation by going into agreement with the government establishment (examples research Institutes and Private agro-based business located in the community. This type of agreement is known as co-operative education programme. Olaitan (1999) stated that it is a training outfit which purposely integrates training into productive and relevant work, and therefore remains a valuable link between training and production work.

Co-operative education programmes, according to Talbeth, vanghn, Croom & Lee (2007), are designed to provide opportunities for the hands on-learning of skills and practices that lead to successful personal growth and future employment in agricultural career. In the same way, Osinem (2008) stated that for Nigeria to be able to properly harness and economically utilize her mineral and agricultural resources, emphasis must be placed on the acquisition of skills by her workforce. The author further stressed that the concern of agricultural education is the teaching and learning of skill which will make for proficiency in an agricultural occupation. Through the process of learning, an individual's behaviour is changed. The experiences the learner engaged in are very vital as they enable the students to develop adequate manipulative skills for agricultural productivity which will consequently make for better living in the society. The author further stated that, with the rapid increase in the world population, there is need to increase production of crops and livestock and this is achievable by acquisition of manipulative skills which prepare students for various occupations and opportunities in agriculture. The author identified the following as the entry level skills needed by agricultural students:

- i. Skills in poultry production here the students are expected to acquire the skill in
 - a. Identifying poultry birds
 - b. Select birds i layer or broiler
 - c. Determine floor space needed
 - d. Determine feeder space and water space needed

- e. Select bedding materials
 - f. Adjust ventilation in poultry
 - g. Formulate balance ration
 - h. Disinfect poultry house
 - i. Select and administer medication
 - j. Control rodents
 - k. Diagnose disease
 - l. De-worm birds among others.
- ii. Skills in Pest Control. That is the student's ability to:
- a. Identify pests
 - b. Read and interpret a pesticides label
 - c. Calibrate a sprayer
 - d. Apply pesticides using sprayer
 - e. Select sprayer nozzles
 - f. Use personal safety equipment while spraying
 - g. Scout crops for pest infestation
 - h. Identify the life cycle of some insects pests
- iii. Skills in Crop Production
- The students needs skill in crop production to have the ability to
- a. Prepare land suitable for the desired crop.
 - b. Carry out seed test.
 - c. Carry out seed selection
 - d. Sort and grade seeds correctly
 - e. Dress seeds/seedling with right chemical and quantities before planting
 - f. Test the viability of seeds before planting.
 - g. Rise seedlings in nursery

- h. Transplant seedlings
 - i. Identify weeds
 - j. Control weeds using chemical and manual labour among others.
- iv. Skills in Rabbit Productions. This involves the ability to:
 - a. Select a breed best for suited purpose of production
 - b. Select and/or purchase breeding stock.
 - c. Construction of hutches
 - d. Install feeders and place guard over feeders.
 - e. Install nesting box in hutch
 - f. Protect edges of nesting box from chewing.
 - g. Select proper bedding for nest box
 - h. Identify rabbits with a tattor on ear tags.
 - i. Handle rabbits correctly
 - j. Wean litters at proper age
 - k. Detect oestrus
 - l. Select site for artificial insemination from among others.
- v. Skills in Land and Soil Management. This involves the ability to:
 - a. Write legal description for land
 - b. Take a soil sample
 - c. Read and interpreter a soil test report
 - d. Develop real records of fertilizer applied.
 - e. Evaluate weed control for various soil types
 - f. Calculate field hectares etc.
- vi. Skills in Home/or farm Stead. This involves the ability to:
 - a. Plan and plant a wind break
 - b. Select and plant shade trees

- c. Select and plant ornamentals flower beds
 - d. Prune trees and shrubs
 - e. Fertilize lawn
 - f. Fertilize garden
 - g. Fertilize trees
 - h. Select proper seed for lawn
 - i. seed or reseed a lawn control weeds
 - j. control weeds
 - k. clean up junk a round farmstead gravel lane
 - l. maintain and/or repair drive ways
 - m. pave new side walk
 - n. Paint fences.
- vii. Skills in Agric Business. These include:
- Ability to prepare a sale ticket
 - Calculate sale tax
 - Post account receivable
 - Select implement an inventory system
 - Analyze inventory
 - Calculate depreciation
 - Operate computer
 - Prepare a profit/loss statement
 - Prepare agreements and contracts
 - Prepare business income tax return.
 - Prepare purchase order among others.
- viii. ICT Skills needed in Agriculture.
- This involve ability to:-

- Apply Bloom's digital taxonomy in selecting and stating appropriate learning/behavioural outcome
- Identify and select computer hardware
- Follow suggested procedures to them on a computer
- Identify keys and functions of keyboard.
- Identify keys
- Use and care for computer disks
- Use selected software
- Use utility (format, Copy etc.) command
- Adopt computerized supervised agricultural experience record. Among others.

According to Phipps (1980) the major areas to be included in the teaching of manipulative skill are as follows.

- Agricultural mechanics
- Livestock production
- Crop production
- Agricultural processing
- Agricultural sales and services
- Farmstead improvement
- Horticulture/Ornamental agriculture
- Forest management

The author further stated the specific activities of each of these major areas that can be integrated into the co-operative education programmes in secondary schools. The following according to Phipps (1980) are some of the specific activities, which are commonly included in co-operative education programme in agriculture.

1. **Agricultural Mechanics**

Activities of agricultural mechanic include the selection, repair and maintenance of agricultural equipments, design and construction of simple agricultural equipments and structure, observation of site practices, skills to be developed will include:

- Identification of tools
- Identification of tool fitting
- Basic carpentry farm structure plumbing, concrete masonry,
- Machine operation.
- Students need to employ proper safety practices
- Keep records of agriculture mechanic skills.

Livestock Production

The aim of this skill is to encourage the use of good management practices efficiently. It also include students being able to take active part in

- Either diversified inventory or specialized animal production such as snail rearing, grass cutter and bee production.
- Keeping records of skills as they are learnt and put into practice.
- Accumulating inventory of livestock feed, supplies a equipment
- Making use of modern equipment to assist in making management easier.

Agricultural Processing

The activities involved here are as follows

- Feed manufacturing,
- Meat cutting
- Fertilizer formulation,
- Grain processing
- Packaging and marketing of agricultural products

Forest Management

The purpose of this forest management is to encourage members to adopt and use forest practice to increase productivity and value of forest such as thinning, weeding, planting, and replanting, harvesting and Christmas tree planting.

Agricultural Sales and Services

This has to do with job entry level skill in feed, seeds, fertilizer, agricultural chemicals, machinery and other operation and other farm stores, crop spraying equipment operation and maintenance small animals and pet services farm record keeping and analysis.

Horticulture, Ornamentals, Agriculture of Farmstead improvement

Here the students receive practical experience on principle and practices of production of flowers and related plant materials used for ornamental purposes, together with arranging, packaging and marketing of these products. The skills for the successful production and marketing of fruits and vegetables are also learnt here. Landscaping, beautification of homes and protecting the farmsteads are some of the skills learnt. As stated in *file:///c:/Documents and setting/entry level course* is for young people who are interested in working in agriculture. It is the basic practical skills and knowledge they need to either gain employment or progress for further training. The following are some of the skills needed by the students.

- Bed down farm animals
- Feed farm animals
- Recognize farm animals
- Recognize farm animal house
- Move farm animals.

The National Research Councils in the American Association for Agricultural Education (2001) called on secondary agricultural education to shift its scope and purpose including students supervised agricultural experience in Land laboratories, agricultural mechanics laboratories, green houses, nurseries and other facilities. For example, the agricultural industries offers 52,000 job opportunities annually, including sales and marketing, special veterinary medicine, food safety,

landscape, nutrition services among others (Goeker, Gilmore, Smith & Smeth, American Association of Agricultural Education (2001).

Concept of Cooperative Education

Cooperative education is a real life experience in the teaching of students. Osinem (2008) defined co-operative education as an agreement between two resource persons, namely an educational institutions and industry, to assist learners develop functional skills for the world of work. It is a programme outfit, which purposely integrates training into productive and relevant work and therefore remains a valuable link between training and productive work. The purpose of the programme is to give opportunity of matching theoretical learning with practice. It is also aimed at ensuring that instructions carried out in the educational institutions are put into practice or have practical guidance obtainable in the industry.

In the same vein, Alabi (2006) said, that co-operative programme is designed to enable students acquire practical skills and knowledge to enable them fit adequately into the world of work. That is, cooperative education programme is an integrated learning model consisting of academic and experiential learning components which emphasize placement of students in real work environment and experiential learning curriculum.

Cooperative education is the arrangement which enables students to receive part time vocational instruction in the school and on-the-job training through part-time employment (Evans and Herr in Hall, 1999). One of the major advantages of this type of education is the on-the-job training it offers the student/learner at the training station which is appropriate to the occupational objectives of the student related to relevant existing career opportunities and is of sufficient duration to enable the students to develop better employment skills. Moreover, it enables him to work in the right environment agreeing with the vocational theory which says that the training environment should be a replica of environment the student is going to work after schooling. Hence co-operative education is one of the strategies designed to help prepare our students realistically for employment in agriculture.

Co-operative Education Manual (2005) defined co-operative education is a programme that formally integrates a student's academic study with work experience with employers. The usual plan is for the student to alternate periods of experience in appropriate field of business, agriculture, industrial and social services and the professions in accordance with the following criteria.

That each work situation is developed and/or approved by the school as situation learning statutory, the co-operative students receive remuneration for the work performed, cooperative student engage in productive work rather than observation among others.

This approach to education relies upon a three-way partnership; the student, the institution and the employer. Success depends on the cooperative effort of each party. Furthermore, Osinem (2010) defined co-operative education as a general term used to describe various types of cooperative planned programmes specifically occupations in proportion to the distribution of employment and career opportunities. Stadt and Gooch in Osinem & Ugo (2010) described cooperative occupational education as a programme of occupational education for persons who, through co-operative arrangement between the school and employers, received instruction by alternation of study in school with a job in any occupational field, but these two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and to his employability. They further explained that work periods and school attendance may be in alternate half days, full-days, weeks or other periods of time in fulfilling the co-operative work-study programme.

From the above context, according to Osinem and Ugo (2010) three forms of cooperative occupational education can be distinguished namely, cooperative vocational education, cooperative work training, and cooperative work study programme.

Co-operative vocational education is an instructional plan which combines learning experiences gained through regularly scheduled supervised employment in the community and vocationally oriented in school instruction. The employing community serves as a laboratory

where the students have opportunity to apply the principles and practices they have learned in school in the changing world of work.

Co-operative Work Training is a programme design that provides students with mature experience through employment that will help them become productive, responsible individuals. While co-operative Work-Study programme (CWSP) is designed to provide financial assistance, through part-time employment to students who have been accepted for full-time enrolment in vocational training. The part-time employment is based on the financial need of the student and is not necessary related to his career objective.

Need for Integration of Co-operative Education Programmes.

The theory that education is likely to be more effective if it gives students opportunity to practice what they are trying to learn applied not only to education for work. Mathematics, for example is best learned by students constructing their own proof and demonstrations (Schtionet, 1985). The common sense of learning by doing has been upheld by philosophers (whitehead, 1929) and more recently cognitive scientists (Resnick, 1987). This argument is linked to a view of education as preparation for active problem solving and participation in the world of work. Although learning by doing has most often been a feature of vocational and professional education, it is now argued that all knowledge including the sciences and humanities, is created, defined and transmitted by communities of practice (Lave and Wenge, 1991). One plausible strategy for achieving this would be to create more explicit linkages between what students are doing in school and in their after-school jobs (Pauly 1995) Jobs might be chosen because they are related to what students are studying. Students's assignment on the job could be designed to apply and extend concepts taught in the classroom, and the effect on student's learning could be monitored jointly by teachers and job supervisors. In situation like these students's part-time jobs might be converted into educational experiences that would enhance rather than undermine academic achievement. At the same time, more careful attention to students's acquisition of productive skill and knowledge could also increase the positive effect of students's work on

subsequent employment and earning. In support of the above view Ogbazi (1985) stated that ñas long as the teaching of agriculture is not interdependently integrated with regular supervised part-time employment in work related to in-school instruction the Nigeria school will continue to produce students who are not adequately prepared for employment in occupations that are in harmony with their career objectives. Hence co-operative education is one of the strategies design to help prepare our student for employment in agriculture.

The National policy on education (2004) equally placed priority on the programme of vocationalization of education. It emphasized that a well planned, systematic and rigorously implemented vocational education will create a distinct stream to prepare student for identified occupation encompassing several areas of activities. The primary aim of vocational courses (agriculture) was to cut across several occupational fields and prepare students with employable skills in organized sectors and self employment. This aim of vocational education can properly be achieved through the integration of co-operative education in the teaching of agriculture.

Co-operative education and experiential learning programme of students is an excellent way of expanding their career options by integrating classroom learning with practical experience in the workplace. Students are better prepared to make transition from school to workplace, apprenticeship programme, college and for university.

Co-operative education experience, Raw (2003) provide the opportunity to practice essential employable skills such as time management, strengthen independence and self-confident and to practice and explore vocational goals. Co-operative education is an exciting alternative to traditional classroom learning. Those in the programme actually leave double life as students and employees, benefiting by on-the job achievement of classroom goals and their direct application in the work setting.

There is a ñskills gapò occurring in the society which is a disconnection between the demand of employment and the level of educational preparation of graduate (Andrew and Wooten, 2004). In line with this, Evers (1998) stated that the skills most in demand are least in supply.

Brown, Heaketh and Williams (2003) noted that employers regularly state that graduates are not prepared for the workforces and as a result hiring college graduate becomes a risky venture for employers.

The need to improve the employability skills of the workforce has been an issue across all phases of education. Steps should be taken to define and address key areas needed for improvement specifically at the secondary school level through co-operatives education. Kivenen and Silvennoien (2002) suggested that the relationship between formal education and industry is producing skills needed in the workforce and that these relations should be strengthened. Candy and Crebert (1991) recognized that most learning experiences actually take place outside the educational setting. Therefore, they suggested that education should partner through off campus cooperative education where students enter the workforce for one year of their educational programme in an effort to learn the skills needed in industry to be successful upon graduation.

Co-operative education is an educational strategies which promotes continuous learning through the integration of classroom and applied work based learning and its equivalence have educational value, providing the opportunity for students to develop both disciplines specific skills and general education knowledge.

The benefits of co-operative education to the students, community, employers and educational system as summarized by Osimen (2010) are as follows:

- Learning by doing gives student an opportunity to bridge the gap between theory and practice.
- Supervisors learn job analysis and educational principles and practice which are essential to on-the-job training of all workers.
- A pool of skilled and experienced manpower is developed.
- Influence curriculum development to meet industrial requirement among others.

Challenges of cooperative Education

The future of cooperative education both in Africa and globally is bright as cooperative are being appreciated worldwide. There is increasing renewed Vigor in the promotion of cooperative education as viable and sustainable institution for development. Thus, there are potentials for cooperative education in Nigeria but also some challenges.

The challenges of cooperative education will be discussed under the following sub-headings.

- i. Shortage of financial resources.
- ii. Insufficient educational facilities.
- iii. Teachers's qualification.
- iv. Curriculum related problems.

Shortage of financial resources is one of the major problems of cooperative education. Birchall (1997) stated that budget allocation from the government limits their operations, initiation of development, projects and research. Osinem (2008) in the same way identified inadequate funding as one of the challenges facing the teaching of agriculture. He stated that planning, implementation and coordination of agricultural education programme for maximum result requires adequate funding. With inadequate funding as in the case of Nigeria, it will be difficult to procure enough equipment for experiential programme, train personnel and finance research. Olaitan (1986) also stated that, the decline of vocational education budget can be seen in the irregular payment of teachers's salaries and shortage of infrastructures in school. Aleisa & Alabdulahfez (2008) in a similar way identified cooperative challenges as supervision and logistical challenge. They stated that student supervision and follow-up activities are resource intensive and are required throughout the term. They further stated that teachers have teaching duties in addition to cooperative duties, this makes it difficult to balance teaching and supervision. Logistical challenges as they further explained are the problems of transportation to and from the workplace by both the teacher and the students, lack of compensation for the use of private

transports, lack of financial remuneration for rewards of trainees and most of the companies do not provide salaries for trainees among others.

Insufficient educational spaces are other serious problem of cooperative education. Alfen & Gamble (2007) believed that lack of facilities, lack of participation and cooperation are problems of agricultural science education. Warner & Washburn (2009) in a similar way indicated that "Not enough equipment for hands on activities, inadequate facilities to support classroom instruction is the problems facing cooperative education.

Teacher's qualification is another problem of cooperative education. Lack of basic business and management skills, lack of trained staff capable of structuring and carrying out research in relevant areas are problems of cooperative education (Skelton 2003). The secondary school agricultural teachers had no training in cooperative education and as such cannot be effective in this programme.

The development of curricula and methodologies is another area that calls for a debate. Shao & Bruening (2002) stated that significant effort have been made to reform the curricula as it is the element needed for the formation of the new educational system. The curriculum in agriculture is theoretical and information based while instruction is teacher centered. Students usually have little involvement in teaching and learning. In addition, the value of practical ("hands-on experiences) in agricultural education had been neglected. Foster (1986) in his study pointed out the problems which reduce the participation of the students in practical courses as insufficient physical settings, and facilities, unwillingness of students, allocation of insufficient time to practical courses by the instructors. Lambeth (1986) in his findings indicated that there are many constraints regarding students participation in the practical courses such as having insufficient inputs, too many students that is, teacher/students ratio and class size. In the same way, Harris & Newcomb (1985) also identified unwillingness of students for participation in the experiential learning of practical courses as one of the main problem of cooperative education.

Suggestions for Ameliorating the Challenges of Cooperative Education

Cooperative education is an example of flexible learning that aimed at building a bridge between academic environment and workplace. It has been observed that different challenges faced the integration of cooperative education in the teaching of agricultural science for enhancing skill acquisition. For cooperative education to be successful, the following suggestions will help to avert the challenges associated with cooperative education.

It is evident that cooperative education is facing financial crises, for the programme to survive; the federal government will have to shoulder a considerable part of the financial burden. The federal government fund could be used to build area vocational centers at each local government which are equipped heavily to cater for various vocational programmes that are allotted to each school every week for their students to attend on the job training/lecture at their senior secondary level until they master all the skills in each occupational area. This will enable the students to practice with real tools in order to acquire the skills for agricultural occupations. Ammani & Ogunyika (2011) in their findings stated that adequate fund should be allocated to agricultural teacher education programme to pursue adequately training of students, provision of agricultural facilities, equipments and also school farm which need to be used for effective teaching of agriculture.

In the area of insufficient learning facilities, facilities are the linking point from classroom instruction to problem solving and hands-on-experience. Facilities must be furnished with equipment that are highly correlated with the curriculum being implemented. Martins (2001) stated that to standardize physical activities, providing a safe learning environment, a supportive and positive environment can help to improve the practical courses effectiveness. Fowler (2008) stated that experiential quality is dependent on the degree of student's participation in the practical activities. In regards to teacher's qualification as it affects cooperative education programme, there is urgent need for qualified teachers in the secondary school to handle cooperative programmes. As stated in the guideline manual for cooperative education on CTE. Teacher coordinators endorsed to teach the course in which cooperative method is used must be professionally

competent and demonstrate technical ability and actual business/industrial occupation experience within the discipline for which they provide instructions. Teachers' coordinators should have continuing professional development in cooperative education and in their technical area. Aleisa & Alabdulahfez (2008) in their findings also stated that the teacher should undergo in-service training to upgrade their knowledge in cooperative programme, adequate staffing and other resources to ease supervision and follow-up activities, teachers should be given some allowances as a motivational factor among others.

Curriculum factor in respect to limited time for practicals and students participation, the success in any experiment in cooperative education cannot be achieved unless high cooperative between participants is achieved. Bake & Mackerkan (1993) stated that there is positive relationship between participation in agricultural experiential programme and vocational growth. The guideline of cooperative education manual (http://www.doe.virginia.gov/institution/career/technical/cooperative_education/indexishtml) stated that career educational programme using cooperative education method of instruction shall be limited to an average of 20 students per instructor per class period and school should allocate sufficient and appropriate classroom and office space equipments and materials for teaching the occupational skills.

Agro-base Enterprises that Schools can Cooperate with for Enhancing Skill Acquisition

Agro-industry or agro-business include the industries and workers in occupation that contributes to farming that is, industry dealing with the supply, processing and distribution of farm products (<http://www.wordinfor.info/word/linfo.unity/159/2>.) It is primarily concerned with providing goods and services which aids farmers and ranchers in achieving the greatest efficiency in producing and marketing the products. Ikeoji, Agwubike and Nruelaba (2002) identified some of the Agro-based enterprises and their uses as follows.

Saw mills collection of wood shavings saw dust for litter materials, planting in the nursery.

Commercial live	-	Identification of breeds of livestock,
Stock farms		students's project, feeding techniques, identification of proper layer's produces
Plantation	-	Observation of some plantation practices as tapping, harvesting, weeding inter-cropping programme can be arranged as a means of weed control.
ADPS	-	Farm machinery and uses, procurement of farm inputs, uses of their demonstration farms, uses of their extension agents for demonstration
Agro-allied industries:-		Organize Lecture/field trips to them, can organize exchange services, donate products for school use.
Abattoir	-	study of animal parts, identification of specific animal organs, methods of slaughter, and evisceration.
Market	-	Marketing of farm products salesmanship, identification of variety of industrial products.
Cassava mill	-	Processing of cassava products, fermentation, grating and frying.

Every agricultural establishment has resources which can contribute to the instructional programme in vocational agriculture. Alfred (1983) identified some of the resources that can be provided by agricultural establishments as follows, demonstration farm, loan, equipments, explanation of the equipments, assistance on fieldtrips, and serve as guest speakers among others.

In the same way Olaitan (1984) stressed that agricultural establishment in the communities serve as resource centres by enabling students to see some machinery such as tractors, and combine harvesters in action. He further explained that the working of some machinery e.g. milking machines, incubators can also be explained. Phipps (1980) identified the major areas to be included as the following.

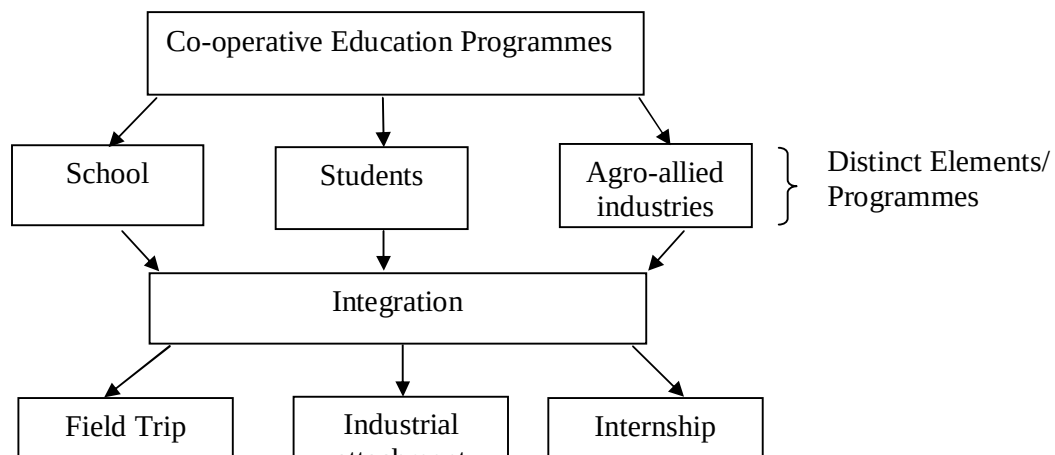
- 2 Livestock production
- 3 Crop production
- 4 Agricultural sales and services
- 5 Farmstead improvement
- 6 Horticulture/ornamented
- 7 Forest management.

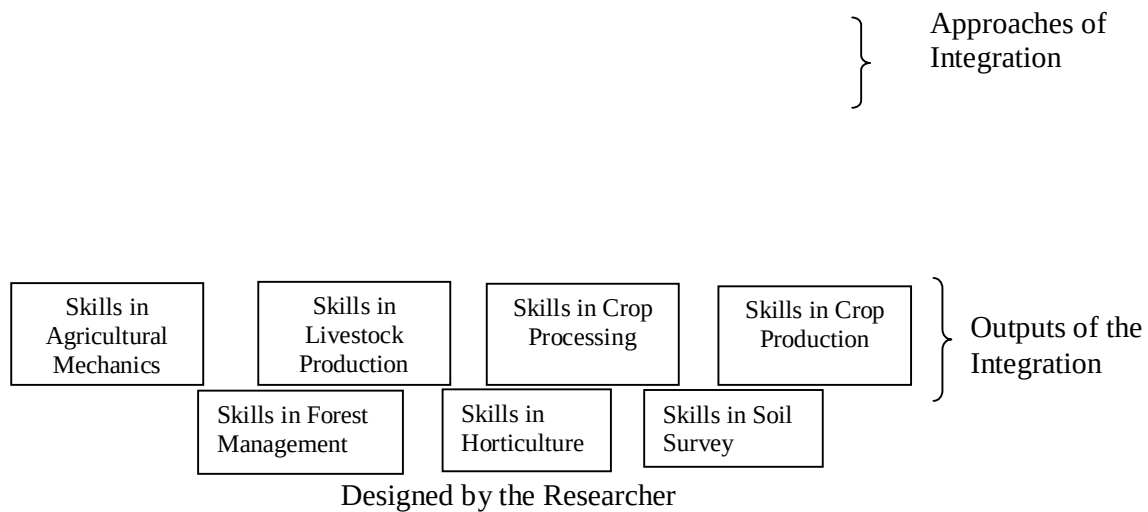
He went further to identify specific activities which are commonly included in co-operative education programme in agriculture as:

- i. **Agricultural Mechanics:** - The activities of agriculture mechanics include the selection, repair and maintenance of agricultural equipments, design and construction of simple agricultural equipment and structure among others.
- ii. **Livestock Production:** - Diversified livestock production stimulates members interest to use good management methods to efficiently produce and market a combination of specific livestock enterprises such as poultry, swine, sheep, goats, cattle among others.
- iii. **Agricultural processing:** - Activities offers students the opportunities in feed manufacturing, meat cutting, fertilizer formulation, grain processing, packaging and marketing of agricultural products.
- iv. **Crop production:** - members involved are expected to employ modern practices in production and marketing of a combination of two or more crop enterprises such as cereals feed grains, forages, oil or fibre crops. Among others.

The Schema Representing the Conceptual Frame Work

Below is the schema representing the above discussed concepts:





Explanation of the schema

Co-operative education programme is an occupational education for persons who through co-operative arrangement (between school and employers) receive instructions by alternation of studies in the school with jobs in any occupational field (Agro-allied industries). But these two experiences must be planned and supervised by the school and employers so that each contributes to the student education and his employability. This is achieved through the integration of classroom instructions and practical work experiences in the agro-allied industries which enable students to acquire basic skills needed in various agricultural occupations.

Theoretical Framework

The theoretical frame work will be built on the following theories of vocational education. Environmental habit or Experiential learning theory.

Environmental Habit /Experiential Learning Theory

Experiential learning theory was propounded by David Kolb in 1984 and the theory is used to describe the sort of learning undertaken by students who are given a chance to acquire and apply knowledge skill and feeling in an immediate and relevant setting. Experiential learning thus involved direct encounter with the phenomenon being studied rather than merely thinking about the encounter, which is experiencing, reflecting, generalizing and applying. According to the

theory concrete experience provides the information that serves as a basis for reflection to assimilation and abstract concepts. We then use these concepts to develop new theory about the world, which will be actively tested.

Kolb's theory is one of the widely used learning models in the field of education; and it has also been widely criticized for a number of reasons. The strength of Kolb's theory are:- the theory addresses how learners can play their own strength as well as developing areas in which they are weakest. Experiential learners explore their own strengths when learning new things among others. The theory was also criticized for not adequately addressing the role that non-reflective experience plays in the learning process; the theory is good at analyzing how learning occurs for individuals, it does little to look at learning that occurs in larger social groups, and that the theory is too narrowly focused and restrictive.

Experiential learning or environmental habit theory is related to this work as it emphasizes on the learning environment in which the learner learns to be a replica of the work environment (Olaitan 1999). Cooperative educational programme is aimed at exposing students to the real work environment which the student would likely meet after graduation.

Related Empirical Studies

Some studies have been conducted to identify job opportunities available to secondary school leavers and the knowledge and skills required for entry into such occupations.

Anyakoha (1986) investigated clothing jobs present to secondary school leavers in Imo and Anambara state of Nigeria. The study determined the skills and knowledge essential for entry into the clothing occupation. A task questionnaire was administered to 138 secondary school teachers of Home economics. In the study, 150 related knowledge and 59 working skills were found to be essential for the occupations. A t-test statistic analysis was used to analyze the mean scores of the two groups of subjects on 42 tasks. Anyakoha (1986)'s study is different from this study because

it focuses on the integration of cooperative education into senior secondary school agricultural science curriculum for enhancing student skill acquisition in Ankpa education zone of Kogi state. Five purposes and five research questions are formulated to guide the study. In line with these, two hypotheses are equally formulated for the study. The sample population for the study is made up of 135 respondents consisting of senior secondary school teachers of agriculture and managers of agro-based industries in Ankpa education zone; similarly, a structured questionnaire was developed to collect data from the respondents. Finally, t-test statistics will be used to test the null hypotheses.

Hontonyon (2002) conducted a study on the strategies for integrating co-operative education programme into teaching of Agricultural science in secondary schools in Lagos state. Three research questions were developed for the study. The study used a descriptive survey to collect data from the study respondents. The study population was 250 and three null hypotheses were formulated to guide the study at 0.05 level of significance. Frequency count, mean and standard deviation were used to analyze and answer the research questions. T-test and chi-square (χ^2) statistics were used to test the hypotheses. The deviation of this study from Hontonyon (2002) is that this study focuses on the integration of cooperative education into senior secondary school agricultural science curriculum for enhancing student skill acquisition in Ankpa education zone of Kogi state. Five purposes and five research questions are formulated to guide the study. In line with these, two hypotheses are equally formulated for the study. The sample population for the study is made up of 135 respondents consisting of senior secondary school teachers of agriculture and managers of agro-based industries in Ankpa education zone; similarly, a structured questionnaire was developed to collect data from the respondents. Finally, t-test statistics will be used to test the null hypotheses.

Udeogu (1996) worked on preparing secondary school students for agricultural occupation, problems and prospect in Badagry education area LGA of Lagos state using a survey design method, had the following objectives in the current modes of preparing school students for

agricultural occupation, major problems inhibiting effective preparation and strategies that could be adopted for effective preparation of secondary schools. The researcher discovered that the problems of preparing students for work in agriculture are that, teachers do not readily use enough demonstration in the laboratory and on the land experience; they do not send students on supervised occupational programmes. This study differs from Udeogu (1996) because it focuses on the integration of cooperative education into senior secondary school agricultural science curriculum for enhancing student skill acquisition in Ankpa education zone of Kogi state. Five purposes and five research questions are formulated to guide the study. In line with these, two hypotheses are equally formulated for the study. The sample population for the study is made up of 135 respondents consisting of senior secondary school teachers of agriculture and managers of agro-based industries in Ankpa education zone; similarly, a structured questionnaire was developed to collect data from the respondents. Finally, t-test statistics will be used to test the null hypotheses.

Onah (2002) carried out a study with the aim of developing agricultural experience programme for secondary schools in Enugu. The study used a descriptive survey design with the following specific objectives:

- to ascertain the needs and value of supervised agricultural experience in secondary school,
- to determine the objectives of supervised agricultural experience programme in secondary schools in Enugu.
- To identify guidelines for the implementation of supervised agricultural experience programme in secondary schools among others. He discovered that.
- There was a great need for the incorporation of supervised of supervised agricultural experiences programme in the entire vocational agriculture education in secondary school and for effective implementation of supervised agricultural experience programme in secondary school there must be sufficient presentation of adequate classroom instruction and the use of functional field practicals and farm laboratory education. Meanwhile in this work the needs for cooperative

education were discussed. This work on integration of cooperative education programme has discovered that there is skill gap between practical and theory. The work will determine how partnership with agro-based industry will help to close the gap by providing student with necessary skills that will enable them to enter and progress in occupation after graduation and also identify the challenges that teachers/students will likely face in this programme and also suggest possible solutions that will avert the identified challenges.

Egbo (2005) embarked on a study on identification of work skills required by secondary school graduates for entry into pig production enterprises in Enugu state. Three research questions were developed in consonance with the purpose of the study; three sets of questionnaire were generated from the literature reviewed to collect data from the respondents. Mean and standard deviation were used to analyze the data. The study recommended that the work skills identified be packaged into Enugu state skill acquisition centres by Enugu state government for training employed secondary school graduates and other interested youths in Pig production enterprises. The deviation of this study from Egbo (2005) is that, this study focuses on the integration of cooperative education into senior secondary school agricultural science curriculum for enhancing student skill acquisition in Ankpa education zone of kogi state. Five purposes and five research questions are formulated to guide the study. In line with these, two hypotheses are equally formulated for the study. The sample population for the study is made up of 135 respondents consisting of senior secondary school teachers of agriculture and managers of agro-based industries in Ankpa education zone; similarly, a structured questionnaire was developed to collect data from the respondents. Finally, t-test statistics will be used to test the null hypotheses.

Summary of Literature Review

The summary of literature review covered the conceptual framework of the study which include: Agricultural programme in secondary schools, concept of Agriculture and its importance to the development of Nigerian students, Entry-level skills in agriculture, Concept of co-operative education, Need for integration of co-operative education into Agricultural science curriculum,

Challenges of co-operative education and strategies for ameliorating the identified challenges of co-operative education. The questionnaire will be used to collect data on how integration of co-operative education into the senior secondary school curriculum can bridge the gap between theory and practice in order to enhance skill acquisition among secondary school graduates.

The literature revealed that agriculture is actually a practically oriented discipline in which effective agricultural education programme should incorporate classroom, laboratory instructions and co-operative education programme. The literature also reviewed that proficiency in agricultural fields requires high degree of skills to enter and progress in occupation. It was also observed that the present school leavers found it difficult to secure jobs or become self-employed because they lack job orientation or occupational skills.

The literature revealed that there are some constraints facing the realization of the goals of vocational education in Nigerian secondary schools. Some of these constraints were identified as ignorance of course contents, lack of qualified teachers, societal attitudes, inadequate government attention among others. The literature equally revealed that there are existing government and private establishments/industries that the school can co-operate with to improve the teaching of agriculture and thereby enhancing students'skill acquisition.

It was also revealed that the importance of agriculture to the development of students was also identified as a means for manpower development. It was also revealed that there are challenges teachers/students faces in integrating cooperative education into senior secondary agricultural curriculum and the possible solutions to the challenges were also identified. This study sought to address lack of skill acquisition inherent in the present theoretical teaching of agricultural science in the senior secondary schools.

CHAPTER THREE

METHODOLOGY

This chapter discussed the procedures used in the study under the following headings:- Design of the study, area of the study, population for the study, sample and sampling techniques, instruments for data collection, validation of the instrument, reliability of the instruments, method of data collection and method of data analysis.

Design of the Study

The study adopted a descriptive survey research design. A descriptive survey design in the opinion of Wolman in Ezeji (2004) is the type of design which involves the assessment of public opinion using questionnaire and sampling method for collecting and analyzing data from the respondents. The design is considered suitable since this study solicit information from agricultural teachers and managers of agro-based industries on integration of co-operative education into senior secondary school agricultural curriculum for enhancing skill acquisition.

Area of the study

The area of the study covered Ankpa Education Zone in Kogi State which comprises three (3) Local government Areas which include: Omalla, Olamaboro and Ankpa. The Ankpa Education Zone is one of the heavily populated education zones in Kogi State. It shares boundary with Benue state (Awo Akpali shares boundary with Adoka in Benue state) and Enugu State (Unyi Ogugu in Olamaboro shares boundary with Obollo Afor in Enugu state).

Ankpa education zone has many public and private secondary schools and also with many agro-based industries.

Population for the Study

The target population for the study was 230 comprising of 215 teachers of agricultural science in the secondary schools in the zone (source: Kogi state Teaching Service Commission (TSC) Statistical data, 2013) and 15 managers of Agro-based industries in the zone.

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Sample and Sampling Technique

The sample size for the study was 135 which is made up of 120 senior secondary agricultural science teachers and 15 managers of Agro-based industries. A random sampling was used to select 120 senior secondary agricultural teachers while the entire population of the managers of agro-based industries was used for the study.

Random sampling technique according to Ezeji (2004) is a method of obtaining information only from people who respond in the desired manner.

Instrument for Data Collection

The instrument for Data collection in this study was a structured questionnaire. The questionnaire items were generated based on the information gathered from the reviewed literatures.

The questionnaire was made up of two parts; Part one and Part two. Part one seeks information on respondents's personal data while part two was divided into five sections: A to E in

line with the specific purposes of the study. Section 'A' has 10 items felt on the needs of integrating cooperative education in senior secondary school agricultural curriculum for enhancing skill acquisition. Section 'B' is made up of 20 items on skills required for agricultural occupations in Ankpa education zone of Kogi state.

Furthermore, Section 'C' consists of 12 items on agro-based enterprises that can partner with the schools in co-operative occupational education. While Section 'D' comprises of 9 items on the challenges teachers and students can face in integrating co-operative education in senior secondary schools agricultural curriculum. Similarly, Section 'E' consists of 10 items on the suggestions on the strategies of ameliorating the identified challenges in section 'D'.

Section A-E of the questionnaire are structured on five point rating scales with options as:- Strongly Agreed (SA) Agreed (A) Disagreed (D) and strongly Disagreed (SD) coded 5, 4, 3, 2 and 1 respectively.

Validation of the Instrument

The structured questionnaire was subjected to face validation by experts to ensure appropriateness of the questionnaire items. Three experts (lecturers) were requested to check the relevance and clarity of the items statement, to make comments, corrections and suggestions. Two of these experts from the department of Vocational Teacher Education University of Nigeria Nsukka and the other expert is from the Department of Agricultural Science Education, Kogi State College of Education, Ankpa.

Reliability of Instrument

The Cronbach Alfa Reliability method was used to determine the reliability of the instrument. This was obtained by administering the questionnaire to 10 selected respondents (7 agricultural teachers and 3 agro-based managers) in Dekina Education Zone of Kogi state. The respondents used in collecting data for the reliability test will however not be used as part of the sample for the study because they are not from Ankpa education zone. The reliability coefficient

sections of the instruments were as follow: section αA 0.99, section αB 1.0, section αC 0.99, section αD 0.60, section αE 0.57 while the reliability of the entire instrument was 0.83.(see appendix V).

Method of data Collection.

The researcher will administer and collect the copies of the questionnaire with the help of 2 research assistants. Each of the research assistants will cover one local government area while the researcher will cover the third local government area.

Method of Data Analysis

The data collected was analyzed using mean and standard deviation to answer the research questions; while t-test statistics will be used to test the null hypotheses at 0.5 level of significance and at relevant degree of freedom (df). The real limit of the mean value will be used to answer the research questions are as follow:

- Strongly Agree (SA) = 3.50 ÷ 4.0
- Agree (A) = 2.50 ÷ 3.49
- Disagree (D) = 1.50 ÷ 2.49
- Strongly Disagree (SD)= 0.50 ÷ 1.49

However, if the sig.(2tailed) for any item is less than its P-value of 0.5, the null hypothesis was rejected.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter presented the analyzed data for the study. The data were organized based on the research questions developed and the null hypotheses formulated for the study.

Research Question 1

What are the needs of integrating co-operative education into the senior secondary agriculture curriculum in Ankpa education zone of Kogi state?

Table 1:

Mean responses of agricultural science teachers and managers of agro-based industries on need for the integration of co-operative education in the teaching of agriculture in secondary school
N = 125.

S/N	Item Statement	Agric. Sc. Teachers		Managers of agro-base Industries		Grand Summary		Remarks
		0 ₁	SD ₁	0 ₂	SD ₂	G	SD	
1	Development of skills for proficiency in	3.65	0.58	3.84	0.37	3.74	0.47	SA

	vocational agriculture							
2	Contribution to increase food production.	3.66	0.51	3.53	0.54	3.59	0.52	SA
3	Opportunities to earn, save and use money	3.61	0.54	3.92	0.29	3.76	0.40	SA
4	Provision of part-time employment.	3.29	0.66	3.61	0.50	3.45	0.58	A
5	Sustenance of students's interest in agriculture.	3.55	0.53	3.46	0.51	3.50	0.52	SA
6	Development of managerial skills.	3.43	0.55	3.53	0.51	3.48	0.53	A
7	Provision of opportunities to translate theory in the classroom into practice in the farm.	3.55	0.58	3.75	0.45	3.65	0.51	SA
8	Creation of desirable relationship between the school, home and community.	3.32	0.60	3.46	0.51	3.39	0.55	A
9	Encouragement of co-operation and team work.	3.54	0.53	3.69	0.48	3.61	0.50	SA
10	Engaging students in productive work.	3.56	0.58	3.66	0.49	3.61	0.53	SA

Note: $\bar{O}_1$ = Mean 1, $\bar{O}_2$ = Mean 2, SD_1 = Standard Deviation 1, SD_2 = Standard Deviation 2, G_0 = Grand Mean, SD = Grand Standard Deviation, SA = Strongly Agreed, A = Agreed.

The data presented in table 1 showed that 10 item statements had their grand mean values ranged from 3.50 to 3.74. This implied that all the items are strongly agreed and two items were agreed as needs for integrating co-operative education in the teaching of agriculture in secondary schools.

The table also showed the standard deviations which ranged from .36 to .60. This indicated that the respondents were close to one another in their level of response or opinions and also not too far from the mean.

Research Question 2

What are the entry-level skills required for various occupations in agriculture?

Table 2:

Mean responses of agricultural science teachers and managers of agro-based industries on entry-level skills need in agriculture
N = 125.

S/N	Item Statement	Agric. Sc. Teachers	Managers of agro-base Industries	Grand Summary	Remarks
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		0 ₁	SD ₁	0 ₂	SD ₂	G ₀	SD	
1	Ability to select viable crops that can withstand any environmental conditions	3.54	.61	3.58	0.51	3.56	0.56	SA
2	Prepare a well tilt garden for crops	3.38	.59	3.61	0.50	3.49	0.54	A
3	Process and store agricultural products	3.55	.57	3.76	0.43	3.65	0.50	SA
4	Identify poultry birds that are prolific	3.37	.63	3.46	0.51	3.41	0.57	A
5	Select early laying birds	3.33	.59	3.53	0.51	3.43	0.55	A
6	Formulate balance ration	3.30	.61	3.46	0.51	3.38	0.56	A
7	Deworm infected birds	3.42	.65	3.61	0.50	3.51	0.57	SA
8	Prepare land suitable for crops	3.66	.47	3.53	0.66	3.59	0.56	SA
9	Carry out seed selection	3.55	.53	3.90	0.30	3.72	0.41	SA
10	Control pests, weeds, and diseases using chemical	3.58	.53	3.76	0.59	3.67	0.56	SA
11	Select breed of rabbit with best performance	3.37	.58	3.46	0.51	3.41	0.54	A
12	Construct cost less hutches	3.21	.69	3.46	0.51	3.33	0.60	A
13	Detect oestrus cycle	3.33	.65	3.38	0.65	3.35	0.65	A
14	Write legal description of land	3.23	.70	3.69	0.48	3.46	0.59	A
15	Take soil sample and read interpretation	3.49	.61	3.61	0.50	3.55	0.55	SA
16	Take records of fertilizers used	3.46	.58	3.46	0.51	3.46	0.54	A
17	Calculate field hectares	3.27	.65	3.61	0.50	3.44	0.57	A
18	Paint fences	2.98	.81	3.23	0.43	3.10	0.62	A
19	Ability to prepare a sale ticket	3.25	.72	3.46	0.51	3.35	0.61	A
20	Ability to manage forest	3.23	.74	3.76	0.43	3.49	0.58	A

Note: 0₁ = Mean 1, 0₂ = Mean 2, SD₁ = Standard Deviation 1, SD₂ = Standard Deviation 2, G₀ = Grand Mean, SD = Grand Standard Deviation, SA = Strongly Agreed, A = Agreed.

entry-level skills need in agriculture; while the remaining 13 items are equally agreed by the respondents as entry-level skills need in agriculture.

In the same vein, the table also indicated the standard deviations which ranged from .48 to .60. This indicated that the respondents were close to one another in their level of response or opinions and also not too far from the mean.

Research Question 3

What are the Agro-allied enterprises the school could partner with for enhancing skill acquisition in students in Ankpa education zone of Kogi state?

Table 3:

Mean responses of agricultural science teachers and managers of agro-based industries on the opinion of commercial agricultural programmes or enterprises

N = 125.

S/N	Item Statement	Agric. Sc.	Managers	Grand	Rema
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		Teachers		of agro-base Industries		Summary		rks
		0 ₁	SD ₁	0 ₂	SD ₂	G ₀	SD	
1	Palm oil processing company	3.53	0.66	3.38	0.86	3.45	0.76	A
2	Garri processing company	3.51	0.61	3.46	0.51	3.48	0.56	A
3	Palm oil plantation	3.51	0.63	3.53	0.51	3.52	0.57	SA
4	Workshop (Ministry of Agriculture)	3.43	0.63	3.46	0.51	3.44	0.57	A
5	Poultry farms	3.54	0.63	3.69	0.48	3.61	0.54	SA
6	Rice mill industry	3.49	0.63	3.53	0.51	3.51	0.57	SA
7	Abattoir	3.24	0.74	3.30	0.48	3.27	0.61	A
8	Horticultural garden	3.38	0.69	3.38	0.65	3.38	0.67	A
9	Saw mill	3.47	0.66	3.38	0.65	3.42	0.65	A
10	Tractor hiring unit	3.28	0.73	3.53	0.66	3.40	0.69	A
11	Research Institutes	3.30	0.75	3.61	0.65	3.45	0.70	A
12	Agro-service centre	3.41	0.71	3.61	0.65	3.51	0.68	SA

Note: 0₁ = Mean 1, 0₂ = Mean 2, SD₁ = Standard Deviation 1, SD₂ = Standard Deviation 2, G₀ = Grand Mean, SD = Grand Standard Deviation, SA = Strongly Agreed, A = Agreed.

The table 3 above indicated that 4 item statements had their grand mean values ranged from 3.51 to 3.61 .This implied that all the 4 items are strongly agreed by the respondents to be commercial agricultural programmes or enterprises while the remaining 8 items had their mean ranged from 3.27 to 3.49 which equally showed that the items are agreed by the respondents to be commercial agricultural programmes.

The table also indicated the standard deviations which ranged from .55 to .67. This implied that the respondents were close to one another in their level of response or opinions and also not too far from the mean.

Research Question 4

What are the challenges teachers and students will face in the integrating co-operative education into secondary schools agricultural curriculum in Ankpa education zone of Kogi state?

Table 4:

Mean responses of agricultural science teachers and managers of agro-based industries on challenges facing teachers and students in integrating co-operative education programme in the teaching of agriculture

N= 125

S/N	Item Statement	Agric. Sc. Teachers		Managers of agro-base Industries		Grand Summary		Remarks
		0 ₁	SD ₁	0 ₂	SD ₂	G	SD	
1	Lack of relevant resources.	3.44	0.68	3.61	0.50	3.52	0.59	SA
2	Teachers are not motivated to be innovative.	3.40	0.68	3.61	0.50	3.50	0.59	SA
3	Teachers have heavy teaching loads	3.27	0.74	3.46	0.87	3.36	0.80	A
4	The school time table provide little time for practical work	3.45	0.68	3.23	0.92	3.34	0.80	A
5	Poor school/community relationship.	3.14	0.78	3.30	0.94	3.22	0.86	A
6	Insufficient fund for field trips.	3.44	0.65	3.07	0.86	3.25	0.75	A
7	Insufficient learning environment.	3.24	0.85	3.23	0.92	3.23	0.88	A
8	Balancing of supervision with teaching duties.	3.45	0.55	3.61	0.50	3.53	0.52	SA
9	Students's unwillingness to participate in training.	3.22	0.80	3.50	0.67	3.36	0.73	A

Note: 0₁ = Mean 1, 0₂ = Mean 2, SD₁ = Standard Deviation 1, SD₂ = Standard Deviation 2, G0 = Grand Mean, SD = Grand Standard Deviation, SA = Strongly Agreed, A = Agreed.

From table 4 above, 3 item statements had their grand mean values ranged from 3.50 to 3.53. This implied the 2 items are strongly agreed by the respondents to be challenges facing teachers and students in integrating co-operative education programme in the teaching of agriculture; while the remaining 7 items had their mean ranged from 3.25 to 3.49 which equally showed that the items are agreed by the respondents as challenges facing teachers and students in integrating co-operative education programme in the teaching of agriculture

The table also showed the standard deviations which ranged from .52 to .85. This implied that the respondents were close to one another in their level of response or opinions and also not too far from the mean.

Research Question 5

What are the strategies for ameliorating the identified challenges of integrating co-operative education into agricultural science curriculum in Ankpa education zone of Kogi state?

Table 5:

Mean responses of agricultural science teachers and managers of agro-based industries on solutions to challenges of co-operative education

N = 125

S/N	Item Statement	Agric. Sc. Teachers		Managers of agro-base Industries		Grand Summary		Remarks
		0 ₁	SD ₁	0 ₂	SD ₂	G	SD	
						0		
1	Adequate fund for agricultural teachers.	3.81	0.45	3.69	0.48	3.75	0.46	SA
2	Adequate practical equipment.	3.55	0.56	3.84	0.37	3.69	0.46	SA
3	Motivation of students.	3.51	0.61	3.53	0.51	3.52	0.56	SA
4	In-service training for teacher.	3.51	0.57	3.61	0.50	3.56	0.53	SA
5	Adequate time for practical work.	3.58	0.59	3.53	0.51	3.55	0.55	SA
6	Safe learning environment.	3.47	0.57	3.69	0.48	3.58	0.52	SA
7	Adequate staffing.	3.51	0.58	3.76	0.43	3.63	0.50	SA
8	Minimal teacher/student ratio.	3.45	0.64	3.61	0.50	3.53	0.57	SA
9	Prompt payment of teachers's salaries.	3.64	0.48	3.76	0.43	3.70	0.45	SA
10	Transportation facilities.	3.44	0.75	3.69	0.48	3.56	0.61	SA

Note: 0₁ = Mean 1, 0₂ = Mean 2, SD₁ = Standard Deviation 1, SD₂ = Standard Deviation 2, G0 = Grand Mean, SD = Grand Standard Deviation, SA = Strongly Agreed, A = Agreed.

The table 5 above that all the item statements had their grand mean values ranged from 3.53 to 3.70. This implied that all items are strongly agreed by the respondents to be solutions to the challenges of co-operative education

The table also showed the standard deviations which ranged from .46 to .60. This implied that the respondents were close to one another in their level of response or opinions and also not too far from the mean.

FINDING ON HYPOTHESES

Hypothesis 1:

HO1: There is no significant difference in the mean rating of agricultural science teachers and managers of agro-based industries on the entry-level skills need in agriculture

Table 6:
t-test Analysis of the Mean Ratings of Responses of the two Groups of Respondents
on the entry-level skills need in agriculture

N = 125		(P<0.05)						Remarks
S/ N	Item Statement	Agric. Sc. Teachers		Managers of agro- base Industries		t-cal	Sig (2tailed)	
		0 ₁	SD ₁	0 ₂	SD ₂			
1	Ability to select viable crops that can withstand any environmental conditions	3.54	0.61	3.58	0.51	-.26	0.79	NS
2	Prepare a well tilt garden for crops	3.38	0.59	3.61	0.50	-1.51	0.14	NS
3	Process and store agricultural products	3.55	0.57	3.76	0.43	-1.58	0.13	NS
4	Identify poultry birds that are prolific	3.37	0.63	3.46	0.51	-.54	0.59	NS
5	Select early laying birds	3.33	0.59	3.53	0.51	-1.34	0.19	NS
6	Formulate balance ration	3.30	0.61	3.46	0.51	-1.00	0.33	NS
7	Deworm infected birds	3.42	0.65	3.61	0.50	-1.23	0.23	NS
8	Prepare land suitable for crops	3.66	0.47	3.53	0.66	.64	0.52	NS
9	Carry out seed selection	3.55	0.53	3.90	0.30	-3.36	0.001	S
10	Control pests, weeds, and diseases using chemical	3.58	0.53	3.76	0.59	-1.06	0.30	NS
11	Select breed of rabbit with best performance	3.37	0.58	3.46	0.51	-.55	0.58	NS
12	Construct cost less hutches	3.21	0.69	3.46	0.51	-1.56	0.13	NS

13	Detect oestrus cycle	3.33	0.65	3.38	0.65	-.23	0.81	NS
14	Write legal description of land	3.23	0.70	3.69	0.48	-3.08	0.01	S
15	Take soil sample and read interpretation	3.49	0.61	3.61	0.50	-.78	0.44	NS
16	Take records of fertilizers used	3.46	0.58	3.46	0.51	.041	0.96	NS
17	Calculate field hectares	3.27	0.65	3.61	0.50	-2.19	0.04	S
18	Paint fences	2.98	0.81	3.23	0.43	-1.72	0.09	NS
19	Ability to prepare a sale ticket	3.25	0.72	3.46	0.51	-1.26	0.22	NS
20	Ability to manage forest	3.23	0.74	3.76	0.43	-3.76	0.001	S

Note: NS = Not Significant, S = Significant

The summary of t-test analysis presented in Table 6 above revealed that all the computed sig 2tailed values for the majority of the items are greater than the P-Value of 0.05 level of significance chosen by the researcher. This signified that there was no significant difference in the mean ratings of agricultural science teachers and managers of agro-based industries on the 16 entry-level skills need in agriculture. Inference from the finding was that the null hypothesis of no significant difference is upheld for the 16 entry-level skills need in agriculture. On the other hand, item 9, 14, 17 and 20 had their computed sig 2tailed values less than the P-Value. This signified that there was significant difference in the mean ratings of agricultural science teachers and managers of agro-based industries on the 4 entry-level skills need in agriculture. Inference from the finding was that the alternate hypothesis of significant difference is upheld for the 4 entry-level skills need in agriculture.

Hypothesis 2:

HO₂: There is no significant difference in the mean rating of agricultural science teachers and managers of agro-based industries on the challenges teachers and students face in integrating co-operative education into agricultural science curriculum

Table 7:

t-test Analysis of the Mean Ratings of Responses of the two Groups of Respondents on challenges teachers and students face in integrating co-operative education into agricultural science curriculum

N = 125		(P<0.05)			
S/ N	Item Statement	Agric. Sc. Teachers	Managers of agro-base Industries	t-cal	Sig (2tailed) Remarks

		0 ₁	SD ₁	0 ₂	SD ₂			
1	Lack of relevant resources.	3.44	0.68	3.61	0.50	-1.12	0.27	NS
2	Teachers are not motivated to be innovative.	3.40	0.68	3.61	0.50	-1.36	0.18	NS
3	Teachers have heavy teaching loads	3.27	0.74	3.46	0.87	-.72	0.48	NS
4	The school time table provide little time for practical work	3.45	0.68	3.23	0.92	.85	0.40	NS
5	Poor school/community relationship.	3.14	0.78	3.30	0.94	-.58	0.56	NS
6	Insufficient fund for field trips.	3.44	0.65	3.07	0.86	1.50	0.15	NS
7	Insufficient learning environment.	3.24	0.85	3.23	0.92	.037	0.97	NS
8	Balancing of supervision with teaching duties.	3.45	0.55	3.61	0.50	-1.04	0.31	NS
9	Students' unwillingness to participate in training.	3.22	0.80	3.50	0.67	-1.33	0.20	NS

Note: NS = Not Significant

The summary of t-test analysis presented in Table7 above also revealed that all the computed sig 2tailed values for all the items are greater than the P-Value of 0.05 level of significance chosen by the researcher. This means that there was no significant difference in the mean rating responses of the agricultural science teachers and managers of agro-based industries on the challenges teachers and students face in integrating co-operative education into agricultural science curriculum.

Therefore the null hypothesis of no significant difference is upheld for the 9 challenges teachers and students face in integrating co-operative education into agricultural science curriculum.

Major Findings of the Study

The following findings emerged from the study based on the research questions and hypotheses tested:

A: Need for the integration of co-operative education in the teaching of agriculture in secondary school

The respondents perceived that the needs for the integration of co-operative education in the teaching of agriculture in secondary school are listed below as strongly agreed:

1. Development of skills for proficiency in vocational agriculture
2. Contribution to increase food production.
3. Opportunities to earn, save and use money
4. Provision of part-time employment.
5. Sustenance of students's interest in agriculture.
6. Development of managerial skills.
7. Provision of opportunities to translate theory in the classroom into practice in the farm.
8. Encouragement of co-operation and team work.
9. Engaging students in productive work. While
10. Creation of desirable relationship between the school, home and community is perceived by the respondents to be agreed

B: Entry-level skills need for various occupations in agriculture

The respondents indicated that the entry-level skills need for various occupations in agriculture are listed below as strongly agreed:

1. Ability to select viable crops that can withstand any environmental conditions
2. Prepare a well tilt garden for crops
3. Process and store agricultural products
4. Select early laying birds
5. Deworm infected birds
6. Prepare land suitable for crops
7. Carry out seed selection
8. Control pests, weeds, and diseases using chemical

While the following are also agreed by the respondents as entry-level need for various occupations in agriculture

1. Select breed of rabbit with best performance
2. Construct cost less hutches

3. Detect oestrus cycle
4. Write legal description of land
5. Take soil sample and read interpretation
6. Take records of fertilizers used
7. Calculate field hectares
8. Paint fences
9. Ability to prepare a sale ticket
10. Ability to manage forest
11. Identify poultry birds that are prolific
12. Formulate balance ration

C: Agro-allied enterprises the school could partner with for enhancing skill acquisition in students

The respondents agreed that the Agro-allied enterprises the school could partner with for enhancing skill acquisition in students are listed below as strongly agreed:

1. Palm oil processing company
2. Palm oil plantation
3. Poultry farms
4. Rice mill industry

While the following are perceived by the respondents as agreed:

1. Garri processing company
2. Workshop (Ministry of Agriculture)
3. Abattoir
4. Horticultural garden
5. Saw mill
6. Tractor hiring unit
7. Research Institutes

8. Agro-service centre

D: Challenges facing teachers and students in integrating co-operative education into secondary schools agricultural curriculum

The respondents perceived that the following are strongly agreed to be challenges facing teachers and students in integrating co-operative education into secondary schools agricultural curriculum:

1. Lack of relevant resources
2. Balancing of supervision with teaching duties

While the following are agreed by the respondents as part of the challenges:

1. Teachers are not motivated to be innovative.
2. Teachers have heavy teaching loads
3. The school time table provide little time for practical work
4. Poor school/community relationship
5. Insufficient fund for field trips
6. Insufficient learning environment
7. Students' unwillingness to participate in training

E: Strategies for ameliorating the identified challenges of integrating co-operative education into agricultural science curriculum

Finally, the respondents indicated that the following are strongly agreed as strategies for ameliorating the identified challenges of integrating co-operative education into agricultural science curriculum:

1. Adequate fund for agricultural teachers
2. Adequate practical equipment
3. Motivation of students
4. In-service training for teacher
5. Adequate time for practical work
6. Safe learning environment

7. Adequate staffing
8. Minimal teacher/student ratio
9. Prompt payment of teachers's salaries
10. Transportation facilities

Findings on the Hypotheses

It was found out from the study that:

1. There is no significant difference in the mean rating of agricultural science teachers and managers of agro-based industries on the entry-level skill of various agricultural occupation
2. There is no significant difference in the mean rating of agricultural science teachers and managers of agro-based industries on the challenges teachers and students will face in Integrating co-operative education into agricultural science curriculum in Ankpa education zone of Kogi state.

Discussion of the Findings

Discussions on Research Question one:

The result on research question one in Table 1 revealed that the needs for the integration of co-operative education in the teaching of agriculture in secondary school, among others, include: Development of skills for proficiency in vocational agriculture; Contribution to increase food production; Opportunities to earn, save and use money; Provision of part-time employment; Sustenance of students's interest in agriculture; and Development of managerial skills. This result is in agreement with Raw (2003) who said that co-operative education provides the opportunity to practice essential employable skills such as time management, strengthen independence and self-confident and to practice and explore vocational goals. Adding that Co-operative education is an exciting alternative to traditional classroom learning where those in the programme actually leave double life as students and employees, benefiting by on-the job achievement of classroom goals and their direct application in the work setting. Similarly, Kivenen and Silvennoien (2002)

suggested that the relationship between formal education and industry is to producing skills needed in the workforce and that these relations should be strengthened. More so, Candy and Crebert (1991) recognized that most learning experiences actually take place outside the educational setting, therefore, education should partner through off campus cooperative education where students enter the workforce for one year of their educational programme in an effort to learn the skills needed in industry to be successful upon graduation. To crown it up, the benefits of co-operative education to the students, community, employers and educational system as summarized by Osimen (2010) are as follows:

- Learning by doing gives student an opportunity to bridge the gap between theory and practice.
- Supervisors learn job analysis and educational principles and practice which are essential to on-the-job training of all workers.
- A pool of skilled and experienced manpower is developed.
- Influence curriculum development to meet industrial requirement among others.

Discussions on research question two:

The result in Table 2 in relation to research question two revealed the entry-level skills need in agriculture to include: Ability to select viable crops that can withstand any environmental conditions; Prepare a well tilt garden for crops; Process and store agricultural products; Select early laying birds; Deworm infected birds; Prepare land suitable for crops; Carry out seed selection; Control pests, weeds; diseases using chemical and among others. This result is in congruence with the opinion of Osinem (2008) who said that the concern of agricultural education is the teaching and learning of skills which will make for proficiency in an agricultural occupation and through the process of learning, an individual's behaviour is changed. The author further stated that, with the rapid increase in the world population, there is need to increase production of crops and livestock and this is achievable by acquisition of manipulative skills which prepare students for various occupations and opportunities in agriculture. According to Phipps (1980) the

major areas to be included in the teaching of manipulative skill are as follows: Agricultural mechanics; Livestock production; Crop production; Agricultural processing; Agricultural sales and services; Farm stead improvement; Horticulture/Ornamental agriculture; and Forest management.

Discussions on Research Question three:

The result in Table 3 in relation to research question 3 indicated the Agro-allied enterprises the school could partner with for enhancing skill acquisition in students are: Palm oil processing company; Palm oil plantation; Poultry farms; Rice mill industry; Garri processing company; Workshop (Ministry of Agriculture); Abattoir; Horticultural garden; Saw mill; Tractor hiring unit; Research Institutes; and Agro-service centre. The result is in confirmation with Alfred (1983) who identified some of the resources that can be provided by agricultural establishments to include, demonstration farm, loan, equipments, explanation of the equipments, assistance on fieldtrips, and serve as guest speakers among others. In support of this finding, Olaitan (1984) stressed that agricultural establishment in the communities serve as resource centres by enabling students to see some machinery such as tractors, and combine harvesters in action. He further explained that the working of some machinery e.g. milking machines, incubators can also be explained where students can benefit from.

Discussions on research question four:

The result on research question 4 in Table 4 revealed that challenges facing teachers and students in integrating co-operative education into secondary school agricultural curriculum include: Lack of relevant resources; Balancing of supervision with teaching duties; Teachers are not motivated to be innovative; Teachers have heavy teaching loads; The school time table provide little time for practical work; Poor school/community relationship; Insufficient fund for field trips; Insufficient learning environment ; and Studentsô unwillingness to participate in training. This finding is in agreement with Birchall (1997) who stated that budget allocation from the government limits research operations, initiation of development, projects and research.

Osinem (2008) in the same way identified inadequate funding as one of the challenges facing the teaching of agriculture adding that with inadequate funding it will be difficult to procure enough equipment for experiential programme, train personnel and finance research. Olaitan (1986) also stated that, the decline of vocational education budget can be seen in the irregular payment of teachers's salaries and shortage of infrastructures in school. Aleisa & Alabdulahfez (2008) in a similar way identified cooperative challenges as supervision and logistical challenge. They stated that student supervision and follow-up activities are resource intensive and are required throughout the term. They further stated that teachers have teaching duties in addition to cooperative duties, this makes it difficult to balance teaching and supervision. Logistical challenges as they further explained are the problems of transportation to and from the workplace by both the teacher and the students, lack of compensation for the use of private transports, lack of financial remuneration for rewards of trainees and most of the companies do not provide salaries for trainees among others. Insufficient educational spaces are other serious problem of cooperative education. Alfen & Gamble (2007) believed that lack of facilities, lack of participation and cooperation are problems of agricultural science education. Warner & Washburn (2009) in a similar way indicated that "Not enough equipment for hands on activities, inadequate facilities to support classroom instruction is the problems facing cooperative education.

Teacher's qualification is another problem of cooperative education. Lack of basic business and management skills, lack of trained staff capable of structuring and carrying out research in relevant areas are problems of cooperative education (Skelton 2003). The secondary school agricultural teachers had no training in cooperative education and as such cannot be effective in this programme.

Discussions on Research Question five:

The result in Table 5 in relation to research question 5 revealed the strategies for ameliorating the identified challenges of integrating co-operative education into agricultural science curriculum such as: Adequate fund for agricultural teachers; Adequate practical equipment; Motivation of students; In-service training for teacher; Adequate time for practical

work; Safe learning environment; Adequate staffing; Minimal teacher/student ratio; Prompt payment of teachers'salaries; and Transportation facilities. This finding is in consonance with the opinion of Ammani & Ogunyika (2011) who stated that adequate fund should be allocated to agricultural teacher education programme to pursue adequately training of students, provision of agricultural facilities, equipments and also school farm which need to be used for effective teaching of agriculture. In a similar way, Martins (2001) recommended standardize physical activities, providing a safe learning environment, a supportive and positive environment can help to improve the practical courses effectiveness. Aleisa & Alabdulahfez (2008) in their findings also supported that the teacher should undergo in-service training to upgrade their knowledge in cooperative programme, adequate staffing and other resources to ease supervision and follow-up activities, teachers should be given some allowances as motivational factors. Similarly, Bake & Mackerkan (1993) acclaimed that there is a need for positive relationship between participation in agricultural experiential programme and vocational growth.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presented the summary of the statement of problem, purpose of the study, procedure used and the major findings of the study. The conclusion, implications of the study, recommendations and suggestions for further study were also presented.

Re-statement of the Problem

Egonu (1997) opined that the problem facing agricultural education is how to develop suitable curriculum that are relevant to the needs of the students. Ankpa education zone of Kogi state have secondary school graduates who lack occupational skills and on the job experiences. Olaitan (1993) attributed low esteem of agriculture to the school curriculum and prescribed examination which tend to be theoretical with emphasize mainly on learning.

Another problem facing the teaching and learning of agriculture in Ankpa education zone is inadequate facilities and equipments that exist are obsolete. Mkpa (1990) reported that even when instructional materials are available in schools; most teachers do not use them in teaching. This led to more emphasis on theory than practical agriculture with the result that most schools complete their secondary school agricultural syllabus in the classroom only and the aim is to pass the examination rather than skill acquisition.

Equally, lack of professional competency by teacher of agriculture in organization and administration in some schools also create problems in the teaching and learning of agricultural science in some schools, teachers of biology are made to teach agricultural science despite the fact that such teachers are not qualified to teach agricultural science. This can be attributed to shortage of agricultural teachers. Olaitan (1998) in his opinion stated that the acute shortage of teachers of agriculture are as a result of low and irregular payment of salaries therefore make those teachers to teach agriculture at various schools move for greener pasture where they can earn more. The result is that most secondary schools graduates of agricultural science in Ankpa education zone in Kogi state could not acquire the basic skills needed for agricultural occupation and majority of the graduates are jobless or unemployed which could be attributed to various vices in the society such as cultism, armed robbery among others. Most of the unemployed secondary school graduates in the state are found roaming the streets of towns or cities in search of non-existing jobs in some sectors of the economy. This implies that if the students were equipped with necessary work-skills, the secondary school graduates could contribute positively to increase in food production and thereby becoming self reliant and their nuisance in the town and cities is reduced. Hence, the study.

Purpose of the Study

Specifically, the study sought to:

1. determine the needs for integrating cooperative education into senior secondary school curriculum for enhancing skill acquisition.
2. identify entry-level skills required for various occupations in agriculture
3. identify the agro-based enterprises that the school could partner with for enhancing students skill acquisition
4. find out challenges teachers and students will face in integrating co-operative education in the secondary schools
5. identify the strategies for ameliorating the identified challenges of co-operative education

Summary of the procedures used for the study

In carrying out the study relevant literatures were reviewed to guide the study. The researcher made use of descriptive survey research design which made use of structured questionnaire. A structured questionnaire of 61 items was developed for collecting data from the respondents.

The population for the study was 135 made up of one hundred and twenty (120) agricultural science teachers and fifteen (15) managers of agro-based industries. A purposive random sampling was used to select 120 senior secondary agricultural teachers while the entire population of the managers of agro-based industries was used for the study. The developed structured questionnaire was face validated by three experts.

The reliability of the instrument was determined using Cronbach Alpha (α) reliability coefficient. A coefficient estimate of 0.83 was obtained. Five research questions were developed and two null hypotheses formulated. The structured questionnaire on integration of co-operative education into senior secondary school agricultural science curriculum for enhancing student's skill acquisition was administered on one hundred and thirty five (135) respondents to obtain data. One hundred and ten (110) were retrieved from agricultural science teachers while fifteen (15) copies were retrieved from managers of agro-based industries. On a whole, one hundred and twenty five (125) copies were returned and analyzed.

The one hundred and five (125) copies of questionnaire from the respondents were analyzed to answer the research questions developed and to test the hypotheses at 0.05 level of significance. Mean and standard deviation was used to answer the research questions while the t-test statistics was used to test the hypotheses.

Principal Findings of the Study

The analysis of the data in the study revealed that the following were agreed for what it takes to integrate co-operative education into secondary school agricultural science curriculum:

1. Ten (10) item statements on needs for the integration of co-operative education in the teaching of agriculture in secondary schools

2. Twenty (20) entry-level skills need in agriculture for skill enhancement
3. Twelve (12) agro-allied programmes school could partner with in the integration of co-operative education
4. Nine (9) challenges facing teachers and students
5. Ten (10) solutions to the challenges of co-operative education.

Conclusions

Agricultural Science is one of the subjects taught at both junior and senior secondary schools in Nigeria without the integration of co-operative education. It was discovered that there are needs for integrating co-operative education in the teaching of agricultural science in secondary schools for enhancing skill acquisition. Entry-level skills needs in agriculture for skill enhancement were pointed out. To achieve this laudable achievements, various agro-allied enterprises were identified for partnership aimed at enhancing practical teaching of agriculture in secondary schools that would enable school leavers appreciate the dignity of labour and be self-reliant and productive. The study had therefore, made the following contributions to the integration of co-operative education into senior school agricultural science curriculum:

1. The findings on the needs of integrating cooperating education programme into senior secondary school agricultural science curriculum if adopted would be of benefit to secondary school graduates by exposing the graduates to other areas which the school lack facilities and thereby gaining experiences that would help develop abilities in solving real farming problems at their own level.
2. The findings of the needs for integrating co-operative education into senior secondary school agricultural curriculum would also benefit the teachers of agricultural science if

adopted by providing the teachers with useful information that would help them to improve their methods of teaching.

3. The findings offer information on the entry-level skills required by students. The students would gain these entry-level skills to prepare them for occupation in agriculture and also providing information on the various skills in agricultural science where they can be trained and make a living after graduation.
4. The findings of this study provide information on advertisement. The agro-allied industries will benefit from this study by creating avenue through which the industries can advertise their products.
5. The findings on the challenges teachers and students face in integrating co-operative education into senior secondary agricultural science curriculum if adopted would benefit the curriculum planners as it will provide necessary information that will help them take measures to rectify the challenges.

Implications of the Study

The findings of the study had some implications for speedy integration of co-operative education into secondary school agricultural science curriculum:

1. If the teachers of agriculture, managers of agro-based industries, and students could partner with each others in the discharge of skills acquisition, this will go a long way to boost up agricultural sectors, agro-allied industries, and agricultural schools which could lead to economic proficiency of a nation.
2. If government, parastatals, and individuals could release funds as at when due, agricultural resources could be harnessed to minimized wastage of agricultural produce.

Recommendations

The following recommendations were made for implementation:

1. Government through the ministry of Education should encourage partnership of schools and industries through frequent field trips, excursions to enhance skill acquisition.

2. Students on field trips should be given transportation grants and subsidies to enable them progress in the exercise.
3. The identified challenges facing teachers in integrating co-operative education programmes should be strictly adhered to by granting in-service training for teachers at regular periods of time to promote skill advancement.

Suggestions for Further Study

It is suggested that further research could be carried out in the following areas:

1. Identification of facilities needed for implementing integration of co-operative education in Nigeria.
2. The effects of non inclusion of co-operative education programmes on the modern use of agricultural facilities in schools and colleges.
3. Professional improvement needs required by NCE graduates in students' involvement in industrial attachment in Nigeria.

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APPENDIX I
Lists of Secondary Schools in Ankpa Education Zone of Kogi State and their Number
of Agric Teachers in each School.

S/N	Names of Schools	No. Of Agric Teachers
1	ICSS INYE	2
2	ACSCC AWO	1
3	ADCGS ANKPA	3
4	CSS OKENYI	2
5	ECGS ENJEMA	2
6	YMCSS ANKPA	2
7	CICCC AWO-AKPALI	2
8	SCC ANKPA	8
9	ECSS OFUGO	2
10	OGSS OKABA	4
11	ODCSS OJOKU	2
12	ICSS IKAH	2
13	DSS KSCOE ANKPA	4
14	CSS OGODO	3
15	CSS OKABA	2
16	CAIS ANKPA	3
17	PMSS ANKPA	3
18	ALEKA ACADEMY ANKPA	2
19	UECSS ETI-AFOR	1
20	GSS ENABO	3
21	LGDSS ANKPA	2
22	CAIS OJOKU	2

23	CSS AJITATA	2
24	KSS ANKPA	2
25	OCSS OCHI-OFAGO	2
26	EFC ANKPA	1
27	CSS EMEKUTU	3
28	MISS AJOBE	1
29	GDSS IKANAEKPO	2
30	CGS OCHI-OFAGO	2
31	GSS INYE	1
32	UECSS ANKP	3
33	GLOBA SS ANKPA	2
34	GIGAL SS ANKPA	2
35	JNISS ANKPA	3
36	HOPE ACADEMY ANKPA	3
37	CSS OGEDE-AJIEKPE	3
38	IKOJA CSS AKWU	2
39	LEGS INYOLOGU	1
40	ALGDSS OFUGO	2
41	ASCAIS UDAMA OKENYI	2
42	COMSALSDOGS ANKPA	1

OLAMABORO LOCAL GOVERNMENT AREA

S/N	Names of Schools	No. Of Agric Teachers
1	EIC ODOETO	
2	ECSS EMODU	2
3	OCSS EMAGABA	2
4	GSS IMANE	3
5	ECC IYAGWU	3
6	KSSI UGO	3
7	ECSSA EMONOJI	2
8	JAMSS IGA	3
9	ECSS OGUGU	2
10	GOC AKPAKPA	3
11	OCGS OKPO	2
12	OCHS OFANTE	3
13	ACCS ETUTEKPE	2
14	ECSS EMONYOKU	3
15	ICC IKEJE	3
16	CSS AGALIGA	2
17	ECSS ADUPI	2
18	OCSS OGUGU	3
19	ECSS OMONYOKU	2
20	CHS ETUTEKPE	2
21	QICSS OGUGU	3
22	BABANAWA COLLEGE IGAH	2
23	SHS OKPO	2
24	ECSS EMAGABA	1

25	ACC TUKWO	2
26	OHS IGAH	2
27	ECC OGBOTEOKU	3
28	OCMC IGUMALE	2
29	GDSS IKEMU OGUGU	2
30	ACC EJULE OFANTE	2
31	ACSS OKPO	3
32	EVERGREEN ODOETO	2
33	ICGS IMANE	2
34	OHS IGAH OCHEBA	2
35	ECSS ALUDU EMODU	2
36	ECSS ADUM OGUGU	1
37	CSS ETTE	1
38	CSS EMONOJI OGUGU	2
39	GSS OKPO	3
40	GSS ETTEH	1

OMALA LOCAL GOVERNMENT AREA

S/NO	NAMES OF SCHOOLS	NO. OF AGRIC TEACHERS
2	GSS ABEJUKOLO	2
3	GSS ABEJUKOLO	3
4	IFE CSS ABEJUKOLO	3
5	ICSS BAGAJI ODO	1
6	IFE CSS IBADO	2
7	GDSS ABEJUKOLO	2
8	ACC AGOJEJU	1
9	BCSS BAGANA	1
10	OCSS OLLAH	2
11	UECSS OGODU	3
12	OCSS AJOKPACHI	2
13	OCSS OLOKWU	2
14	CSS AJIYOLO IFE	2
15	CSS ICHEKE	2
16	CSS OGODU	1

APPENDIX II

Lists of Sampled Schools in Ankpa Education Zone and the Number of Agric Teachers

S/N	Local Government Area	No. Of Agric Teachers
1	YMCSS ANKPA	2
2	ACDGS ANKPA	3
3	CAIS ANKPA	3
4	OCSS OKENYI	2
5	CSS EMEKTU	3
6	ECSS OFUGO	2
7	ECSS ENJEMA	2
8	GDSS INYE	1
9	UECSS ETI-AFO	1
10	PCDS PCJI-OFAGO	2
11	ODGSS OJOKU	2
12	CSS OKABA	2
13	CAIS OJOKU	2
14	CKC AWO-AKPALI	2
15	CSS IKA	2
16	GSS EMABO	3
17	UECSS ANKPA	1
18	ACCSS AWO	1
19	MISS AJOBE	1
20	ST CHARLES COLL. ANKPA	8
21	GTC ANKPA	3
22	GSS OKABA	3

S/N	Local government area	No. Of agric teachers
1	IGGS IMAE	2
2	ACSS EFABO	2
3	CSS ETUKWO	2
4	GSS OKPO	3
5	OCGS OKPO	3
6	ICC IKEJE	3
7	QICSS OGUGU	3
8	ECSS EMONYOKU	3
9	CHS ETUTEKPE	2
10	ECSS ADUM	1
11	ECSS EMAGABA	1
12	CHS OFANTE	2
13	ECSS OGBOJE	1
14	GDSS IKEM	1
15	CSS ADEH	1
16	OGSS OGUGU	3
17	JAMESS IGAH	2
18	OCMC IGUMALE	2

OMALA GOVERNMENT AREA

S/no	Local Government Area	No. of Agric Teachers
1	IYAJI COMM. SEC. SCH. ABEJUKOLO	3
2	ICSS ABEJUKOLO	2
3	ICSS IBADO	2
4	GDSS ABEJUKOLO	2
5	CSS OLLAH	2
6	ICGS BAGANA	2
7	ICSS AGBENEMA	2
8	ICSS BAGAJI Ì ODO	3
9	SPECIAL SCIENCE SCH. CHEKE	3
10	UECSS OGODU	3
11	PCSS AJOKPACHI	2
12	PCSS P;PKWU	2
13	CSS AJIYOLOIFE	3

APPENDIX III

Lists of Agro-Based Industries in Ankpa Education Zone of Kogi state

1. Rice mill industry Owelle Ankpa
2. Gari processing industry Ankpa
3. Cassava processing Mill Ankpa
4. Palm oil processing industry Okpo
5. Saw mill industry Okpo
6. Saw mill industry Ankpa
7. Saw mill industry Omalla
8. Cassava processing industry Okpo
9. Cassava processing industry Omalla
10. Rice mill industry Omalla
11. Palm oil processing industry Omalla
12. Gari processing industry Okpo
13. Gari processing industry Omalla
14. 2nd face saw mill industry Okpo
15. Omalla 2 Gari processing industry Omalla.

APPENDIX IV

RESEARCH INSTRUMENT

Department of Vocational Teacher Education
Agricultural Science Education Unit
University of Nigeria
Nsukka
Dateé é é é é é é é é é é ..

Dear Sir/Madam,

REQUEST TO RESPOND TO THE QUESTIONNAIRE

I am a post graduate student of the above named institution conducting a study titled Integration of co-operative education into senior secondary school agricultural science curriculum for enhancing studentsô skill acquisition. You have been selected to participate in this study. You are hereby required to read the questionnaire items carefully and respond to them as honesty as possible.

The information will be treated strictly for the purpose of this research only.

Yours faithfully,

Yahaya Joy

PART I

PERSONAL DATA

Fill in the spaces provided.

- 1 Name of your school/Agro-based industry
- 2 Gender is (a) male () (b) female ()
- 3 An Agricultural sc. teacher () An Agro-based industry worker ()
- 4 Year of experience: 1 ÷ 5yrs () 6 ÷ 10yrs () 11-15yrs () 16 and above.

PART TWO

Instruction:- Please check (ã) against the scale that best describes your opinion

Strongly agree	(SA)	4 points
Agree	(A)	3 points
Disagree	(D)	2 points
Strongly Disagree	(SD)	1 point

SECTION A

Needs for the integration of co-operative education in the teaching of agriculture in secondary schools in Ankpa Education zone of Kogi State.

S/N	ITEMS	SA	A	D	SD
1	Development of skills for proficiency in vocational agriculture				
2	Contribution to increase food production.				
3	Opportunities to earn, save and use money				
4	Provision of part-time employment.				
5	Sustenance of students's interest in agriculture.				
6	Development of managerial skills.				
7	Provision of opportunities to translate theory in the classroom into practice in the farm.				
8	Creation of desirable relationship between the school, home and community.				
9	Encouragement of co-operation and team work.				
10	Engaging students in productive work.				

SECTION B:

Entry-level skills need in Agriculture

S/N	ITEMS	SA	A	D	SD
1	Ability to select viable crops that can withstand any environmental conditions				
2	Prepare a well tilt garden for crops				
3	Process and store agricultural products				
4	Identify poultry birds that are prolific				
5	Select early laying birds				
6	Formulate balance ration				
7	Deworm infected birds				
8	Prepare land suitable for crops				
9	Carry out seed selection				
10	Control pests, weeds, and diseases using chemical				
11	Select breed of rabbit with best performance				
12	Construct cost less hutches				
13	Detect oestrus cycle				
14	Write legal description of land				
15	Take soil sample and read interpretation				
16	Take records of fertilizers used				
17	Calculate field hectares				
18	Paint fences				
19	Ability to prepare a sale ticket				
20	Ability to manage forest				

SECTION C

Commercial agricultural enterprise which schools could partner with

S/N	ITEMS	SA	A	D	SD
1	Palm oil processing company				
2	Garri processing company				
3	Palm oil plantation				
4	Workshop (Ministry of Agriculture)				
5	Poultry farms				
6	Rice mill industry				
7	Abattoir				
8	Horticultural garden				
9	Saw mill				
10	Tractor hiring unit				
11	Research Institutes				
12	Agro-service centre				

SECTION D

Challenges facing teachers and students in integrating co-operative education programme in the teaching of agriculture.

S/NO	ITEMS	SA	A	D	SD
1	Lack of relevant resources.				
2	Teachers are not motivated to be innovative.				
3	Teachers have heavy teaching loads				
4	The school time table provide little time for practical work				
5	Poor school/community relationship.				
6	Insufficient fund for field trips.				
7	Insufficient learning environment.				
8	Balancing of supervision with teaching duties.				
9	Students' unwillingness to participate in training.				

SECTION E

Solutions to challenges of cooperative education.

S/N	ITEMS	SA	A	D	SD
1	Adequate fund for agricultural teachers.				
2	Adequate practical equipment.				
3	Motivation of students .				
4	In-service training for teacher.				
5	Adequate time for practical work.				
6	Safe learning environment.				
7	Adequate staffing.				
8	Minimal teacher/student ratio.				
9	Prompt payment of teachers'salaries.				
10	Transportation facilities.				

APPENDIX V
Reliability Test Analysis for each of the Clusters using Cronbach Alpha
Reliability Coefficient

SECTION A

$$\sum S_i^2 = 2.09$$

$$S^2 = 32.8$$

$$a = \frac{K}{K-1} \left[1 - \frac{\sum S_i^2}{S^2} \right]$$

$$a = \frac{10}{10-1} \left[1 - \frac{2.09}{32.8} \right]$$

$$a = 1.1 [0.9]$$

$$a = 0.99$$

SECTION B

$$\sum S_i^2 = 2.23$$

$$S^2 = 30.33$$

$$a = \frac{9}{9-1} \left[1 - \frac{2.23}{30.33} \right]$$

$$a = \frac{9}{8} [1 - 0.073]$$

$$a = 1.1 [0.92]$$

$$a = 1.0$$

SECTION C

$$\sum S_i^2 = 2.92$$

$$S^2 = 34.9$$

$$a = \frac{12}{12-1} \left[1 - \frac{2.92}{34.9} \right]$$

$$a = \frac{12}{11} [1 - 0.083]$$

$$a = 1.09 [0.91]$$

$$a = 0.99$$

SECTION D

$$\sum S_i^2 = 2.02$$

$$S^2 = 4.19$$

$$a = \frac{9}{8} \left[1 - \frac{2.02}{4.19} \right]$$

$$a = 1.12 [1 - 0.48]$$

$$a = 1.12 [0.51]$$

$$a = 0.60$$

SECTION E

$$\sum S_i^2 = 2.42$$

$$S^2 = 4.92$$

$$a = \frac{10}{9} \left[1 - \frac{2.42}{4.92} \right]$$

$$a = 1.12 [1 - 0.49]$$

$$a = 1.12 [0.51]$$

$$a = 0.57$$

$$\text{ENTIRE } R = \frac{\text{CLUSTER A} + \text{B} + \text{C} + \text{D} + \text{E}}{5}$$

$$R = \frac{0.99 + 1.0 + 0.99 + 0.6 + 0.57}{5}$$

$$R = \frac{4.15}{5}$$

$$R = 0.83$$

INTEGRATION OF COOPERATIVE EDUCATION INTO SENIOR SECONDARY SCHOOL
AGRICULTURAL SCIENCE CURRICULUM FOR ENHANCING STUDENTS'SKILL
ACQUISITION IN ANKPA EDUCATION ZONE OF
KOGI STATE.

BY

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December, 2014