# PAEDAGOGICAL-CAPACITY BUILDING NEEDS OF AGRICULTURAL SCIENCE TEACHERS FOR EFFECTIVE LESSON DELIVERY IN SECONDARY SCHOOLS IN KWARA STATE, NIGERIA

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AHMADU BELLO UNIVERSITY,
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## DECLARATION

This dissertation, paedagogical-capacity building building needs of agricultural science teachers for effective lesson delivery in secondary schools in Kwara state, Nigeria has been carried out by me in the Department of Vocational and Technical Education. The authors whose work were cited are duly acknowledged in the list of references. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

_____ _____

ABBAS, Abdullahi Ndabishe Date

## CERTIFICATION

This dissertation titled PAEDAGOGICAL-CAPACITY BUILDING NEEDS OF AGRICULTURAL SCIENCE TEACHERS FOR EFFECTIVE LESSON DELIVERY IN SECONDARY SCHOOLS IN KWARA STATE, NIGERIA by ABDULLAHI NDABISHE ABBAS meets the regulations governing the award of the degree of Master of science (AGRICULTURAL EDUCATION) of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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## DEDICATION

This research work is dedicated to my wife Aisha; and children. Khadijat, Abdullahi and Soliu who stood by me from the beginning to the end of this work.

## ACKNOWLEDGEMENT

The research's' immense gratitude goes to the Almighty Allah, the Knowledgeable, the promoter and the everlasting for keeping me alive and granting me knowledge and wisdom and strength to carry out this study.

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## ABSTRACT

*This study assessed the paedagogical-capacity building needs of agricultural science teachers for effective lesson delivery in secondary schools in Kwara State, Nigeria. The study was conducted with five objectives and five corresponding research questions and five null hypotheses were formulated and tested. The study adopted descriptive survey research design. A total of 200 agricultural science teachers and principals were respondents in the study. Structured questionnaire tagged Paedagogical-capacity building Needs Questionnaire (PCBNQ) designed by the researcher was used for data collection. The instrument was face validated by three experts and a sample of 20 teachers and principals were used to determine the reliability of the instrument using Cronbach alpha technique with a coefficient of 0.890. Data was analyzed using descriptive statistics to answer the research questions while independent t-test was used to test the null hypotheses at 0.05 level of significance. There was no significant difference in the views of respondents on the paedagogical-capacity building needs of agricultural science teachers in all 25 items and Hypotheses no differences was accepted. This study findings among others revealed that there is no significant difference in the mean score of despondence in paedagogical-capacity building need in proper planning of instructions in secondary schools in Kwara State. Based on the findings of this study, it is recommended among others that agricultural science teachers should be sent on in-service trainings in the areas of instructional planning and teaching methods to improve paedagogical-capacity building need of teachers for better instructional resource organization in secondary schools.*

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| | | |
|---|---|---|
| **CB** | : | Paedagogical-capacity building |
| **CESAC** | : | Council for Educational Studies and Adaptation Center |
| **NERDC** | : | Nigerian Education Research and Development Council |
| **PC** | : | Professional Competency |
| **TSC** | : | Teaching Service Commission |
| **UNDP** | : | United Nations Development Programme |

## OPERATIONAL DEFINITION OF TERMS

**Teacher of Agricultural Science:-** Is an individual who is trained in paedagogical and technical areas of Agricultural science and is charged with the responsibilities of imparting knowledge, skills and attitude to students.

**Capacity-Building:-** Is the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enable him to perform better. Capacity-Building focuses on a series of actions directed at helping individuals in the development process to increase knowledge, skills and understanding they possess and to develop the attitude needed to bring about desired developmental change in them.

**Professional Competency:-** it is a combination of knowledge and capabilities which allow the performance of an occupation according to the demand of production and employment, it is the abilities to perform the duties of one's professions to an acceptable qualities.

**Paedagogy:-** Is the discipline that deals with the theory and practice of teaching. It implies teacher actions, judgment and decision by taking into consideration theories of learning.

# CHAPTER ONE

# INTRODCUTION

## 1.1 Background to the Study

Education, skills development and life-long learning are central pillars for job performance of educated and trained individuals who teach school subjects including agricultural science who become professional teachers. A profession is connected with any prestige holding occupation that needs special occupational training. Teaching as a profession requires the acquisition of knowledge, skills and attitude through a long period of education and training that leads to the award of certificate recognized by the members of the profession, with the aim of providing services in the teaching profession.

A teacher of agricultural science is an individual who is trained in paedagogical and technical areas of agricultural science and is charged with the responsibilities of imparting knowledge, skills and attitude to students. A teacher of agricultural science is a person who performs the specialized function of educating others in formal schools or institutions to bring about learning in the field of agriculture. A teacher of agricultural science performs certain professional responsibilities which include planning the school instruction; organizing instructional resources; implementing instruction; evaluating instruction, managing practicals in agriculture, maintaining student-teacher relationship, maintaining teacher-community relationship and guiding students' career or occupational choice through well coordinated instruction.

According to Ahmed (2000), instruction refers to systematic imparting of knowledge, skills, attitudes and modes of conduct by oral speech and written language of the content to be presented. Ogwo and Oranu (2006) opined that instruction is an interaction between the teacher

and the learner (within the interaction, the teacher teaches and the learner learns) to bring about effective lesson delivery. Effective lesson delivery in the view of Nancy and Shirley (2006), is the systematic use of selected techniques, methods and strategies to create a dynamic interface between the curriculum and learners. On the other hand, Stenberg (1998), sees effective Lesson delivery as the use of various techniques and methods of presenting the subject matter or content in an organized manner, focusing presentation on teaching goals and creating possibilities in order to meet the learners' needs and interests and goals of secondary school education in Nigeria.

Secondary school has been described by the National Policy on Education (2004) as an institution that children attend after primary school. Hornby (2006) explains that secondary school is a place or early adolescents go for education. In Nigeria it is made up of six years duration of three years of junior secondary school and three years of senior secondary school where agricultural science is taught. Among subjects of instruction at secondary school level is agricultural science which according to Emejulu (1995) is the use of land and its resources to grow crops and rear livestock to provide specific produce used by human beings. According to Jacob (2003), agricultural science is the tilling of soil for growing crops, raising of livestock and processing and marketing them for human and livestock use under the guidance of the teacher.

The teacher, during instruction, is very mindful of the achievement of the objectives of agricultural science. The objectives of agricultural science according to Council for Educational Studies and Adaptation Center (CESAC, 1985) for secondary schools are to stimulate and sustain student's interest in agriculture; enable students achieve basic knowledge and practical skills in agriculture; prepare students for further studies in agriculture; and prepare students for occupation in agriculture. The achievement of these objectives requires the professional

competence of a teacher of agricultural science. A competent teacher is one who possesses the required knowledge, skills and attitudes for imparting instruction in agricultural science to the students. Competency in the view of Ely (2010), is composed of essential knowledge and skills obtainable in a profession and those which the professional in the field must possess and be able to demonstrate at optimal level of acquisition functioning. Olaitan and Ali (1997) define competency as knowledge, skills, attitudes and judgment generally needed for the successful performance of a task.

The process of determining the paedagogical capacity-building needs of agricultural science teachers is known as assessment. Assessment is require a process through which the quality of an individuals' work or performance is judged. According to Okoro (2000), assessment is a process of estimating the worth, quality or effectiveness of a programme or instruction through collected data. Okoro (2007) further reveals the level of quality or standard of instruction or performance of the objectives of the agricultural education programme. He further states that assessment is the process of judging or deciding the amount, value, quality or importance of a programme or teachers instruction in a teaching-learning process.

Needs assessment as explained by Anyakoha (2010), is a type of evaluation research used in determining various areas of need or discrepancies in education. Need assessment is the process of determining the difference between the level of knowledge, skills and attitudes possessed and what is expected by teachers in the areas of instruction in agricultural science. This process gives a value called need gap. The actual process, of estimating the amount or quantity of need gap is called need gap analysis which could give rise to capacity-building.

Capacity-building as contained in the report of United Nations Development Programme (UNDP, 2002), is the process of equipping individuals with the understanding, skills and access

to information, knowledge and training that enable them to perform better. It states further that capacity-building focuses on a series of actions directed at helping individuals in the development process to increase knowledge, skills and understanding they possess and to develop the attitude needed to bring about desired developmental change in them. In the opinion of Olaitan, Alaribe and Nwobu (2009), capacity-building is an efforts geared towards improving the level of knowledge, skills and attitude possessed by an individual for proficiency in a given task or job.

In order to establish the paedagogical needs of the agricultural science teachers in the study area, it is required that necessary training and re-training of teachers through capacity-building intervention programmes such as seminar, workshop and in-service on competent improvement to up-date their knowledge, skills and attitudes for effective lesson delivery is imperative. Therefore, it is in view of this, the study tries to identify professional-competency, of agricultural science teachers for effective lesson delivery in secondary schools in Kwara State.

## 1.2 Statement of the Problem

Agricultural science teachers in senior secondary schools in Kwara State are employed to impart knowledge, skills and attitudes in their subject's area to the students. The teachers who are NCE and university graduates, are expected to teach the content of agricultural science towards achieving the stated objectives. Therefore the system accorded them the sole responsibility of teaching agricultural science to students for the performance of the states objectives. Despite the activities of teachers to see that the objectives of teaching agricultural science in senior secondary schools are achieved, it is evident from West African School Certificate Examinations (WASCE) and National Examinations Council School Certificate

Examinations (NECOSCE) results of 2011-2013 that students performed poorly in agricultural science.

The interaction of the researcher with some parents of senior secondary school graduates in one of the parents teachers association meetings at Lafiagi Secondary School and Government Secondary School Gbugbu, among others in 2015 revealed that parents were having growing concern about the low level of performance of their children in SSCE and NECO examinations. Parents therefore requested for a change for better result in future examinations. With the researchers' observation above, it was opined that teachers' paedagogical-capacity building needs on instructional delivery need not to be compromised. It is based on this assertion that the researcher became interested to find out the paedagogical-capacity building needs of agricultural science teachers for effective lesson delivery in secondary schools in kwara state Nigeria

## 1.3 Objectives of the Study

The major objective of the study was to determine the paedagogical capacity-building needs of agricultural science teachers for effective lesson delivery in secondary schools in Kwara State, Nigeria. Specifically, the study sought to determine the paedagogical-capacity building needs of agricultural science teachers in the area of:

1. Proper planning of instruction in agricultural science in secondary schools in Kwara State.
2. Organization of instructional resources in agricultural science in secondary schools in Kwara State;
3. Implementation of instruction in agricultural science in secondary schools in Kwara State;
4. Management of practicals in agricultural science in secondary schools in Kwara State.

5. Evaluation of instruction in agricultural science in secondary schools in Kwara State.

## 1.4 Research Questions

The following research questions guided the study.

1. What are the paedagogical-capacity building needs of agricultural science teachers for proper planning of instruction in secondary schools in Kwara State?
2. What are the paedagogical-capacity building needs of agricultural science teachers in organizing instructional resources in agricultural science in secondary schools in Kwara State?
3. What are the paedagogical-capacity building needs of agricultural science teachers in implementing instruction in agricultural science in secondary schools in Kwara State?
4. What are the paedagogical-capacity building needs of agricultural science teachers in managing practicals in agricultural science in secondary schools in Kwara State?
5. What are the paedagogical-capacity building needs of agricultural science teachers in evaluating instruction in agricultural science in secondary schools in Kwara State?

## 1.5 Research Hypotheses

The following null hypotheses were tested in the study:

$Ho_1$ There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in proper planning of instruction in public secondary schools in Kwara State.

$Ho_2$ There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in organizing instructional resources in public secondary schools in Kwara State.

$Ho_3$ There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in implementing instruction to students in public secondary schools in Kwara State.

$Ho_4$ There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in managing practicals in agriculture in public secondary schools in Kwara State.

$Ho_5$ There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in evaluating instruction in Public secondary schools in Kwara State.

## 1.6 Basic Assumptions of the Study

The study will be conducted based on the following assumptions:

1. Teachers and principals will be honest in responding to the items in the questionnaire.
2. The questionnaire items are properly worded to elicit the required information from the respondents
3. The views expressed by the respondents will be strong enough to be used to generalize the views of the wider public on the variables under study.

## 1.7 Significance of the Study

The findings of this study will benefit the teaching service commission, principals, teachers, students, policy makers and future researchers. The findings of this research will provide information to the teaching service commission of Kwara State on the need to retrain teachers so as to improve the competencies required by the teachers for effective teaching and learning of agricultural science in secondary schools in Kwara state.

The Principals of various schools will use the information generated from the study to encourage their teachers in recommending re-training that will improve teachers competencies for effective lesson delivery for effective teaching and learning of Agricultural science. Also, outcome of this research will provide information that will motivate principals to make recommendation to state ministry of education for the procurement of agricultural facilities in schools to enhance agricultural skill teaching and learning.

Agricultural science teachers will be sensitized on their paedagogical-capacity building to seek for sponsorship from their administrators in order to attend re-trainingprogramme to equip them on the effective teaching of agricultural science. Teaching for skill acquisition is a very crucialissue in educational process. In order tomaximize the gains of vocational education; in skill training, exposureand background experience matters a greatdeal as such, findings from this study will motivate agriculture teachers to always attend conferences, seminars and workshops organized by the government for in-service agriculture teachers in a bid to retrain and keep them abreast of measures aimed at skill learning andacquisition. Students will benefit from the findings of this study with a view to improve their interest in agricultural science.

Findings from this study will help policy makers to adjust or revise programmes, reformulate policies, and design innovative solutions to respond to and anticipate training needs. This can be summarized in a coherent evaluation policy guided by a public policy approach skills development. Similarly, evaluations play an important role in contributing to generate and improve skills development systems and policies. If a country is trying to develop a coherent policy for human resource development, evaluations should be able to generate input to contribute to that goal. Hence, outcome of this research work will reveal the importance of evaluation in skills development systems.

Expectedly, future researchers will be significantly benefited from this study as it will show other areas where further research need to be carried out.

## 1.8 Delimitation of the Study

The study will be delimited to the paedogogical capacity-building needs of agricultural science Teachers for effective lesson delivery in senior secondary schools in Kwara States in the area of planning, organizing, implementing, managing farm practicals and evaluating instruction.

The research was conducted at Kwara State to include only from agricultural science teachers and principals in the selected senior secondary schools in Kwara state through the use of questionnaire.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

The review of related literature is presented under the following sub-headings:



## 2.1 Theoretical Framework of the Study

A theory is a statement or an idea which explains a fact or an observation being made by someone. Theory in the view of Beauchamp in Olaitan (2003), is a set of related statements, that are arranged systematically to a set of series or events.

One theory related to this study is Brunner's theory, who states that, the sequence in which a learner encounters materials within a domain of knowledge affects the difficulty he/she will have in achieving mastery. The author further said that there is no unique sequence for all learners and the optimum in any particular case will depend upon a variety of factors including; (i) past learning; (ii) stage of development; (iii) nature of the material; and (iv) individual differences. Materials presented together will be associated in the learner's memory and more easily recalled. The author explains that events, ideas, words, concepts and stimuli in general which are not organized and logically sequenced in some meaningful way are harder to understand and remember than those which are organized and logically sequenced. Yet, author states that, when sequencing, the first and last displays in any sequence are very important, hence, introductions and summaries are key learning opportunities.

Brunner (1996) explained that, the relationship with the people and the things in the school environment should make the student willing and able to learn when he enters the schools. The author states further to analyze some factors that can predispose student towards learning which are;

(a) personal factors; for example the relationship of teacher to student; the degree to which a student develops and independent skill and the degree to which he is confident of his ability to perform on his own affects the nature of learning that occurs.

(b) The cultural and motivational factors; for example different ethnic groupings: age groups, social classes and sex type.

These factors affect the desire to learn and to undertake problem-solving on the part of the student.

The theory according to Brunner (1996) further explains that, instruction should specify the followings;

1. The experiences which most effective implant in the individual a predisposition towards learning;
2. The ways in which a body of knowledge should be structured so that the learner can most readily grasp it;
3. The most effective sequences in which to present materials to be learnt;
4. The nature and pacing of rewards and punishments in the process of learning and teaching.

Instruction should specify the experiences which most effectively implant in the individual a predisposition towards learning. Kearsely (1994) states that instruction must be concerned with the experiences and contexts that make the student willing and able to learn (readiness).

Ughamadu (1992) in his theory of instruction explained that leaning experiences to be selected should be those that afford the student better chances of achieving the specified instructional objectives. The author said that things like students' intelligence, reading ability, special interests, and study habit should be known and used by the teacher to develop the student interest to learn. Omomia (2002) in the same view states that learning experience must be relevant, pleasurable and harmonious in order to influence students towards learning. This aspect of theory of instructional explained the necessary conditions that can influence students towards learning. Agricultural science teachers are expected to be competent in selecting the learning experiences, in providing the necessary conditions that will make the students to willing and ready to learn, be acquainted with the methods and techniques of imparting knowledge, skill and attitude in order to make his/her teaching effective. These views with regard to the theory of instruction is

relevant to this study as it will help the researcher in understanding and selecting relevant instructional conditions in teaching and learning of agricultural science.

Ahmed (2000) in a related theory explains that any idea, problem or body of knowledge can be presented in a way simple enough, so that any student can understand it, provided it has been structured in an appropriate way. The learning task as explained by the author is to grasp this structure. To grasp a subject structure is to understand it, so that many other things can be related to it meaningfully. To learn structure is to learn how things are related to one another. According to Ogumbameru (2005) states that knowledge is a process and not product, the acquisition depends on the ability of the student to relate the incoming information to the previously acquired ones. Its effectiveness depends on the students' ability to spot the relationship and relatedness of the formerly acquired knowledge and the new idea. The author said that the ultimate aim of teaching any subject or group of related subject is generally understanding of the structure of subject matter. When body knowledge is structured in a way that makes the students understand it, students will be able to utilize it in both present, future learning and living situations (Ogunbameru, 2005). This aspect of the theory of instruction guided the researcher on how to select relevant methods and techniques for the teacher of agricultural science that could utilize and simplify the content of what is to be teacher and how it is taught. Consequently, the theory further explained that learning is effective if it is organized from simple to complex and from known to unknown in a sequence manner. In the opinion of Osinem (2008) said that the manner in which instructions are sequenced can improve the effectiveness of instruction. The author explained further that, task analysis should first be conducted, to determine the relationship among the skills, necessary for achievement of the goal behaviour. The author said that sequence decisions should be based on this information. The

contributions of these authors suggest that in instruction, learning experiences should be logically arranged or sequenced and ensure that learning tasks are not beyond the capability of the students. A simple to complex sequence will make the students to be aware and understand the importance of the difference ideas being taught and the same time make the experiences to be meaningful to them. In the context of this study, the theories reviewed are relevant in that it helped the researcher to sequenced and arranged logically the competencies of agricultural science teachers they must acquire for instruction in order to improve their paedagogical-capability building needs.

This study identified with Brunner's theory of instructions as outlined by the four areas of instruction of the theory. The theory guided the researcher in identifying and selecting relevant conditions of learning, methods and techniques that agricultural science teachers could use for simplifying content areas in the subject as well as arranging in sequence the competencies of instruction during teaching and learning situation in agricultural science.

## 2.2 Conceptual Framework of the Study

This study therefore, will be based on the review of literature on the following concepts.

### 2.2.1 Schematic Conceptual Framework of the Study

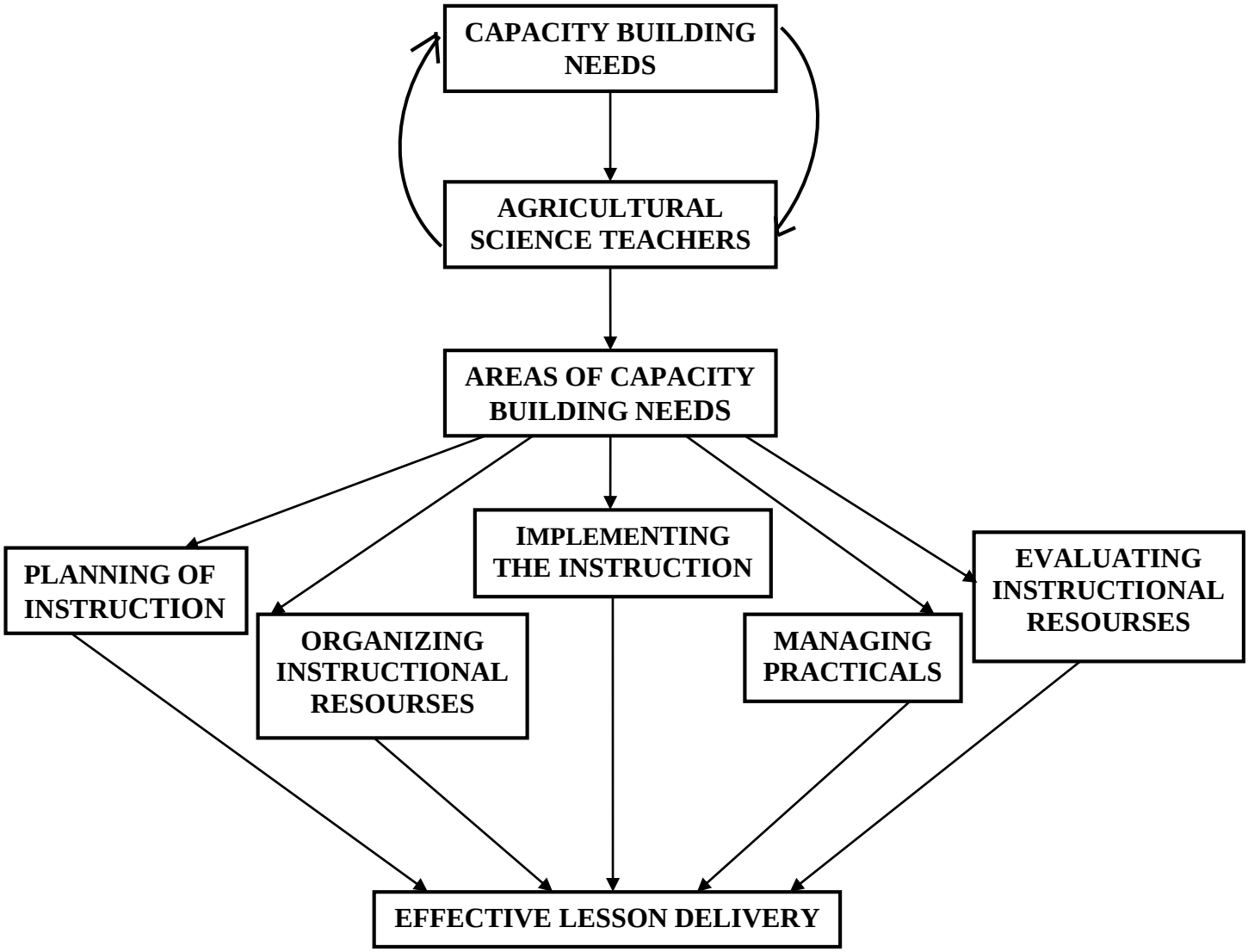


Figure 1: Researchers' conceptual framework of paedagogical capacity building needs of agricultural science teachers for effective lesson delivery in secondary school in Kwara State.

Source; Nancy and Shirley, (2006).

Figure one (1) represents the study-linked concept which involves paedagogical-capacity building for Effective lesson delivery in agricultural science. Instruction can involve knowledge, skills and attitudes that are identifiable through some related approaches in order to make instruction effective when the teacher is trained on the instructional skills or competencies identified through these approaches. Teacher effective lesson delivery can be ascertained as indicated in the figure through the mastery of teaching skills and the paedagogical-capacity building which can also emanate from the required teacher effective lesson delivery or standard through assessment. The paedagogical-capacity building required has positive effect on teacher effectiveness, instruction and professionalism if well implemented.

### 2.2.2 Concept of Job Analysis

Job analysis as defined by Allen (2010) is a process of examining jobs in order to identify their main features in particular, the duties they fulfill, the results they are expected to achieve, the major tasks undertaken and the job relationship with other jobs. It is the breaking down of job into its component and associated tasks. Job performance is statement of all facts, concerning a job which reveals its content and the modifying factors that surround it. It is an attempt of listing all the skills, knowledge and attitudes, the learner must be taught by a teacher, if he is to learn the complete trade. Osuala (2004) describes job performance as detailed listing of duties, operation and skills necessary for performing a clearly the defined job. Such operations and skills are organized into a logical sequence, which may be used for teaching, employment or classification purposes.

The purpose of a job performance as identified by Olaitan and Ali (1997), are to; establish a priority system for selection and placement on the job; establish criteria of job success; provide preliminary estimation of the trait, which may be evaluated in selecting a person

for the job and estimate trait which differentiate success on the job from success on another job. Some aspects of the author opinion such as evaluating the students for effect guidance in selecting related subjects for agricultural occupation by Agricultural Science Teachers are relevant to this study. Carter (1999) states the followings as the uses of job performance. They are; to identify specific job requirement and work environmental factors that could affect job performance; it can be used in training to develop training content and it can be used in training individual for skills required to enter in to various jobs. The opinion of this author is relevant to this study in areas of training, individual teachers of agriculture science for acquisition of skills in teaching agricultural science for improvement.

In the opinion of Osuala (2004), the purpose of job performance is to identify specific job requirements and factors that could affect job performance. Alaribe Et al (2010) states the following steps in job performance; identify criteria of success on the job; identify the traits that will predict the criteria for success, and identify what a worker does. The aspect of identify what a workers does. The aspect of identify what a worker does will guide the researcher in selecting relevant skills that could enhance agricultural teachers performance. In the context of this study, job performance is relevant because it leads to identification of skills required for successful performance of teaching by Agricultural Science Teachers. Job performance attempts to list all the skills, knowledge and attitudes the learner must be taught by the Agricultural Science Teachers. These skills could be arranged into tasks for effective sequencing of what is required in job. Job performance will be used with other concepts such as skills acquisition in organizing the questionnaire items for this study.

### 2.2.3 Concept of Task Analysis

Task analysis defined by Hull in Olaitan (2003), is a detailed listing of all duties operations and skills necessary for performing a task. The author said that, such operations and skills are organized in to logical sequence and may be used for training and employment. Batel in Okoro (2010) states that skill acquisition is discrete learning items, having a definite starting and stopping points which can be performed and/or learned within a relatively short period of item. The author said that a skill may be cognitive, affective or psychomotor in nature. In the view of Hackos and Redish (2008), skill acquisition is what a user is required to do in terms of actions and cognitive process, to be achieved in a work.

Hence, Okafor in Ogwo (2006), opines that skill acquisition is used to select training curriculum if trainer want to produce workers with certain skills. Alaribe et al (2010) enumerated the importance of skill acquisition as follows; it provides basis for collecting interrelated information about work, in order to allocate priorities; it helps to make decision about structuring a learning environment; it makes content selection in any work valid; it helps in specifying instructional objectives; it is useful in designing of instructional activities; it helps in determining of instructional activities and its is useful in evaluating performance. This view is relevant to this study because it will guide the researcher in selecting relevant questionnaire items on planning and evaluating instruction.

In the views of Jonassen, (2008), skill acquisition is useful in the following ways; it helps to determine the instructional goals and objectives; it provides basis for defining and describing in detail, the tasks and sub-tasks that the student will perform; it specifies the knowledge type that characterize a job or task; it helps in selecting learning outcomes that are appropriate for instructional development; it prioritizes tasks; it serves as basis for determining instructional

activities and strategies that foster learning; it aids in selecting appropriate media and learning environments, and it helps in constructing performance assessments and evaluation. Some aspects of this review are related to this study in areas like selection of goals, objectives and evaluation in agricultural science.

There are basic steps or processes to follow in skill acquisition. In the view of Hackos and Redish 2008), skills are broken down, from high level to their constituent sub-skills and operations. The author presented five steps of decomposition or breakdown of skills as follows; identify the skill to be acquired; break this down into eight (8) sub-skill. These sub-skills should be specified in terms of objectives and should cover the whole area of interest; draw the sub-skills as a layers diagramed ensuring that it is complete; continue the decomposition (breakdown) process ensuring that decompositions and numbering are consistent and present the analysis to someone also, who has not been involved in the decomposition but who knows the tasks well enough to check for consistency.

These steps will help agricultural science teachers in breaking down tasks in agricultural science to sub-tasks for effective teaching hence it is relevant. Jonassen (2008) identifies five steps of skill acquisition. These are: classifying skills according to learning outcomes; inventory skills, that is, identifying skills or generating a list of skills; selecting skills, that is, prioritizing skills and choosing those that are more feasible and appropriate if there is an abundance of skills to train; decomposing skills, that is, identifying and describing the components of the skills, goals or objectives and sequencing skills and sub-skills, that is, defining the sequence in which instruction should occur that will best facilitate learning. This review will guide the researcher on identifying components of agricultural goals and objectives for developing relevant questionnaire items for this study.

### 2.2.4 Competency-Based Approach

Competency was described by Olaitan (2003) as behaviours, skills and attitudes which are required for successful performance of a task to be identified and then design instruction to produce the skills. Ogwo (2006) in his own opinion, said that competency-based approach is characterized by clearly states, attainable and measurable objectives, followed by identified knowledge and skills that learners have to master within a given time frame. The author said that the approach is performance oriented, that is, it emphasize the demonstration of skill on the job. Olaitan and Ali (2008) states that competency-based approach is one of the most relevant approaches to curriculum technology, used to provide improvement training for professional teachers.

The uses of competency based approach were highlighted by Olaitan (2003) as follows: to assure educators that are providing appropriate vocational education; it helps teachers to make decisions relative to what to teach, when to teach it and how much time to spend on it; it helps teachers to organize knowledge and skill for each task into hierarchy and this aspect of review will guide the researcher to select relevant questionnaire items on when Agricultural Science Teachers are to teach, when to teach and the time to spend on teaching. Some aspects of this review will help the researcher to identify relevant agricultural science teachers' competencies for the questionnaire items. Olaitan Et al (2008) outlined the steps in competency-based approach. they include:

(i) Identification of all tasks to be learnt.

(ii) Identification of the competencies required in order to carry out a particular function effectively and using the identified competencies as basis for teaching and learning.

(iii) Arrangement of tasks or jobs in appropriate courses.

(iv) Organize knowledge and skill for each task or job into a hierarchy.

(v) Determine what one needs to know for mastery of each knowledge or skill. Some aspects of this study, competency-based approach is relevant in that it will help the researcher to identify the professional competencies required by the teacher for Effective Lesson delivery in planning, organizing, implementing and evaluating instructions as part of the questionnaire required for the study. Through this approach, the researcher could identify those competencies where the teacher required improvement for Effective Lesson delivery in agricultural science.

### 2.2.5 Concept of Effective Lesson delivery

Effective lesson delivery is the use of teaching techniques and methods in an organized manner in order to achieve the learning outcomes. Effective lesson delivery according to Olaitan Et al (2010), is the process whereby the planning and presentation of a lesson by a teacher have caused a change in behaviour on the part of learners. Effectiveness of instruction is revealed by sufficient demonstration that the students have achieved the objectives instruction. For an instruction to be effective according to Nancy and Shirly (2006), the teacher should play a central role in planning, organizing and implementing instructional to meet the well-defined leaning objectives. The authors states further that the more proficient the teacher is in terms of paedagogical competence the better the achievement of the students.

Effective lesson delivery has some characteristic. Stermberg (2006) outlined some basic characteristics of effective lesson delivery. They are as follows:

(i) Presenting contents and tasks clearly in an organized way;

(ii) Verifying instructional methods during different phases of instruction;

(iii) Focusing instruction on the teaching goals;

(iv) Offering plenty opportunities for exercises;

(v) Considering individual difference and learning progresses;

(vi) Establishing a good social-emotional climate between student and teachers; and

(vii) Emphasizing essentials not trivialities.

There are some elements which the students should experience in order to achieve the states objectives. Hunter (2011) listed the following elements as basis for effective lesson delivery. They include:

(1) *Objectives and standards:* The teacher should know what objective and standards performance to be expected and the students should be informed about these objectives and standards.

(2) *Set:* The purpose of this element is to get and focus student attention to the lesson. The teacher should attempt to create receptive minds in the students.

(3) *Teaching:* This element includes input, modeling and checking for understanding. Each of these components can incorporate various methods and techniques.

(4) *Guided practice:* This is an opportunity for students to grasp and develop concern through participation in activity or exercise.

(5) *Closure:* This purpose is to help the students bring things together in their own minds that is, allowing the brain to secure the parts of the concept as a whole.

(6) *Independent practice:* This is to reinforce the content or skill that was mastered in the lesson Independent practice should include the use of the concept or skill in a context other than the one in which it was learnt. The above elements constitute the effectiveness of professional teacher when they are expressed and changes are observed in learners accordingly.

There are some guides a teacher must put into consideration when teaching, they are called guides to effective lesson delivery. In the view of Jim (2008), guide to effective lesson delivery are as follows; vary instructional methods and strategies; teach students how to think and learn; assess understanding and use the results to improve instruction; incorporate tools and technology to enhance instruction; support all students to ensure their success; maintain a safe, productive learning environment; teach skills and knowledge in context and through applications; organize instruction around meaningful conversations and sustained inquiries; make connections to the students' live, other studies and world and design lessons and units maximum learning, understanding and engagement.

Effective lesson delivery is important in the following ways according to Nancy and Shirley (2006) who states the importance of effective lesson delivery; they include the following; (1) effective lesson delivery supports students thinking, learning motivates them and offers an emotionally sound context. It produces cognitive effects if teaching goals are states, pre-knowledge is activated stimulating content are presented, learning process are guided and learning progress is evaluated; it helps students to see the relevance of the subject matter content and strengthens their self-confidence; it assist students in finding and increasing their personal strength in order to overcome personal weakness and effective lesson delivery results to satisfaction when learning objective are achieved.

When a teacher produces positive changed behaviour in his students it can be said that they have learnt and that Effective Lesson delivery had taken place and the teacher is also effective. Therefore in the context of this study a teacher who expected to be effective must be able to plan, organize, implement and evaluate instruction and obtain knowledge of result that indicate some positive change in the students of agricultural science in secondary school.

### 2.2.6 Paedagogical-capacity building on Agricultural Teachers for Effective Lesson delivery

Paedagogical-capacity building means building abilities, relationships and values that will enable organizations, groups and individuals to improve their performance and achieve their development objectives. It includes strengthening the processes, systems and rules that influence collective and individual behaviour and performance in all development endeavours. United Nations Development Programme (2002) stressed that paedagogical-capacity building refers to enhancing people's technical ability and willingness to play new developmental roles and adapt to new demands and situations. Paedagogical-capacity building, therefore, refers to the set of activities directed towards improving competencies and capacities of teachers of agricultural for effective teaching of students of agricultural senior secondary schools in Kwara State. The paedagogical-capacity building of the agricultural science teachers could be ascertained through planning of instruction; organizing the instruction; implementing the instruction; managing farm practical and evaluating instruction.

## 2.3 Planning Instruction

Instructional planning as defined by Olaitan (2003) is the selection and organization of instructional content, materials and activities to be performed by the teacher and the learner (student). According to the author, in planning instruction, the following steps are involved;

1. Determine a need for the content which may be part of a course or topic. This needs, means the reasons for teaching the course or topic. This is called a rationale which is different from a goal or objective;
2. Identify or stating what you want student to achieve at the end of the course or topic. This is called objective or intended learning outcomes;

3. Identify major key concept in the course or topic which must be explained by the teacher and understood clearly by the student during instruction. Relationship among these concepts or between two concepts must be emphasized and made clear in the plan;
4. Identify and select relevant to content and arrange them logically in terms of related objectives to be achieved in that content;
5. Identify and select relevant materials to be used to teach the selected topics and integrate them into the relevant content areas of the plan for the teachers and the students' use;
6. Identify and select relevant methods, techniques and support system for teaching each relevant area of the content, bearing in mind the objectives to be achieved and the activities to be performed by the teachers and learners; and
7. Identify appropriate evaluation technique for each content area to be taught, for the teachers to use for finding out whether the objectives of the content have been achieved.

This aspect of review will guide the researcher in selecting relevant questionnaire items for planning instruction in agricultural science.

Okoro (2000) explained that instructional planning involves planning how approved courses could be effectively and advantageously taught using the facilities and resources available. Among the activities involved in instructional planning according to the author are:

(1) Writing course description

(2) Determining course objectives

(3) Structuring the course content

(4) Selecting tools, equipment and materials

(5) Allocating time

(6) Preparing list of references. The opinion of the author is related to this study as the identification of concepts, logical arrangement of content, selection of materials and evaluation will be adopted by the researcher. In their own contributions, Abiodun and Babatola (2002) explained the processes involved in instructional planning. They include:

(1) Set the goals or objectives

(2) Determine the content of the course or topic

(3) Analyze the environment or identify opportunities

(4) Select alternative course of action

(5) Implement what is planned

(6) Provide knowledge of achievement.

In the opinion of James (2003), competencies in planning instruction should include the following:

(1) Understanding students' cultural background, interest, skills and abilities;

(2) Understanding students' motivation and their interests in specific content;

(3) Clarifying and articulating the performance outcomes expected of students; and

(4) Planning instruction for individual or group of students. The competencies in number one to three will guide the researcher in selecting relevant questionnaire items for the study. Planning of instructional activities according to Frank (2008) should include: determining the major goals; designing lesson plan; structuring course content; selecting the necessary materials and resources; selecting teaching methods; and allocating time. This review is related to this study and will guide the researcher in the aspect of instructional planning for the study.

Hangman (2007) in his submission states that, instructional planning should involve the following: identify logically organized subject-matter; identify students' needs, interest and

abilities; determine the objectives; develop goals; identify relevant methods; allocate time; plan lesson and identify relevant materials for instruction. Charlotte (2010) explained that planning of instruction should follow these outlined processes: demonstrating the knowledge of students; determining the course content; selecting instructional goals or objectives; selecting instructional materials and resources; selecting the methods of instruction and evaluating students learning (congruence with instructional goals; criteria and standards used for planning). Nonetheless, Onwuka in Aguolu (2007) states the competencies in planning instruction. They include the following: develop unit course; identify the general goals; develop the objectives of the instruction; write up the lesson plan clearly and systematically; select equipment, materials and resources; and determine the assessment techniques.

In the opinion of Malissa (2010), steps in planning instruction basically involves: Looking at the state or national standards; determining the course content; creating a plan of study for your course; creating a personalized lesson plan calendar: planning your units using your overall plan study and your calendar; and creating detailed unit lesson plans. These should include the following items to be effective: objectives; activities; time estimates; required materials; alternatives-make sure you plan for those students who might be absent during your activities; gathering required items or materials and assessment - this includes class-work, home-work or tests. The works of the authors reviewed above will help the researcher in the development of relevant instrument for the planning of instruction in agricultural science for Effective Lesson delivery.

## 2.4 Organizing Instruction

Organizing in the view of Osinem (2008), entails arranging the content and the learning experiences in such a way that they will be effectively presented to the students to promote learning Marcia (2010) explained that organizing is to put together in an orderly manner, to arrange in a coherent form of harmonious or united action. The author explained further the steps to be followed in organizing instruction. They include: understand the characteristics and interest of the students; arrange the objectives of the lesson; select the materials or equipment needed; select the method of instruction; and organize instruction within a time frame.

Osinem (2008), identified four major criteria for effective organization of instruction. They include: continuity – this means that the content and learning experiences are organized to show relationship between the student's previous experience or learning and his/her future learning. This facilities learning and makes it more meaningful; sequence – this implies that learning should progress from the lower to the higher levels of treatment of curriculum contents. The learning materials should be arranged starting from knows to unknown, moving from simple to complex. This will allow successive experience to be built upon the preceding one; integration – this refers to the utilization of curriculum element from one subject area to other subject area to buttress one another. The student can easily transfer ideas, knowledge concepts, skills, attitudes if curriculum is presented to him/her in an integrated manner. For example agricultural lesson on photosynthesis involves knowledge of facts and concepts in Biology and Chemistry; and scope – this is the extent of coverage of the curriculum. It covers facts, ideas, skills and concepts to be learnt as well as the processes and competencies required in learning them. This also includes teacher's knowledge of subject matter, availability of textbooks, learners' age range, aptitude, attention span and background.

In the contribution of Early, James and John in Aguolu (2007), organizing instruction aids the teacher to limit the amount of time available each day to accomplish all of the assigned tasks in and out of the classroom. They states further that effective teachers use this time efficiently through: arrangement of materials for instruction; establishing schedules; establishing management system for indirect instruction; planning the pacing of instruction; developing daily lesson plans; preparing daily lesson plans; and arranging the content logically.

In preparing for instruction, the teacher must organize himself very well before teaching the students (learner). He must carry out the following: obtain a copy of the instructional plan for the course he wants to teach, study carefully the instructional plan and become familiar with it; identify the material needed for instruction; select relevant materials for the content he wants to teach at a particular period; organize the material sequentially in order of use; identify relevant instructional textbooks that could assist understanding of the content; study carefully the textbooks for information to add to the teacher's knowledge of the content; and have a lesson plan (Olaitan, 2003). The lesson plan should include the following: (i) title of the lesson topic; (ii) class to be taught; (iii) average age of the students; (iv) objective of the lesson; (v) entry behaviour; (vi) list of materials to be used; (vii) teacher's activities to be performed in delivering the content logically or sequentially arranged; (viii) students' activities during the lesson; (ix) revision of the important points; (x) evaluation; that is, classroom test and assignment.

In the opinion of Oyetunde (2004), organizing instruction entails the following: arranging the content efficiently; organizing instructional content logically; developing ways to motivate the students to learn; and identifying testing and evaluation techniques. The review is useful for this study in helping the researcher and agricultural science teachers to organize their works or instruction. Shirley and Jonathan (2002) explained that organizing instructional activities include

the following: arranging the instructional content systematically; taking decision on the suitable teaching methods; deciding on the instructional materials to use; sharing of specific roles; preparing daily lesson plan; and arranging events within the limited time. The activities listed by the authors will assist the researcher in this aspect of the study.

## 2.5 Implementing Instruction

In the opinion of Olaitan (2003), implementing instruction is the delivery stage of instructional activities. The author outlined some activities expected to be performed by the teacher during implementation of instruction. They include:

**A**. Introduce the lesson by using the following techniques:

i. Give summary or revision of the previous lesson to link it with the day's lesson;

ii. For a new lesson, test students' entry behaviour with general stimulating questions that are familiar but in the direction of the lesson.

**B**. Informs the students technically, the objective of the lesson. This is what they are expected to know or should be able to do at the end of the lesson;

**C**. Deliver the new content step-by-step bearing in mind the logical arrangement of content in the lesson and the entry behaviour of the learners. At times the entry behaviour of the learners may slightly affect what the teacher has prepared. This should not be a problem to a competent teacher.

**D**. Use stimulating questions to guide learners' responses during instruction. Some educators called them "leading questions". These questions are used to help students' understand the lesson. They are different from assessment test or questions at the end of the lesson.

**E**. Listen carefully to learners' responses to questions and help to correct wrong answers where nobody could do so in the class.

**F**. Introduce learning materials at appropriate time and instructional event to help learners understand instruction.

**G**. Assess performance as learners practice during the class and correct errors.

**H**. Allow students to make corrections and submit for approval.

**I**. Give final evaluation or assessment in form of test or assignment which must be submitted by every learner.

**J**. Provide feedback on the test or assignment. The performance of each learner as indicated in the feedback is the level of achievement of the lesson objectives or intended learning outcomes.

The review is related to this topic as it will guide the researcher to select relevant questionnaire items. In his own view, Mac (2010) states the activities in implementing instruction for new Mexico students as follows: utilize approved curriculum; give clear explanations relating to lesson content; establish and state expectations for students performance; show interrelatedness of one content area to another; use variety of methods; use variety of materials and resources; implement necessary modifications and adaptations in instruction and curriculum so that students with disabilities have access to the general education in the least restrictive environment; clarify actions. Directions and explanations when students do not understand; provide opportunities for students to work independently; and use variety of assessment tools and strategies.

Competencies in implementing instruction in practice teaching according to Olaitan and Aguolu (2007); include: direct student activities apply basic instructional strategies; utilize visual aids in teaching; use educational technology where appropriate; employ variety of teaching methods; employ group interaction techniques; reinforce learning through rewards, set induction, closure, stimulus variation and cues; direct student community projects; direct laboratory

instruction and direct students' individual projects. Implementing instruction according to Marcia (2010), entails the following activities: introduce the lesson by reviewing past treated topic; provide step-by-step instruction for carrying out specific responsibilities; keep instruction short and clear; use questions to involve students; use lecture pause routine; encourage active participation of the students; use visual aids; use praises and feedback; and monitor students' progress by moving round the class to check students work.

Similarly, Susan, Marilyn and Tony (2007) described implementing instructional activities as follows: have clear objectives of the lesson; make students to be aware of the objectives of the lesson; use varieties of appropriate teaching and learning activities; present enough materials, equipment and resources for the instruction; apply relevant methods for instructions; motivate the students to learn; give students activity to perform; move round the classroom to monitor students' progress and answer their questions and evaluate the lesson. In their opinion, Loiuse and Lawrence (2003) viewed activities in instructional implementation as follows: introduce the topic of the lesson to stimulate the interest of the students; inform the students the objectives of the lesson; introduce the appropriate materials for the lesson; summarize the main points of the lesson; and evaluate and correct errors. Instructional responsibilities of the teacher in the classroom can be summarized in the following way: set the instructional objectives with the purpose of developing students' best qualities; use the course content during teaching to achieve educational aids for particular level of instruction; adapt course content to the diverse needs of students; provide the conditions or environment for effective learning as well as for the application and retention of what is learned; and evaluate students' achievement offset objectives and use the result to improve instruction (Ogwo and

Oranu, 2006). Some aspects of this review are related to this study. It will guide the researcher to select relevant questionnaire items for effective lesson delivery of agricultural science.

## 2.6 Managing Farm Practicals

Management is the act or ability of an individual required for controlling a business, an organization or a farm enterprise. Management in the view of Abiodun and Babatola (2007) define management as all activities deliberately designed and carried out to accomplish the goals and objectives of an organization. The authors states further that any definition of management must have the following: (i) goals and objectives to be achieved in an organization; (ii) managers who have functions to perform in an organization such functions include planning, organizing, staffing, leading and controlling; (iii) production: the essence of management is to produce goods and services to satisfy human wants through effective and efficient utilization of available resources. Farm management as explained by Jacob (2003) is making and implementing the decisions involved in organizing and operating a farm for maximum production and profit. It explained further that farm management draws an agricultural economics for information on prices, markets, agricultural policies and economic institutions such as leasing and credit.

Jacob (2003) define a manager as an individual who is vested with formal authority over his organization and is responsible and accountable for final result. Hornby (2006) states that a manager is a person who is in charge of running a business or an organization. Thus in the management of school farm practical, Olaitan and Mama (2001) said that the agricultural science teacher is the manager who performs the functions of planning, organizing, implementing and evaluating school farm activities. He does this by using available resources (students and materials) to produce crops and animals for the use of man. Agricultural science teacher as a school farm manager has the following activities to perform as outlined by Maria (2009), the

activities include: planning finances and production; practical activities such as planting, weeding and harvesting; buying supplies e.g. fertilizer, seeds and herbicides; arranging the maintenance and repair of farm tools and store; planning activities for students mentoring and monitoring; maintaining and monitoring the quality of yield whether crops or livestock; ensuring that farm activities comply with government regulations; maintaining a knowledge of pests and diseases and understanding how they spread and how to treat them; monitoring and documenting yields and sales; and keeping financial records up to date. Farm management has the following activity components: planning, organizing, implementing, coordinating and evaluating farm practicals.

### 2.6.1 Planning Farm Practical's

Planning in the opinion of Howard in Nwafor (2007), involves the establishment of objectives and a step-by-step determination of the activities and resources necessary to achieve them. In the contribution of Knootz and Daniel (2005), planning is deciding in advance of what to do, how to do it, when to do it and who is to do it. The authors further states that planning bridges the gap between where we are and where we want to go. Osuala (2006) observes that a good plan gives direction to the manager (i.e. agricultural science teacher) and his subordinates for all activities they plan to undertake. This implies that Agricultural Science Teachers should be competent in formulating objectives for the school farm, work out ways and means of achieving them by following the policies of the school farm.

The necessary skills required for developing good farm plan include the following: ensuring adequate inventory of farm equipment; drawing up programme plan for the farm activities; stating procedures for accomplishing specific farm task; adapting participative planning approach; setting standards for the farm; and budgeting for the farm operations. Ellah

(2001) observed that school farm planning is a deliberate attempt by the teacher of agricultural science to arrange and document school farm activities. The school farm plan should involve the following activities: formulating specific objectives for the farm; drawing up programme plan for the farm; deciding on the farming and cropping system to adopt on the farm; budgeting for the farm; planning for the procurement of farm inputs; specifying the type of crops and livestock to be produced; and selection of appropriate equipment for specific farm operations.

### 2.6.2 Organizing Farm Practical's

In his view, Ellah (2001) states that the organization of school farm activities include: arranging productive resources available for effective use; souring for and procuring farm inputs for the farm; preparing a farm calendar for varying farm event; assigning specific tasks/portions of the farm to students; forming groups to execute specific farm operations; and some aspects of this review are related to the study. Similarly, Osinem (2008) outlines some farm activities in organizing the school farm. They are: arranging the productive resources available for effective use; organizing the students in groups and directing each group to embark on the farm activities already organized for them; presenting formally, a list of the inputs they will need to purchase and their cost to the principals for approval and release of funds; identifying other sources of obtaining financial support for his inputs and identifying the location of the affordable input outside the schools and produce them; and organizing farm activities through a simple school-farm calendar putting into consideration the holiday periods of the schools

### 2.6.3 Implementing Farm Practical's

Implementing farm practical's according to Phipps (2004) in Aguolu (2007), is by involving individual groups in relevant activities. The author states that it is important to develop

a written calendar which shows the particular activities that will be performed, the time it will be performed, dates and those who will carry out the activities.

For implementation of farm practical's, Osinem (2008) states that Agricultural Science Teachers should carry out the following activities; lay out of the school farm; implement a calendar of farm activities; review the programmes of farm activities periodically; adhere strictly to the programme of farm activities; select livestock feed: prepare and formulate feed for different types of livestock in the schools farm; ensure the adoption of current farming practices in the school farm; apply appropriate fertilizers to crops and practice correct crop rotation; teach students how to harvest and process certain crops; feed livestock with the right feed and quantity; cull out and sell animals at maturity and; and keep farm records.

### 2.6.4 Coordinating Farm Practical's

In the opinion of Aguolu (2007), coordinating activities in farm practical's are as follows: ensure adequate supply and utilization of material and machines in the school farm; guide students in the use of appropriate materials and machines in the school farm; ensure that the activities of individual students are effectively monitored; and ensure that only approved procedures and practices are followed.

### 2.6.5 Evaluating Farm Practical's

Evaluation in the view of Olaitan and Ali (2008) is a process of finding out how far learning experience planned and organized are actually producing desired result within student members and the programme. In the opinion of Okoro (2007), evaluation is the process of judging the adequacy of the amount of knowledge or skills possessed by students.

Similarly, Prevus in Ellah (2001) suggestes the following skills for evaluation of youth agricultural programme in school including the school farm. They are; identification of

information needed to compare performance with standard designing of method of obtaining information such as observation of students' activities to observe achievement of enabling objective comparing of intended performance with actual performance to identify discrepancies in the new course: ability to judge clarity with which student formulates his managerial problems; ability to develop proper test to enable students' manifest acquisition of fact or principles; and providing feedback for judging whether the objectives of the school farm have been achieved. Also, Aguolu (2007) identified four major activities in evaluating farm practical in agricultural science which are: evaluate students' work demonstration through rating; writing practical examination; providing feedback for judging whether the objectives of the school farm have been achieved; and checking students' reports. The contribution of the works of authors reviewed above will help the researcher in the development of instrument for this aspect of the study. The instrument on farm practical will guide the researcher to select relevant items will be used for effective management of farm practical by Agricultural Science Teachers.

## 2.7 Evaluating Instruction

Evaluation is a means of appraising the worth or quality of a programme. Evaluation in the view of Okpala, Onocha and Oyedeji (2006) is the process of gathering valid information on attainment of educational objectives, analyzing and fashioning information to aid judgment on the effectiveness of teaching of educational programme. Okoro (2000) defined evaluation as the appraisal of the worth or value of a thing or action and the making of appropriate decision on the basis of such appraisal. In the opinion of Olaitan (2003), evaluation of instruction is a means of ascertaining the effectiveness of instruction and the extent of achievement of the objectives of a programme. The author further explained that, it is a process by which a teacher makes use of certain techniques to find out whether the learner clearly understands what is taught and whether

the objectives of instruction are being achieved. The author listed the activities of evaluating instruction to include: ascertaining whether the objective of a lesson or unit of instruction is achieved; determining the performance of a learner; developing test, examination and rating sheet; and determining the quality or standard of the questions.

Evaluation is the process that entails a careful analysis of quantitative record and qualitative evidence to arrive at value judgment on the extent to which states goals have been attained or types of outcomes realized Ogwo and Oranu, (2006). The authors also states the evaluating processes of instructional activities which are: assess students' performance with the various stages of the course or programme; clarify instructional objectives develop improvement on instructional method/techniques; and determine or show areas of students' weakness; motivate both the students' and the teachers in the learning process; assess the extent to which the students have attained the states objectives; and determining the quality of performance of students who have completed the programme.

Evaluation in the view of Haris (2006), is the systematic process of judging the worth, desirability, effectiveness or adequacy of something according to definite criteria and purpose. The author said that evaluation should involve three fundamental processes which include: determine the performance of students; assess the quality and quantity of instruction; and ascertain the extent to which the desired goals have been attained. In the opinions of Robert, Dooley, Harlin and Murphrey (2006), evaluating instruction should involve these activities: formulate a system of grading consistent with school policy; establish criteria for student performance; and determine students grades based on related instruction and laboratory or on-the –job experience. In the evaluation of educational programme, Okoro (2005) states that, detailed

plans for the evaluation will have to be made. The author outlined seven steps which will serve as guide in educational programme evaluation. The steps are:

1. Focus the evaluation: (a) define the objectives of the evaluation and the types of information to be obtained; (b) identify the body or individual who would use Data and information obtained from the study.
2. State how information is to be collected. State the activities that should be carried out in order to obtain the required information.
3. Sequence and schedule activities; (a) specify the order in which the information gathering activities should be carried out; (b) determine time estimates for completing each activity.
4. Determine the individual who should participate in the evaluation and assign duties to them, define the system for analysis of collected information.
5. Determine the system for reporting evaluation findings or conveying findings to decision-makers and the individual or body who would make use of the findings and
6. Specify the system for monitoring the execution of evaluation activities. This will ensure that all activities are carried out according to the agreed plan and that reliable information would be obtained.

In their own opinion Grady, Kim, Juhe and Theresa (2007) states that in evaluating instruction, these activities should be followed: formulate a system of grading consistent with the school policy; establish criteria for students' performance; and determine students' grades based on related instruction and laboratory experience. Effective evaluation of instruction in the opinion of Nnabuo (2006), requires the following activities: assessing the knowledge of what has been done in order to plan for future; assessing students' progress towards determined goals; and involving students in the assessment of their own progress. Evaluation of instruction as viewed

by Ward and Ward (2005), include the following activities: determining the performance of the students; determining the quality of educational programme; assessing the quality of instruction; and determining the achievement of the objectives.

Furthermore, Richardson, Michelle, Simmons and Deborah (2000), states that in evaluating instruction, teachers should be able to determine both formally and informally whether students' performance meets the desired expectations. They outline two important activities in evaluating instruction, which are: developing a set of criteria to use in analyzing student's achievement in cognitive, psychomotor and behavioural dimensions; and using a variety of strategies such as observing and listening to students as they work and asking question from the students. Davidson (2005) opined that effective evaluation of instruction should be involved in the following activities: using formal tests, quizzes, class assignments, students' projects and standardized achievement tests to understand what the students know; evaluating through the use of informal methods such as questions asked in class; using evaluation strategies to involve students in self-assessment activities. This will make them to be aware of their strengths and weakness; modifying teaching strategies in relation to students' success and difficulties; maintaining useful records of students' work and performance' and communicating students' progress to them and their parents.

Proper strategy for teachers to evaluate students' progress and aid them in learning according to Vigil (2007)included the following activities: Understand the purpose and effectiveness of various assessment methods; use variety of assessment methods that appeal to a variety of learners intelligence and abilities use assessment method that directly address the course objectives; state a rationale for assessment choice; provide adequate time for effective completion of the assignments; remind the students of important assignment deadline use the

appropriate scoring rubrics; and grading; provide a clear criteria for grading method; allow no grade-inflation issues: if poor work receives high mark students will be discouraged; provide students with feedback: it serves as motivator and helps students to learn from mistakes; and report assessment result to school and students' parent/guardians. The works of the authors reviewed above will help the researcher in the development of questionnaire for evaluating instruction that could lead to effectiveness in agricultural science.

## 2.8 Empirical Studies

Under this section, research works empirically done by researchers were reviewed:

Bature (2002) conducted a study on the In-service Training needs of Technical Teachers in Kaduna State Secondary Schools. Seven research questions and seven null hypotheses were tested. The study made use of descriptive survey research design. The study covered all the secondary schools in the three educational zones in Kaduna State. The population for the study was 168 technical teachers in all the three educational zones. There was no sampling due to the small size of the population. The instrument used for data collection was questionnaire. Seven teaching areas were identified having 79 competency items. The competencies included the following: Technical and Manipulative skills, Teaching methods, classroom/workshop management, evaluation technique, Guidance roles, Human relations and professional roles. The questionnaire was structured according to the seven sections identified. The instrument was face validated by five experts. The reliability of the instrument was done using Cronbach alpha reliability method which yielded a high reliability coefficient. The questionnaire was administered directly to the respondents by the researcher with the help of a research assistant. The questionnaires were later retrieved. Data were analyzed using mean, standard deviation and

frequency tables for the research questions while t-test statistics was used for the hypotheses formulated.

The findings revealed that technical teachers needed in-service trainings in the following areas; manipulative and technical skills, teaching methods, classroom/workshop management, evaluation techniques, guidance roles, and human relations. These related empirical studies on in-service training will guide the researcher to choose relevant methodology for this study.

The present study is related to the past study in the following ways; both study centered on paedagogical-capacity building; the previous was a survey research, while the present study is also a survey; five objective, question and Hypotheses were used for the previous study and also the present study, data for the previous study was collected using questionnaire which this study will also use. Despite these similarities, the previous study differs as it was conducted in South West Zone while the present one is Northern Zone, no sampling for the previous study while present study used sampling.

Miller, (2006) conducted a study on professional improvement of metalwork teachers in colleges of education in Western Nigeria. The study was conducted with five research questions and five hypotheses. The study adopted the survey research design which was carried out in both Federal and States Colleges of Education in the South-Western zone of Nigeria. The population for the study was thirty-five (35) teachers from seven colleges of education in South-Western Nigeria.

The instrument for data collection for the study was a structured questionnaire consisting of one hundred and forty-two (142) items. The reliability of the instrument was established using Cronbach Alpha reliability method. A total of thirty-five (35) copies of the questionnaire were distributed to the respondents. Thirty (30) copies of the questionnaire were retrieved within

period of two weeks representing a return rate of 85.7 percent. In answering the research questions, frequency counts, mean, standard deviations and Improvement Index were used. t-test statistic was used to test the hypotheses. From the findings of the study, it was revealed that the respondents identified the following professional skill areas and their corresponding skill items as needed by metalwork teachers for improved teaching of metalwork courses in colleges of education. On instructional planning six (six) skill items, instructional implementation ten (10) skill items and instructional evaluation seven (7) skill items was identified. The respondents indicated improvement on thirty one (31) out of thirty two (32) paedagogical skill improvement items as needed by metalwork teachers for better performance in teaching metalwork in colleges of education. The respondents indicated that inadequate paedagogical content, teacher educator's incompetence and obsolete technical knowledge were responsible for low acquisition of some professional skills by metalwork teachers.

The present study is related to the past study in the area of paedagogical-capacity building needs research design and data collection procedure. Despite these similarities, the previous study differs in that it was conducted in colleges of education, while the present study was carried out in the secondary schools.

In a study conducted by Bryan and Namyong (2007) on assessment of the in-service needs of teachers of agriculture using two assessment models. The purpose of study was to identify and prioritize the in-service needs of beginning teachers of agriculture in the state of Missouri. Two research questions guided the study. The population for the study was 53 comprising 37 beginning (first and second year) teachers of agriculture in Missouri during the 1994 to 1995 academic year and 16 members of the Joint State Staff in Agricultural Education (which

included teacher educators and state supervisors). There was no sampling due to the manageable size of the population.

The study made use of descriptive survey research design in which respondents provided data that could be weighted and ranked in order of priority and instrument using Borich needs assessment model was developed to assess the beginning teachers to perceive the level of importance and to perceive the level of competence regarding 50 professional competencies. The beginning teachers were asked to rate, using a five-point Likert scale. A response of one indicated the competency was not important and a five indicated the competency was very important to their success. The beginning teachers were also requested to rate their perceived competence level using a five-point Likert scale. A response of one indicated they were not competent and a five indicated they were very competent in performing the competency. The instrument was assessed for content and face validity by graduate associates, teacher educators and state supervisors in agricultural education. The reliability of the instrument was 0.95 (Cronbach's alpha coefficient).

The findings of the study indicated that beginning teachers of agriculture in-service training in 12 of the 50 professional competencies. From the results of Borich needs assessment model, 12 of the 50 competencies were identified by the beginning teacher as having a greater need for in-service education. Of the 12 professional competencies, 5 were classified in the category of instruction, 5 in the category of programme planning, development and evaluation and 2 in the category of programme instruction. Study on Assessment of the In-service needs of Beginning Teachers of Agriculture will guide the present researcher to choose relevant methodology for this study.

The present study is related to the past study in the following ways; both Study Center on the paedagogical-capacity building, the previous was descriptive survey research while the present study is also a survey research data for the previous study was collected using questionnaire and the same questionnaire was also used to collect data for the present study. Despite the similarity the previous study differ with the present study as it was conducted in the United State, Karsas cities while the present study was carried out secondary school in Kwara State Nigeria.

Erliane (2009) conducted a research on Gap in University Students Performance and the purpose of the study was to examine whether there was a gap in the University Accounting students' performance between their test assessment score and their final examination score. Two research questions and one null Hypotheses were tested in the study. Descriptive survey research design and the use of secondary data were employed and 118 students formed the population of the study. The sample was 108 students. The study used questionnaire which consisted of two parts. Part A requested the students to answer questions related to their demographic profile. Part B consisted of questions related to the four factors that influence gap performance. The first factor evaluate environment followed by academic aptitude and time preparation. The last factor evaluates performance measure.

The result indicated that the students performed better in their test assessment and better in their final examination due to the differences in the evaluation environment of the two measurements. The result however, indicated that academic aptitude, time preparation and performance measure did not affect gap in students' performance between test assessment and final examination. The study helped to guide the researcher on the choice of the research design, population, sample size and data collection.

Asogwa, Isiwu and Jumbo (2014) carried out a study titled Paedagogical-capacity building Needs of Lecturers of Agricultural Education in Soil Testing (NPK) For Effective Teaching of Students in Colleges of Education in South-Easth, Nigeria. The study was conducted with four research questions as guide for the study. The study adopted descriptive survey research design. The study was conducted in 8 Colleges of Education in South-East, Nigeria offering agricultural Education programme. The population of the study was 107 lecturers. The entire population was involved in the study. An instrument titled Soil Testing Paedagogical-capacity building Needs Questionnaire (STCBNQ) was used for data collection. Three experts validated the questionnaire. Cronbach alpha reliability method was used to determine the internal consistency of the questionnaire items. A reliability coefficient of 0.90 was obtained. Data collected for the study were analyzed using weighted mean, standard deviation and Improvement-Need-Performance Index (INPI) to answer the research questions. It was found out from the study that lecturers of agricultural Science in Colleges of Education needed paedagogical-capacity building on 12 items in soil sampling, 6 items in testing for soil Nitrogen, 9 items in testing for soil Phosphorus and 9 items in testing for soil Potassium for effective teaching of students in Colleges of Education in South-east, Nigeria.

The present study is related to the past research conducted by Asogwa, Isiwu and Jumbo (2014) in that; both studies centred on paedagogical-capacity building and the study was carried out on agricultural science. Despite the similarities of the two studies, differences exist in the area of the study, the study were conducted in South-Eastern zone while the present study was carried out in the North Central Geo-political zones; the past work was an experimental research, while the present study was descriptive survey; and data for the previous research were collected

using Soil Testing Paedagogical-capacity building Needs Questionnaire (STCBNQ), while the present study will use questionnaire.

## 2.9 Summary of the Literature Reviewed

Literature was reviewed on theoretical framework, conceptual framework, components of instruction and related empirical studies. The theoretical framework of the study was based on theories of instruction. This helped the researcher to identify those relevant instructional items that could be utilized to identify capacity-building needs of Agricultural Science Teachers. Conceptually, the review was based on approaches to identification of competency-based approach. The review guided the researcher in selecting appropriate approach for the study. The approach selected for the study is competency-based approach. Literatures were reviewed on the components of instruction for teaching of agricultural science. The components of the review are; planning, organizing implementing, managing farm practicals, evaluating instructional facilities management. This review guided the researcher in identifying relevant competency based questionnaire items that was used to collect data for the study.

Literature was also reviewed on related empirical studies which included improvement studies, in-service studies, assessment studies, and instructional facilities management. This also guided the researcher in choosing relevant methodology for carrying out the study. The questionnaire was developed from literature reviewed and was used to collect data from the Agricultural Science Teachers in the area of study to determine the differences between the competencies needed by agricultural science teachers for effective lesson delivery. This gap will indicate paedagogical-capacity building needs of the agricultural science teachers with the aim of the study was to fill the gap paedagogical-capacity building need of agricultural science teachers.

# CHAPTER THREE

# RESEARCH METHODOLOGY

This chapter explained the method used to conduct the study.

## 3.1 Research Design

The study adopted descriptive survey research design. Descriptive survey research design in the opinion of Ali (2006) is a design which uses a sample of a definite population of an investigation to document, describe and explain what is in existence or the present status of phenomena investigated, current conditions and practices. Since the study requires the use of questionnaire to collect data from the sample population, the researcher used descriptive survey research design for the study.

## 3.2 Study Area

Kwara State was created on 27 May 1967, when the Federal Military Government of General Yakubu Gowon broke the four regions that then constituted the Federation of Nigeria in to 12 States. At its creation, the state was made up of the former Ilorin and Kabba provinces of the then Northern Region and was initially named the West Central State but later changed to "Kwara", a local name for the River Niger.

As at 2006, the population of Kwara state was 2, 37 million based on the Nigeria 2006 Census. This population size constitutes about 1.69% of the Nation's total population having relied upon immigration for population growth and socioeconomic development. Kwara State consists of sixteen local government areas namely; Baruten Edu, Ekiti, Ifelodun, Ilorin East, Ilorin South, Ilorin West Irepodun, Isin, Kiama, Moro, Offa, Oke Ero, Oyun and Patigi. The Nigeria Railway Cooperation extended services from Lagos through the State to the Northern part of the country. The Ilorin Airport is a major center for both domestic and international

flights and has now been built up into a hub for transportation of cargoes. Agriculture is the main sustainer of the economy and the principals cash crops are cotton, cocoa, coffee, kola nut, tobacco, beniseed and palm produce.

The State has a federal university, the University of Ilorin, the state university commenced in the year 2009/2010 session, two polytechnics, Kwara and Federal Polytechnics Offa, three Colleges of Education, School of Health Technology and School of Nursing. It also has a Navy School and Aviation College. It also home for Landmark University and Al-Hikmah University, both private universities, which are located in Omu-Aran and Ilorin respectively.

### 3.3 Population for the Study

The population for the study is teachers of agricultural science and principals in secondary schools in Kwara State.A total of 997constituted the population of the study. Table 1 represents the population distribution of agricultural scienceteachers and principals in each of the three educational zones of Kwara State.

**Table 1.Population Distribution**

| S/N | Educational Zones | No. of Senior Secondary Schools | Total Population of Teachers agriculture | Total Population of Principals |
|---|---|---|---|---|
| 1. | Kwara Central | 79 | 316 | 79 |
| 2. | Kwara North | 68 | 183 | 68 |
| 3. | Kwara South | 88 | 263 | 88 |
| | **Total** | **235** | **762** | **235** |

Source: Kwara State Ministry of Education, Science and Technology (MOEST), Ilorin, (2015).

### 3.4 Sample Size and Sampling Procedure

A total of 47 out of 235 senior secondary schools in Kwara state were used for the study. All the three senatorial zone were included to the study through proportionate sampling of 15, 14, 18 and were selected from Kwara central, Kwara North and Kwara South respectively. technique was adopted in the selection of schools sampled while the population for each sampled schools was determined using 20% of the entire school population. This in accordance with the view of Nwana (1997), who states that 20% can be used to select the sample size. Hence, the researcher adopted 20% sample for this study as suggested. The names of the schools were written on pieces of papers and folded. All the papers were mixed together in a container according to the number of senior secondary schools in Kwara State.

**Table 2.Samples of respondents based on Educational Zone in Kwara State.**

| Educational Zones | Teachers Population | 20% Sample of principals | Principals Population | 20% Sample |
|---|---|---|---|---|
| Kwara Central | 316 | 63 | 79 | 15 |
| Kwara North | 183 | 37 | 68 | 14 |
| Kwara South | 263 | 53 | 88 | 18 |
| **Total** | **762** | **153** | **235** | **47** |

### 3.5 Instrument for Data Collection

A questionnaire tagged Paedagogical-capacity building Needs Questionnaire (PCBNQ) designed by the researcher was used for data gathering. The questionnaire was designed after extensive review of related literature which was subjected to validation by experts in the Department of Vocational and Technical Education.

The questionnaire was divided into two parts, A and B. Part 'A' consisted of personal data of respondents. Part 'B' was further divided into five (5) sections where each section contained items questions on competencies needed in teaching of agricultural science. The questionnaire consisted of twenty five (25) item questions based on the research questions for the study. The questionnaire contained 5 items for research question 1, 5 items for research question 2, 5 items for research question 3, 5 items for research question 4, and 5 items for research question 5. The researcher used a 4-point rating scale with 4 points for Highly Needed (HN), 3 points for needed (N), 2 points for slightly needed (SN), and 1 point for not needed (NN).

### 3.5.1 Validity of the Instrument

The researcher used face validation which according to Uzoagulu (1998) is a technique for judging at face value the appropriateness of a measuring instrument. Face validation of the questionnaire was carried out by three experts, two from Department of Vocational Technical Education (Agricultural Education Section), Ahmadu Bello University, Zaria, and a lecturer from the Department of Agricultural Education, College of Education (Technical) Lafiagi, Kwara State. These experts were requested to read through the questions and make necessary correction such as ambiguous statements and any observed errors. The correction and suggestions from these experts guided the researcher in producing the final copy of the questionnaire for the study.

### 3.5.2 Pilot Study

After necessary correction and validation of the instrument, a pilot study was conducted in ten public secondary schools in Kaduna State to ascertain the reliability and to remove any possible ambiguity of items before the actual administration of the questionnaire for the study using 20 agricultural science teachers and ten principals. These schools were not part of the population but their choice was influenced by their location, they are public secondary schools

and offered agricultural science as their common characteristics within the study area. The responses of the test were scored; computed and the Pearson product moment correlation coefficient (PPMCC) was used to determine the reliability of the instrument. All the ambiguous items in the questionnaires were detected and corrected.

### 3.5.3 Reliability of the Instrument

Data collected from the pilot study were statistically analyzed for the purpose of determining the reliability coefficient through crombach alpha. The reliability coefficient which showed a reliability coefficient of 0.890 was obtained. The result showed that the instrument was reliable because the closer the result to positive one (1) the more reliable the instrument was. According to Carole *et al.*, (2008) the reliability coefficient of 0.60 is considered reliable for any instrument to be use for research.

## 3.6 Data Collection

The researcher collected an introductory letter from the Head of Department of Vocational and Technical Education in the Faculty of Education, Ahmadu Bello University, Zaria. The researcher engaged three research assistants and they were trained by the researcher on how the instrument is to be administered, sets of questionnaires and introductory letter was taken to the principals of the sampled schools. The questionnaire was administered to the respondents in the staff rooms. The questionnaire was collected the next day because of their tight schedules. The researcher and research assistant covered three schools in one day and the whole exercise lasted for twelve (12) working days.

## 3.7 Data Analysis

The analysis of Data collected was done using both descriptive and inferential statistics. The first section of this chapter presents the frequency and percentages of the respondents' status. The second section presents answers to research questions using frequency and mean. The third section presented and interpreted the five null hypotheses structured along the research objectives by means of parametric statistics of independent t- test to determine the presence or absence of significant difference for the five hypotheses. All the null hypotheses were tested atP $\leq$ 0.05level of significance. The fourth section outlined the major findings of the study and the last section discussed the findings of the study in detail.

# CHAPTER FOUR

# DATA PRESENTATION, RESULT AND DISCUSSIONS

This chapter presents the results of data analyzed and discussion of results.

## 4.1 Response to Research Questions

**Research Question One:** What are the areas in planning of instruction that Agricultural science teachers need paedagogical-capacity building?

Data to answer the above research question are presented on Table 3.

**Table 3:** Showing Proper Planning of Instruction in Agricultural Sciences

| S/No | Item | Mean | SD |
|---|---|---|---|
| 1 | Determine appropriate instructional objectives | 3.21 | 1.79 |
| 2 | Determine appropriate curriculum content | 2.88 | 1.69 |
| 3 | Adequately cover content areas | 2.47 | 1.57 |
| 4 | Assess the lesson objectives | 3.36 | 1.83 |
| 5 | Provide for improvement where objective is not achieved | 3.29 | 1.81 |

Data on Table 3 showed that all the items had means ranging from item 3 (2.47) and item 4 (3.36) and are all more than 1.5. This indicated that all the items are needed by agricultural science teachers for proper planning of instruction in agricultural science in secondary school in Kwara State.

**Research Question Two:** What are the areas in organizing of instructional resources that agricultural science teacher's need paedagogical-capacity building?

Data to answer the above research question is presented in table 4.

**Table 4:** Showing Organizing of Instructional Resources in Agricultural Sciences

| S/No | Item | Mean | SD |
|---|---|---|---|
| 1 | Identify relevant content | 3.35 | 1.83 |
| 2 | Arrange content logically | 2.77 | 1.66 |
| 3 | Select relevant methods of lesson delivery | 2.22 | 1.49 |
| 4 | To organize instruction within the allocated time. | 3.11 | 1.76 |
| 5 | To determine the complexity of lesson presentation | 3.42 | 1.85 |

Data on Table 4 showed that all the items had means ranging from item 3 (2.22) and item 5 (3.42) and are all more than 1.5. This indicated that all the items are needed by agricultural science teachers for organizing instructional resources in agricultural science in secondary school in Kwara State.

**Research Question Three:** What are the areas in implementing instruction that agricultural science teachers need paedagogical-capacity building?

Data to answer the above research question is presented in Table 5.

**Table 5:** Showing Implementing Instruction to the students in Agricultural Sciences

| S/No | Item | Mean | SD |
|---|---|---|---|
| 1 | Use relevant methods that suit specific topic; | 2.16 | 1.47 |
| 2 | Use simulation to make lesson presentation clearer. | 3.12 | 1.77 |
| 3 | Use instructional material appropriately | 3.45 | 1.86 |
| 4 | Combine different approaches in delivery a lesson | 2.21 | 1.49 |
| 5 | Organize students to group to facilitate learning | 2,80 | 1.63 |

Data on Table 5 showed that all the items had means ranging from item 4 (2.21) and item 3 (3.45) and are all more than 1.5. This indicated that all the items are needed by agricultural science teachers in implementing instruction in agricultural science in secondary school in Kwara State.

**Research Question Four:** What are the areas in managing farm practicals that agricultural science teacher's need paedagogical-capacity building?

Data to answer the above research question is presented in table 6.

**Table 6** Showing Managing Practicals in Agricultural Sciences

| S/No | Item | Mean | SD |
|---|---|---|---|
| 1 | Select contents that requires practical activities | 2.32 | 1.52 |
| 2 | Determine the objectives to be achieved during practical activities | 3.22 | 1.79 |
| 3 | Identify relevant tools used for specific practical activities | 2,41 | 1.55 |
| 4 | Make improvisation where there are no concrete materials | 2.47 | 1.57 |
| 5 | Be able to carry out the practical him/herself. | 3.11 | 1.76 |

Data on Table 6 showed that all the items had means ranging from item 1 (2.32) and item 2 (3.22) and are all more than 1.5. This indicated that all the items are needed by agricultural science teachers for managing practicals in agricultural science in secondary school in Kwara State.

**Research Question Five:** What are the areas in evaluating instruction that Agricultural science teacher's need paedagogical-capacity building?

Data to answer the above research question is presented in table 7.

**Table 7:** Showing Evaluating of Instruction in Agricultural Sciences

| S/No | Item | Mean | SD |
|---|---|---|---|
| 1 | Select appropriate evaluation approach | 2.77 | 1.66 |
| 2 | Match evaluation questions to lesson objectives | 2.22 | 1.49 |
| 3 | Select the type of question that will the relevant objectives | 2,80 | 1.63 |
| 4 | Allocate mark to question appropriately | 2.47 | 1.57 |
| 5 | Determine time allotment to questions | 3.36 | 1.83 |

Data on Table 7showed that all the items had means ranging from item 2 (2.22) and item 5 (3.36) and are all more than 1.5. This indicated that all the items are needed by agricultural science teachers in evaluating instruction in agricultural science in secondary school in Kwara State.

### 4.2 Hypotheses Testing.

**Hypotheses One:** There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in proper planning of instruction in public secondary schools in Kwara State.

This Hypotheses was tested using independent t-test analysis. The result of the analysis is presented on table 8.

**Table 8:** The Independent t-test analysis to determine the difference in the mean rating of teachers and principals on paedagogical-capacity building needs of teachers in proper planning of instruction in secondary school in Kwara State.

| Variable | N | $\overline{X}$ | SD | t-cal |
|---|---|---|---|---|
| Principals | 47 | 15.47 | 3.93 | |
| | | | | 0.83 |
| Teachers | 153 | 14.89 | 3.85 | |

P >0.05; df= 139 critical t-1.960

The analysis above showed that the calculated t-value of 0.83 was found to be less than the critical t-value of 1.960. This implies that the result is not statistically significant, meaning that the teachers and principals did not differ significantly on the view about paedagogical-capacity building needs of teachers in proper planning of instruction in agricultural science in secondary school in Kwara State. Therefore, the null Hypotheses was retained while the alternative Hypotheses was rejected.

**Hypotheses Two:** There is no significant difference in the mean ratings of teachers and principals on the paedagogical-capacity building needs of teachers in organizing instructional resources in secondary schools in Kwara State.

This Hypotheses was tested using independent t-test analysis. The result of the analysis is presented on table 9.

**Table 9:** The Independent t-test analysis was to determine the difference in the mean ratings of teachers and principals on paedagogical-capacity building needs of teachers *i*n organizing instructional resources in secondary schools in Kwara State.

| Variable | N | $\overline{X}$ | SD | t-cal |
|---|---|---|---|---|
| Principals | 47 | 16.38 | 4.04 | |
| | | | | 0.46 |
| Teachers | 153 | 16.05 | 4.01 | |

P >0.05; df= 139 critical t-1.960

The analysis above showed that the calculated t-value of 0.46 was found to be less than the critical t-value of 1.960. This implies that the result is not significant, meaning that the teachers and principals did not differ significantly on the paedagogical-capacity building needs of teachers in organizing instructional resources in secondary schools in Kwara State.

. Therefore, the null Hypotheses was retained while the alternative Hypotheses was rejected.

**Hypotheses Three:** There is no significant difference in the mean ratings of teachers and Principals on the paedagogical-capacity building needs of teachers in implementing instruction in secondary schools in Kwara State.

This Hypotheses was tested using independent t-test analysis. The result of the analysis is presented in table 10.

**Table 10:** Independent t-test analysis to determine the difference in the mean ratings of teachers and principals on paedagogical-capacity building needs of teachers in implementing instruction to students in secondary schools in Kwara State

| Variable | N | $\overline{X}$ | SD | t-cal |
|---|---|---|---|---|
| Principals | 47 | 14.95 | 3.87 | |
| | | | | 1.02 |
| Teachers | 153 | 14.26 | 3.77 | |

P >0.05; df= 139 critical t-1.960

The analysis above showed that the calculated t-value of 1.02 was found to be less than the critical t-value of 1.960. This implies that the result is not significant, meaning that the teachers and principals did not differ significantly on the paedagogical-capacity building needs of teachers in implementing instruction to students in secondary schools in Kwara State. Therefore, the null Hypotheses was retained while the alternative Hypotheses was rejected.

**Hypotheses four:** There is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in managing practicals in agriculture in Public secondary schools in Kwara State.

This Hypotheses was tested using independent t-test analysis. The result of the analysis is presented in table 11.

**Table 11:**Independent t-test analysis to determine the difference in the mean ratings of teachers and principals on paedagogical-capacity building needs of teachers in managing practicals in agriculture in Public secondary schools in Kwara State.

| Variable | N | $\overline{X}$ | SD | t-cal |
|---|---|---|---|---|
| Principals | 47 | 15.84 | 3.97 | |
| | | | | 1.56 |
| Teachers | 153 | 14.76 | 3.84 | |

P >0.05; df= 139 critical t-1.960

The analysis above showed that the calculated t-value of 1.56 was found to be less than the critical t-value of 1.960. This implies that the result is not significant, meaning that the teachers and principals did not differ significantly on the paedagogical-capacity building needs of teachers in managing practicals in agriculture in Public secondary schools in Kwara State. Therefore, the null Hypotheses was retained while the alternative Hypotheses was rejected.

**Hypotheses five:** There is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in evaluating instruction in secondary schools in Kwara State.

This Hypotheses was tested using independent t-test analysis. The result of the analysis is presented in table 12.

**Table 12:** Independent t-test analysis to determine the difference in the mean ratings of teachers and principals on paedagogical-capacity building needs of teachers in evaluating instruction in secondary schools in Kwara State.

| Variable | N | $\overline{X}$ | SD | t-cal |
|---|---|---|---|---|
| Principals | 47 | 15.12 | 3.88 | |
| | | | | 1.32 |
| Teachers | 153 | 14.90 | 3.86 | |

P >0.05; df= 139 critical t-1.960

The analysis above showed that the calculated t-value of 1.32 was found to be less than the critical t-value of 1.960. This implies that the result is not significant, meaning that the teachers and principals did not differ significantly on the paedagogical-capacity building needs of teachers in evaluating instruction in secondary schools in Kwara State.

Therefore, the null Hypotheses was retained while the alternative Hypotheses was rejected.

### 4.3 Summary of Major Findings

Based on the hypotheses tested in this study, the following are the major findings of the study;

1. There is no difference in the views of respondents on paedagogical-capacity building needs of Agricultural science teachers in proper planning of instruction in secondary schools Kwara State.
2. There is no difference in the views of respondents on paedagogical-capacity building needs of Agricultural science teachers in organizing instructional resources in secondary school Kwara State.

3. There is no difference in the views of respondents on paedagogical-capacity building need of Agricultural science teachers in implementing instruction to students in secondary schools in Kwara State.
4. There is no difference in the views of respondents on paedagogical-capacity building need of Agricultural science teachers in evaluating instruction in secondary schools in Kwara State.
5. There is no difference in the views of respondents on paedagogical-capacity building needs of Agricultural science teachers in managing practicals in agriculture in secondary schools in Kwara State.

## 4.4 Discussions of Findings

Based on the null hypotheses tested and research questions answered,the following are the discussions of findings: the analysis on Table 8 revealed that calculated t-value of (0.83) is less than critical-t (1.960),under the df of 139with 0.05 level of significance. This means that there is no significant difference in the views of respondents on paedagogical-capacity building needs on Agricultural science teachers in proper planning of instruction in secondary schools in Kwara State. Therefore, the null Hypotheses which states that there is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in proper planning of instruction in secondary schools in Kwara State was retained while the alternative Hypotheses was rejected. This result was further confirmed from the descriptive statistics on Table 3which shows the opinions of Agricultural science teachers and principals on a number of item statements as contained in the questionnaire (see Appendix III). Table 3 shows that all the items had means ranging from item 3 (2.47) and item 4 (3.36) and are more than 1.5, this results indicated that all the items are needed by agricultural science teachers

for proper planning of instruction in agric science in secondary schools in Kwara State. This finding is in line with the assertions of Maria (2009) that adequate training of teachers will enable them to plan and deliver instructional content effectively.

The analysis on Table 9 revealed that calculated t-value of (0.46) is less than critical-t (1.960),under the df of 139 with 0.05 level of significance.This means that there is no significant difference in the views of respondents on paedagogical-capacity building needs on agricultural science teachers in organizing instructional resources in secondary schools in Kwara State. Therefore, the null Hypotheses which states that there is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in organizing instructional resources in secondary schools in Kwara State was retained while the alternative Hypotheses was rejected. This result was further confirmed from the descriptive statistics on Table 4which shows the opinions of Agricultural science teachers and principals on a number of item statements as contained in the questionnaire (see Appendix III). The table 4 shows that all the items had mean ranging from item 3 (2.22) and item 5 (3.42) and are more than 1.5, this results indicated that all the items are needed by agricultural science teachers in organizing instructional resources in agric science in secondary schools in Kwara State.

This result agrees with the findings of Ellah (2001), who states that the organization of instructional activities include arranging productive resources available for effective use; sourcing for and procuring instructional resources.

Table 10 revealed that calculated t-value of (1.02) is less than critical-t (1.960),under the df of 139 with 0.05 level of significance. This means that there is no significant difference in the views of respondents on paedagogical-capacity building needs on Agricultural science teachers in implementing instruction in secondary schools in Kwara State. Therefore, the null Hypotheses

which states that there is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in imparting knowledge to students in Public secondary schools in Kwara State was retained while the alternative Hypotheses was rejected. This result was further confirmed from the descriptive statistics on Table 5which shows the opinions of Agricultural science teachers and principals on a number of item statements as contained in the questionnaire (see Appendix III). The table 5shows that all the items had means ranging from item 4 (2.21) and item 3 (3.45) and are more than 1.5, this results indicated that all the items are needed by agricultural science teachers in imparting of knowledge to students in agric science in secondary schools in Kwara State. This finding agrees with that of Howard in Nwafor (2007), who states that instructional objectives needs to be delivered in a step-by-step activities with adequate resources necessary to achieve them.

Table 11 revealed that calculated t-value of (1.56) is less than critical-t (1.960),under the df of 139 with 0.05 level of significance. This means that there is no significant difference in the views of respondents on paedagogical-capacity building needs on agricultural science teachers in managing farm practicals in public secondary schools in Kwara State. Therefore, the null Hypotheses which states that there is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in managing farm practicals in secondary schools in Kwara State was retained while the alternative Hypotheses was rejected. This result was further confirmed from the descriptive statistics on Table 6 which shows the opinions of Agricultural science teachers and principals on a number of item statements as contained in the questionnaire (see Appendix III). Table 6shows that all the items had means ranging from item 1 (2.32) and item 2 (3.22) and are more than 1.5, this results indicated that all the items are needed by agricultural science teachers in managing farm

practicals in agric science in secondary schools in Kwara State This finding is in line with that of Osinem (2008), who observed that paedagogical-capacity building enable agricultural science teachers to carry out the following activities; laying out of the school farm; implement a calendar of farm activities; and review the programmes of farm activities periodically.

The analysis on table 12 revealed that calculated t-value of (0.32) is less than critical-t (1.960),under the df of 139 with 0.05 level of significance.This means that there is no significant difference in the views of respondents on paedagogical-capacity building needs on Agricultural science teachers in evaluation of instruction in secondary schools in Kwara State. Therefore, the null Hypotheses which states that there is no significant difference in the mean ratings of Teachers and principals on the paedagogical-capacity building needs of teachers in evaluating instruction secondary schools in Kwara State was retained while the alternative Hypotheses was rejected. This result was further confirmed from the descriptive statistics on Table 7 which shows the opinions of agricultural science teachers and principals on a number of item statements as contained in the questionnaire (see Appendix III). Table 7 shows that all the items had means ranging from item 2 (2.22) and item 5 (3.36) and are more than 1.5, this results indicated that all the items are needed by agricultural science teachers in evaluating instruction in agric science in secondary schools in Kwara State This result agrees with that of Okoro (1999), who observed that evaluation is the process of judging the adequacy of the amount of knowledge or skills possessed by students.

# CHAPTER FIVE
# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Summary

This study assessed paedagogical-capacity building building need of agricultural science teachers for effective lesson delivery in secondary schools in Kwara State, Nigeria. The study was conducted with five objectives which are proper planning of instruction in agricultural science in secondary schools in Kwara State, organizing instructional resources in agricultural science in secondary schools in Kwara State, implementing instruction to students in agricultural science in secondary schools in Kwara State; evaluating instruction in agricultural science in secondary schools in Kwara State and managing practicals in agricultural science in secondary schools in Kwara State. Also, five corresponding research questions were answered while five null hypotheses were formulated and tested for the study. A total of 94 agricultural science teachers and 47 principals responded to the questionnaire. The analysis of Data collected was done using independent t-test to determine the presence or absence of significant difference for the five null hypotheses. All the null hypotheses were tested at $P > 0.05$, df 139 level of significance. Findings revealed among others that: there is no difference significantly on the paedagogical-capacity building needs of teachers in evaluating instruction in secondary schools in Kwara State.

## 5.2 Contributions to Knowledge

Literature reviewed showed that no work has been done in this topic in the study area, therefore, there existed gap in knowledge which the study intend to fill such as the following:

1. The study determined the professional paedagogical-capacity building needs of teachers of agricultural science that could be utilize to upgrade the effectiveness or improve the quality assurance of these teachers through retaining.
2. The study provided information to the Teaching Service Commission in Kwara State about the professional area of instruction where teachers of agricultural science are deficient and therefore need capacity – building for effectiveness provided to organize a paedagogical-capacity building intervention programme for retraining teachers of agricultural science in order to upgrade their quality insurance.
3. The study provided information to the principals of secondary school in kwara state about the areas of Instruction where teachers of agricultural science under their administration need capacity – building the principals could use the information to encourage their teachers by supporting their application for study leave and fund for retaining for improvement in instruction.

**5.3 Conclusion**

The expectation of parents whose children are in secondary schools under guidance of the teachers is high achievement by their children in external examination (such as WAEC, NECO) in subjects taught including agricultural science. The teachers of agricultural science were expected to make concerted efforts to see that students were very successful in agricultural science of external examination but the parents expectation were never realized as evidenced in WAEC and NECO results of 2011 – 2013 as concerned agricultural science. Their problems had been associated by parents and supervisors with their level of effective lesson delivery of teaching of agricultural science in senior secondary school in Kwara State.

In view of the findings from this study, it is concluded that paedagogical-capacity building on Agricultural science teachers enable both teaching and learning to be properly and effectively done. Paedagogical-capacity building has exposed teachers to preparing daily lesson plan and arranging instruction within the limited time. It will also enable them to study carefully the agricultural science textbooks for additional information to add to their knowledge of the content. It can also concluded that inadequate paedagogical-capacity building has hampered teachers from delivering content step-by-step in a logical arrangement during the lesson which often make them fail to test students' entry behaviour with general stimulating questions. The researcher strongly believe that through evaluate and know individual student's ability in the classroom.

## 5.4 Recommendations

4. The Teaching Service Commission of Kwara State should organize paedagogical-capacity building workshop on effective lesson delivery to retaining teachers of agricultural science to enable them improve their level of lesson delivery in secondary schools.
5. Principals of secondary school in Kwara State should encourage the teachers of agricultural science under their care to seek for government or private sponsorship in areas where they can get retain on effective lesson delivery for improvement in their teaching responsibilities.
6. The teachers of agricultural science should utilize the findings of this study to seek for avenues to improve themselves through retaining on effective lesson delivery to enable them perform better in their teaching responsibilities in the schools.

## 5.5 Suggestions for further Study

1. Technical-paedagogical-capacity building needs of agricultural science teachers for effective lesson delivery in secondary schools in Kwara State Nigeria.
2. Relevance and quality of paedagogical-capacity buildingin agricultural science teacher education programme in Nigeria.
3. Professionalization of teaching through functional paedagogical-capacity building.

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**APPENDIX I**


# DEPARTMENT OF VOCATIONAL & TECHNICAL EDUCATION

AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA.

FACULTY OF EDUCATION

VICE CHANCELLOR: Prof. Ibrahim Garba (B.Sc., M.Sc. (A.B.U.): Ph.D. (London) D.I.C.) Telephone: 069-51755, 50692

HEAD OF DEPARTMENT: Professor A. A. Udoh (B.Ed. (Hons) Nsukka; M. Ed. & Ph.D. Bus Edu. [A.B.U.])


Your Ref:_____ Date: 26TH October, 2015

Our Ref: **M.Sc./EDUC/6990/11-12/P15 EDVE8097**

## *Letter of Identification*

**ABDULLAHI ANDABISHE ABBAS – M.Sc./EDUC/6990/11-12/P15 EDVE8097**

This is to certify that the above mentioned name is a Postgraduate student (M.Sc Agric Education) in the Department of Vocational and Technical Education, Faculty of Education, Ahmadu Bello University, Zaria, He carrying out a research on: **Paedagogical-Capacity Building Needs of Agricultural Science Teachers for Effective Lesson Delivery in Secondary Schools in Kwara State, Nigeria**

Please, kindly give him every assistance he may require.

**Professor A.A. Udoh**
**HEAD OF DEPARTMENT**

## APPENDIX II

**COVERING LETTER**

Agricultural Education Section,
Department of Vocational and Technical Education
Faculty of Education,
Ahmadu Bello University,
Zaria, Kaduna s\State.

Dear Respondent,

**Request to fill Questionnaire**

I Abdullahi Ndabishe ABBAS, is a student undergoing Master degree in Agricultural Education, Faculty of Education ABU Zaria. I hereby solicit for your responses on this questionnaire Assessment of Paedagogical-Capacity Building Needs on Agricultural Science Teachers for effective lesson delivery in Secondary Schools in Kwara State, Nigeria.

The information generated is purely an academic exercise which is part of the requirements for the award of M.Sc (Ed) Agricultural Education. Please give honest answers to the questions. Your answers will be treated with high degree of confidentiality. Your co-operation in this regard is highly appreciated.

Yours Sincerely

**Abdullahi N. Abbas**

## APPENDIX III

**QUESTIONNAIRE FOR AGRICULTURAL SCIENCE TEACHERS ON PAEDAGOGICAL-CAPACITY BUILDING ON AGRICULTURAL TEACHERS AND JOB PERFORMANCE**

**Part one**

**General Information**

Please complete the following information appropriate

Name (optional):- ----------

Name of School: - ----------

**Types of Degree Obtained**

(a) B.A [ ]

(b) B Sc. Ed [ ]

(c) B.Ed [ ]

(d) B.Sc [ ]

(e) B. Eng. [ ]

**Training Attending between the Period of two Years**

(a) In- Service [ ]

(b) Workshop [ ]

(c) Seminar [ ]

(d) Conference [ ]

(e) Non of the above [ ]

**Part Two**

**Instructions:** Please tick (√) in the appropriate box that relates to your opinion. Do not tick more than one response for each statement, that is, Highly Needed (HN), Needed (N), Slightly Needed (SN), and Not Needed (NN).

Please kindly indicate the level of paedagogical-capacity building need by you in planning of instruction

**Areas of Paedagogical-capacity building in Planning of Instruction**

| S/No | Ability to: | HN | N | SN | NN |
|---|---|---|---|---|---|
| 1 | Determine appropriate instructional objectives | | | | |
| 2 | Determine appropriate curriculum content | | | | |
| 3 | Adequately cover content areas | | | | |
| 4 | Assess the lesson objectives | | | | |
| 5 | Provide for improvement where objective is not achieved | | | | |

**Area of Paedagogical-capacity building in Organizing Instruction:**

| S/No | Ability to: | HN | N | SN | NN |
|---|---|---|---|---|---|
| 1 | Identify relevant content | | | | |
| 2 | Arrange content logically | | | | |
| 3 | Select relevant of methods of lesson delivery | | | | |
| 4 | To organize instruction within the allocated time. | | | | |
| 5 | To determine the complexity of lesson presentation | | | | |

**Area of Paedagogical-capacity building in Implementing Instruction**

| S/No | Ability to: | HN | N | SN | NN |
|---|---|---|---|---|---|
| 1 | Use relevant methods that suit specific topic; | | | | |
| 2 | Use simulation to make lesson presentation clearer. | | | | |
| 3 | Use instructional material appropriately | | | | |
| 4 | Combine different approaches in delivery a lesson | | | | |
| 5 | Organize students to group to facilitate learning | | | | |

**Area of Paedagogical-capacity building in Managing Farm Practicals**

| S/No | Ability to: | HN | N | SN | NN |
|---|---|---|---|---|---|
| 1 | Select contents that require practical activities | | | | |
| 2 | Determine the objective to be achieved during practical activities | | | | |
| 3 | Identify relevant tools needed for specific practical activities | | | | |
| 4 | Make improvisation where there are no concrete materials | | | | |
| 5 | Be able to carry out the practicals by him/her self | | | | |

**Area of Paedagogical-capacity building in Evaluating of Instruction**

| S/No | Ability to: | HN | N | SN | NN |
|---|---|---|---|---|---|
| 1 | Select appropriate evaluation approach | | | | |
| 2 | Match evaluation questions to lesson objectives | | | | |
| 3 | Select the type of questions, that with suit the relevant objectives | | | | |
| 4 | Allocate marks to questions appropriately | | | | |
| 5 | Determine time allotment to questions | | | | |