

**INFLUENCE OF INSTRUCTIONAL MATERIALS
ON THE ACADEMIC PERFORMANCE OF STUDENTS
IN AGRICULTURAL SCIENCE IN SECONDARY
SCHOOLS IN KWARA STATE, NIGERIA**

BY

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**DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION
FACULTY OF EDUCATION
AHMADU BELLO UNIVERSITY
ZARIA, NIGERIA**

AUGUST, 2011

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**DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION
FACULTY OF EDUCATION
AHMADU BELLO UNIVERSITY
ZARIA, NIGERIA**

AUGUST, 2011

DECLARATION

I hereby declare that the work in this thesis titled: “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria” was performed by me in the Department of Vocational and Technical Education under the supervision of Dr. B.I. Okeh and Dr. D.O. Oni. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this works has been presented for another degree or diploma at any institution.

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CERTIFICATION

This thesis titled: “INFLUENCE OF INSTRUCTIONAL MATERIALS ON THE ACADEMIC PERFORMANCE OF STUDENTS IN AGRICULTURAL SCIENCE IN SECONDARY SCHOOLS IN KWARA STATE, NIGERIA” meets the regulations governing the award of the degree of Masters of Science in Agricultural Science – Education of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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UMARU, KOLO IBRAHIM

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ABSTRACT

The study examined the availability of instructional materials, its adequacy and relevancy; characteristics of instructional materials, importance of instructional materials, and factors affecting the use of instructional materials on students' academic performance in agricultural science. This study made use of Survey Research Design. Thirty (30) Government and private secondary schools were used. It had the population of 8,142 agricultural science students and 73 agricultural science teachers. Sample of 206 students were randomly selected with 30 agricultural science teachers. The instrument used for collection of data was a questionnaire designed by the researcher for the teachers and students of agricultural science. The instrument used in this study was vetted by the supervisors and experts in the field of measurement and evaluation in the Faculty of Education to determine the face and content validity of the instrument. The data collected for the pilot study was used to calculate the reliability coefficient using split-half method and also Pearson Product Moment Correlation Coefficient (r), which gave 0.87. Four research questions and four null hypotheses (H_0) were formulated to guide the study. Contingency chi-square statistical tool was used in testing the hypotheses at 0.05 level of significance. The analysis yielded the following findings that good and relevant textbooks were the instructional materials available to be used to influence students academic performance in agricultural science. That instructional materials should possess characteristics of visibility, simplicity, attraction, and clarity. That instruction material is important to influence students academic performance in agricultural science. That teachers qualification and experience were the major factors affecting the use of instructional materials to influence students academic performance in agricultural science in secondary schools. Recommendations were made in line with the findings, which include the agricultural science teachers should endeavour to use and try to improvise instructional materials for effective teaching of agricultural science in secondary schools. Government should ensure the adequate employment of dedicated and qualified agricultural science teachers and make funds available and sponsor the teachers attendance at conferences, seminars, and workshops on utilization of agricultural science instructional materials. In conclusion, students perform better when appropriate and improvised materials were made available and utilized in teaching agricultural science. The agricultural science knowledge and subsequent performance of students in both junior and senior secondary schools and agricultural science as a subject becomes more interesting to learn when it was taught by experienced, well committed, dedicated and qualified agricultural science teachers. Teaching of agricultural science will not be completed if the instructional materials needed to facilitate learning are not sourced for, and properly utilized for each agricultural science topic designed to be taught and construct others using available local materials.

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LIST OF SYMBOLS AND ABBREVIATIONS

Vol. (Vols)	Volume as in Vol. 4 (Volumes as in 4 vols)
CHS	Comprehensive High School
CSS	Community Secondary School
GDSS	Government Day Secondary School
GGDSS	Government Girls Day Secondary School
GSS	Government Secondary School
JSS	Junior Secondary School
LGA	Local Government Area
MOEST	Ministry of Education, Science and Technology
NECO	National Examination Council
NPE	National Policy on Education
SSCE	Senior Secondary School Certificate Examination
STAN	Science Teachers' Association of Nigeria
TSC	Teaching Service Commission
WAEC	West African Examination Council
WASSCE	West African Senior School Certificate Examination

Operational Definition of Terms

Academic Performance: For the purpose of this study, Senior School Certificate Examination conducted by the West African Examination Council (WAEC) is taken as an index of academic performance.

Apparatus: Laboratory equipments or tools that are needed for a particular activity or task

Chimneys: Structure through which water is carried up from the container.

Coleorhiza: In maize plant radicle that breaks through a root covering after about three to four days of planting.

Herbarium: A collection of dried specimens of flowers and plants origin

Hypogeal: A seed plant grow with the cotyledon under the soil e.g. maize

Improvise: To do or make something one has not prepared for because a sudden need has arise.

Laboratory: A room where agricultural scientists works or perform an experiment, testing.

Metamorphosis: The distinct changes in the development of the life cycle of an insect pest.

Specimen: It is a replicate of the whole object in the question. This may be a part of an object or one of the group or class to represent the whole group.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The influence of instructional materials in promoting students' academic performance and teaching and learning in educational development is indisputable. The teaching of Agricultural Science in Nigerian secondary schools needs to be properly handled. Agriculture contributes to the nation's economic development, hence, the need to be taught thoroughly if it is to meet the educational and economic development. Moreso, that Agricultural Science is one of the subjects in Junior and Senior Secondary Schools; and as a vocational subject, it cannot be taught effectively without the use of appropriate instructional materials (Ajayi, 1988). The curriculum content of the senior secondary school levels consists of three major concepts of production, protection and economics. Learning by doing was emphasized in the curriculum so that the students should be able to produce food and other agricultural products for themselves and their community. A series of activities were suggested in the curriculum to ensure the development of psychomotor skills in agricultural science by the students. The programme further recommended that: each student be guaranteed adequate equipment, farm space, farm structures and regular supply of fertilizers and animal feeds. In addition to having a farm, each school should keep at least two farm animals. Students achievement should be continuously assessed through various forms of tests and during field and laboratory practicals and individual assessment should be carried out for activities in crop production while group assessment be restricted to performance in animal production activities. Hence for effective and positive production in any

establishment, there must be enough working tools to be used by the personnel (Oyedun, 2000).

The teacher alone cannot provide all the needed condition for an effective teaching and learning process, other supporting materials should be provided. The students learn better when most of the senses are appealed to the instruction and use of instructional materials in agriculture science education has added a new dimension in the positive promotion of the teaching and learning process. It provides the much need sensory experiences needed by the learners for an effective and meaningful behavioural change. Instructional materials are meant to improve the quality of education for effective academic performance of agricultural science students in schools. The performance of the students on the intended learning outcome provide the validation – loop on the success of the interaction and instruction (Bakare, 1986).

Teachers normally dodge the use of instructional materials in most of their teaching topics, while they try to do all they could during their practical teaching in their course of study; even though some of these materials are not usually available in the schools for teachers' use. Also, in the Senior Secondary Certificate Examination, agricultural science practicals use a lot of specimens. Such includes soil samples, insect pests, seed samples, bone meal, fish meal, survey equipments, simple farm tools, farm machinery and implements, termitarium, fruits, sprayer, fertilizer, herbicides, cage, tilapia fish, watering can, feeding trough, hides and skin, weed specimens, hook and line etc., but most of these materials are only made available for students' use for the purpose of examination. These specimens are those that have not been seen or used before by the students. "In most of the secondary schools, instructional materials are not judiciously

used as it ought to be. Many teachers teach in abstract without using the required materials” (Ibrahim, 2000).

In making use of any instructional materials, such materials must be previewed that is, having full knowledge of the material; prepare the environment where it will be used; prepare audience by means of making sure that the materials to be used will attract attention, arouse, motivate and provide the rationale that could be used in the beginning, middle or end. The effectiveness of utilizing appropriate instructional materials in teaching and learning of agricultural science is not void of quality instructor. In order to give quality education to the younger generation, there is need for employment of more competent, experienced and qualified agricultural science teachers.

The need to identify the suitable instructional materials, by which students can be made to comprehend the extent of the subject easily and intelligibly, is the focus of this study. An indepth look at the secondary schools agricultural science programmes revealed that there is the need for improving all phases of the programmes (IMAA, 2004). For example, there is need for the introduction and use of instructional materials and equipments for use in both the classrooms and school farms. The broad aim of any good training materials are to induce and support the learning process that leads to improve on-the-job performance through affecting changes in the knowledge, attitudes, skills and practices of the learners. With the above reasons, it is worth investigating the influence of instructional materials in the teaching of Agricultural Science in our Secondary Schools, for better performance of students in their examination and chosen career in the field of agriculture. If instructional materials are used in Secondary Schools,

it would help improving the teaching and learning and hence the academic performance of students in Agricultural Science effectively.

1.2 Statement of the Problem

Many of the school authorities have very lukewarm attitudes over the provision of needed tools, equipments, and farm inputs required for effective agricultural science, especially practical in secondary schools. This non-challant attitude tend to retard genuine efforts of some teachers of agricultural science in the secondary schools. In spite of the emphasis being placed on agricultural science as one of the subjects in secondary schools, there is usually not enough time provided in the time-table for a meaningful agricultural science work (Adeyemi, 2000). Agricultural science teachers are always interested to finish the syllabus before the external examination – Senior School Certificate Examination (SSCE) conducted by West African Examination Council (WAEC).

Hence, the prosecution of a functional education in relation to agricultural science in secondary schools still leaves much to be desired. In view of this difficulties, most teachers of agricultural science still resort to the theoretical method of teaching the subject. This undoubtedly, is contrary to the improvement of agricultural science education, which is greatly needed at this period of our development with emphasis on practical oriented learning (Mammudu, 1996). The researcher has taught for a number of years in some secondary schools and had visited a number of secondary schools as a resource person. Through these experiences, the researcher observed that most teachers in secondary schools in the state did not fully make use of instructional materials in the teaching of agricultural science to their students. This negligence of the effective use of

the instructional facilities and materials in teaching and learning of agricultural science common to both the trained and untrained teachers affected the successful academic performance of students in agricultural science in secondary schools in Kwara State.

The desire to embark on this research study therefore, stemmed from the fact that there is problem of poor performance of secondary school students in agricultural science in the state. This poor and general backwardness in agricultural science have been recorded for some years now by the examination bodies of Senior School Certificate Examination conducted by the West African Examination Council (WAEC), school promotion examinations and the special qualifying examination, conducted by the State Ministry of Education, Science and Technology, introduced for students in senior secondary schools respectively – (Department of Statistics, Planning and Research, Ministry of Education, Ilorin, 2007). The statistics obtained from fifteen secondary schools in Kwara State have indicated that there is a progressive decline in the performance of students in agricultural science subjects. Statistics from the various examination offices of the schools revealed that out of a total of 1,964 agricultural science students that registered and sat for the West African Examination Council in 2009, only 610 passed and 1,354 students failed from the 15 secondary schools – representing 31% passed and 69% failed (School Examination Offices, 2010).

Anything that saves students from performing poorly in agricultural science, will also save parents or guardians from wasting their hard-earned money. It may put an end to parents or guardians wasting their hard-earned money re-enrolling their wards to repeat agricultural science examinations which they are not guaranteed passing even after several attempts. The unusual way some agricultural science teachers approach the

teaching of agricultural science has contributed to the students' development of negative attitude to both the subjects and the teachers. Most of the secondary schools cannot meet up with the academic (practical) requirements of this subject as they lack instructional materials for adequate teaching and learning of the subject.

The central problems which are attributed to the students' poor academic performance in agricultural science in secondary schools' in Kwara State may be due to poor usage or not using appropriate instructional materials to teach agricultural science, issue of class size, inability to improve on the needed facilities, equipment, technical expertise, lack of agricultural science laboratories, workshops, seminars, poor organisation of the few available instructional materials, agricultural science teachers attitudes towards the use of instructional materials, non improvisation of instructional materials by agricultural science teachers and the weakness of the school administrators in finding solutions to the problems for the influence of misuse of instructional materials, all need serious attention.

The appropriate utilization of instructional materials and teaching of agricultural science by experienced and qualified teachers, may probably be the main solution to poor performance in Agricultural Science. In order to develop interest of the students to the study of agricultural science in secondary schools and the participation of agricultural science teachers to teach the subject as a vocational agriculture, the researcher deem necessary for the use of appropriate instructional materials for the teaching of Agricultural Science in selected secondary schools setting in Kwara State in particular.

1.3 Objectives of the Study

The major objective of this study is to determine the influence of instructional materials on the academic performance of students in agricultural science in secondary schools in Kwara State, Nigeria. The specific objectives are to:

1. identify the types of instructional materials being used for teaching in order to achieve students' academic performance in agricultural science;
2. determine the characteristics of instructional materials that can be used to influence students academic performance in agricultural science;
3. evaluate the importance of using instructional materials to achieve students academic performance in agricultural science.
4. examine the factors affecting the use of instructional materials to influence the academic performance of students in agricultural science.

1.4 Research Questions

The following research questions were answered in the course of the study.

1. What are the types of instructional materials available for use to influence the academic performance of agricultural science students in secondary schools in Kwara State?
2. What are the characteristics of instructional materials being used to influence the academic performance of students in agricultural science in secondary schools in Kwara State?
3. What is the importance of instructional materials to influence students academic performance in agricultural science in secondary schools in Kwara State?

4. What are the factors affecting the use of instructional materials to influence students' academic performance in agricultural science in secondary schools in Kwara State?

1.5 Research Hypotheses

The following null hypotheses (Ho) were stated to guide the study.

1. There is no significant relationship between the use of available instructional materials and students' academic performance in agricultural science in secondary schools in Kwara State.
2. There is no significant relationship between the characteristics of good instructional materials used and academic performance of students in agricultural science in secondary schools in Kwara State.
3. There is no significant relationship between the importance of using instructional materials and the academic performance of students in agricultural science in secondary schools in Kwara State.
4. There is no significant relationship between the factors affecting the use of instructional materials and students' academic performance in agricultural science in secondary schools in Kwara State.

1.6 Significance of the Study

This research work is significant and useful in the teaching and learning of agricultural science. Findings from this study will help to assess the effectiveness of the stated objectives of secondary school – agricultural science curriculum.

Subsequently, the findings from the study will help agricultural science teachers in choosing an appropriate instructional material(s) capable of releasing students' tension

towards the subject thus improving students' academic performance in agricultural science. It will motivate agricultural science teachers to develop interest towards utilizing suitable teaching materials that will be a possible means towards reducing failure in the teaching and learning of agricultural science. Findings of this study will help clarify among the teachers the need for continuous and regular improvisation of suitable instructional materials for teaching and learning of agricultural science.

Moreover, the results of this study will be of great significance to the agricultural science curriculum planners. The curriculum developers will find the work useful in reviewing the agricultural science curriculum by seriously laying emphasis on utilization of instructional materials so as to meet up with emerging needs of the society. This study will be of immense benefit to researchers in the field of agricultural science by forming a basis for further studies on the usage of instructional materials and teachers' quality in order learning aspects of agricultural science as a subject.

The study will also equip our educational administrators in the Ministry of Education, Science and Technology (MOEST), educational test and measurement experts on the need to provide instructional materials for teaching agricultural science in our secondary schools setting particularly in selected secondary schools and the Kwara State as a whole.

The study will also be useful in educational policy making. The research will arouse instructional educational funding agencies such as Federal Ministry of Education, Faculties or Schools of Education, National Teachers' Institutes as well as professional bodies such as Science Teachers Association of Nigeria (STAN) to formulate educational polices which may be useful in implementation of agricultural science curriculum.

1.7 Assumptions of the Study

The researcher made the following assumptions that:

- i. the availability of instructional materials – specimens, relevant agricultural science textbooks, pictures, diagrams, practical school gardens, charts and community resource places contribute to the academic performance of students in agricultural science;
- ii. the good use of instructional materials is dependent on the teachers' qualification and experience to influence students academic performance in agricultural science;
- iii. students taught with instructional materials do perform better than students taught without instructional materials;
- iv. the factors affecting the use of instructional materials is built-up upon the class size or students population.

1.8 Delimitation of the Study

This research work is delimited to the types of instructional materials available for use to influence academic performance of agricultural science students in secondary schools in Kwara State, characteristics of instructional materials, importance and uses of instructional materials and factors affecting instructional materials usage. It is also delimited to thirty agricultural science teachers and two hundred and six agricultural science students from thirty selected Government and private Secondary Schools in three senatorial districts of the sixteen local government areas in Kwara State.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The aim of this chapter is to present already existing views of people in related topic on “Influence of Instructional Materials on the Academic Performance of students in Agricultural Science in Secondary Schools in Kwara State, Nigeria.” This chapter is sequentially arranged and discussed under the following sub-headings:

- 2.1 Theoretical Framework
- 2.2 Types of instructional materials
- 2.3 Characteristics of instructional materials
- 2.4 Importance and uses of instructional materials
- 2.5 Factors affecting the instructional materials usage
 - 2.5.1 Problems militating against effective use of agricultural science instructional materials
 - 2.5.2 Criteria for selecting and evaluating instructional materials
- 2.6 Empirical studies
- 2.7 Summary of the literature reviewed
- 2.1. Theoretical Framework**

The theoretical framework of this research hinges on the theory of learning as described by cognitive psychologists. In theory of cognitive development, mental ability is closely related to language ability. As child grows older, vocabulary and word usage becomes the best single indication of his intelligence. Sensory motor ability is the basis of intelligence and other ingredients are ability to perceive situations accurately, to see relations, to remember, to use good judgement and to persist in solving problems. The

psychologist posited that in attempt to learn anything a child must pay attention to it. It also involves exploration of the visual field, fixing the eyes successively on different parts rating these parts and anticipating phenomenon that are not yet clearly perceived (Akanbi, 1989).

This study is of the opinion that agricultural science teachers should use the materials that would enable students to easily perceive learning situations in a positive way, especially in the teaching of agricultural science. According to Akanbi, (1989), distinguished four stages in the development of cognition or intelligence. This concept of stage implies that development takes place in unvarying steps like sequence, regardless of the child's culture or education. According to Akanbi, the child begins rudimentary concept formation at the pre-conceptual thinking stage. Here the child begins to classify things in certain classes because of their similarity. Here he explains that the child's rather than his logic being either deductive or inductive, it is transductive. This study here is of the opinion that the teacher should be able to present instructional materials that would enable the students to overcome the problems of transductive. The study here is of the fact that inability of the teachers to utilize the appropriate methods and materials to teach certain concepts in agricultural science has contributed to poor students academic performance in the subject (Farrant, 1980).

2.2 Types of Instructional Materials

According to Blankenship (1989) Agricultural Science teaching aids can be classified into two classes. They are:

- a. Visual aids
- b. Audio-visual aids

The visual aids are those teaching aids that can be clearly seen with our eyes vividly. Examples of visual aids are: chalkboard, agricultural science textbooks, charts, model, specimen, a practical farm or school gardens, survey equipment, simple farm tools, farm machinery and implement, cages for small animals (rabbit and poultry), feeding trough, samples of different soils etc. While audio-visual aids are those that we can hear and see, by producing sound that the sound are expressed in thought. They appeal to our senses of hear and eyes. Audio visual aids include: tapes, video, television, projectors and motion pictures.

Yusuf (1998) said that one can classify learning materials in several ways. For instance, one can distinguish between auditory, visual and reading materials.

However, for the purpose of classification, learning materials for teaching agricultural science can be classified as follows:

- (i) Printed and reference materials: Textbooks, newspapers, magazines, government documents, teachers' guide, duplicated materials, journals, hand book, bulletins, pictures, work books, pamphlets, leaflets.
- (ii) Graphic materials: Graphs, charts, diagrams, maps, globes.
- (iii) Display materials: Chalkboard, bulletin boards, flat pictures, magnet boards and flannel board.
- (iv) Projected materials – television, video tape, overhead projector, slides and slide projector and transparencies.
- (v) Audio and other visual materials: Radio, model, computer, tape recording etc.
- (vi) Community resources: Zoos, Agricultural extension service centres, market place, parks, industrial establishments.

2.2.1 Models and Specimens

According to Balogun (1986) it is part of the duty of any agricultural science teacher to make models, charts and diagrams. Among the most continuously useful visual aids for the teaching purposes are those the agricultural science teachers made for himself. Moreover, the students should be encouraged to help, and to make such aids as a hobby especially in science club, handicraft groups – basket making, local cage making and so on. Specimens are real things. As general rules, living specimens are better than dead ones. Obtaining specimens takes time, if then, the agricultural science teacher make poor use of them, his/her time will have been largely wasted. If rightly used, specimens should not only add interest to the lesson, they should also help the agricultural science students to understand and to remember the subject (Imogie, 1989). For instance in studying agricultural implements (simple farm tools) there are variations in the type of shape of tools used in the farm in different communities. These variations are brought about by variations in the rate of development of agriculture, the soil type and the planting operation for which the tool is used. The following are the most common farm tools used in Nigeria; the hoe, the machet or cutlass, an axe, the sickle, the file, and the mattock.

Specimens for Class Use

Agricultural science teacher should see, handle and observe for themselves as much as possible. Nearly all agricultural science lessons requires illustrative materials of some kind. The Agricultural Science teachers, must first know where to find the material and then, by right use, get the greatest value from it. When studying plants, that is, parts of a maize plant, it is often possible to give a specimen to each student. Quite often, if the teacher cannot give a specimen to every student, so he or she hand round one between every two or three students (Blankenship, 1989).

Frequently, especially when studying parts of a sprayer (Knapsack sprayer), agricultural science teacher can bring one example. Also for instance, a rabbit in a cage or chicken (poultry) in a cage, or a butterfly or bees in a jar (glass jar). Perhaps, the most valuable use of the single specimen is for out-of-lesson observation (Blakenship, 1989).

2.2.2 The Chalkboard

The chalkboard is the commonest of all visual aids, and is, in fact, such a common place of classroom teaching that, it is rarely used as effectively as it might be. The agricultural science teacher should never be without a supply of coloured chalks. With their aid parts of a diagram needing emphasis can be brought into prominence. According to Omoruyi, Orhue, Akerebo & Aghimien, {1999} a diagram of the parts of the chicken (fowl) and so on becomes clearer and more memorable if the intestines, pancreases, liver, crop, gall bladder, gizzard, proventriculus and colons are shown in different colours with correspondingly coloured labels. It takes no more time to draw a plant and its roots using green and brown chalks for leaves and roots, but the result is more impressive than a drawing in white chalk. A diagram of a ranging pole is made much plainer if they are of different colour

According to Oladipo (2001) while studying surveying and planning of farmstead, the objectives is to enable the students to be able to explain the importance of farm surveying and planning and recognise survey equipment. Ranging pole is one of the common farm surveying equipment and tools which is used in marking stations and also in making straight lines. The ranging pole is made of wood or metal. It is about 1.8 metres or 6 feet in height. The pole is usually painted black, bright red and white to

enable it to be seen from afar. It has pointed steel end for penetrating the soil. A diagram of a ranging pole is made much plainer if they are of different colours.

2.2.3 Charts and Graphs

According to Omoruyi, et al (1999) charts and graphs are useful for the immediate illustration of agricultural science lessons and should be hung by the side of the chalkboard rather than over it for examples when studying various stages of seed germination (maize), *zea mays* and the life cycle of a grasshopper (*Zonocerus veriatius*). The female lays eggs on the underside of leaves around April. These hatch into nymphs around October and during the 4th instar stage they migrate into the farm and continue to feed on cassava leaves up to the adult stage (imago). The cycle has no pupal stage (incomplete metamorphosis), like that of the yam beetle (*Heteroligus meles*) which is a complete metamorphosis. The early stages of nymphs may feed on other shrubs such as *chromoleana, spp* (Siam weed) as alternative host and continue until they come in contact with cassava farm.

According to Akande & Azike (2006) a bar chart or block diagram is composed of a number of spaced rectangles, which generally have their major areas vertical (although this is by no means always the case). While studying the steps of diffusion/adoption process, the percentage (%) of farmers adopting the new idea can be illustrated on the graph as adopter categories and their characteristics. The graph helps to describe to the students, farmers into adopter categories based on their rate of adoption of new ideas:

1. Innovator (2.5%)
2. Early adapter (13.5%)
3. Early majority (34%)
4. Late majority (34%)
5. Late adopters/laggards (13.5%)
6. Never adopter (2.5%)

A histogram is a diagrammatic presentation of a grouped frequency distribution or any relevant group data. In other words, it is customary to represent a frequency distribution or any appropriate group data diagrammatically in the form of a histogram. It is probably the most important type of statistical diagram. According to Akande, et al (2006) graphs are used to present an argument pictorially, that is, to appeal to reason through the eye. They indicate tendencies far more quickly and more convenient than two or more pages of figures.

According to Akande, et al (2006) graphs are in such common use and so readily display variations in values, that students should be encouraged to employ graphical methods whenever possible. Regular variations are shown particularly clearly by means of graphs. Bar graphs, circle graphs and line graphs are used to summarize detailed information. They provide a quick simple way to compare quantitative information. A circle graph is used to best advantage to show the relationship both of the parts to a whole and of the parts of each other. It is an excellent way of showing the distribution of values.

2.2.4 Maps, Atlases and Textbooks

Maps and atlases are important instructional materials for the teaching and learning of agricultural science. They are good companions when teaching such topics as the various farm and animal products, forest resources management and natural

vegetation and so on. According to Anyawu & Anyanwu (1987) textbooks are the most common instructional materials that teachers used to disseminate knowledge. Textbooks add variety values, but are too costly for an average Nigerian student to afford. Some ways by which to ameliorate this problem is for a group of teacher to write jointly and for the school authority to ensure that copies of relevant textbooks are put into the school library to enable agricultural science students who cannot afford these textbooks to get access to read them. In studying fishing equipment, fishing methods vary with the various types of equipment in use in fishing. In fishing, special types of nets, hooks and lines are used. The fishing equipment include:

- i. Nets
- ii. Traps

The nets include the following types: set net, drag nets, cast nets, trawl net and hand net. The traps used in fishing vary. They include the baskets, the hook and line, the spears and the fish poison (Anyanwu, et al, 1987).

Use of Journals, Magazines and Handbooks

These are printed materials that can be effectively used to aid agricultural science teaching. Experienced science teachers can use them to:

- a. Obtain information which cannot be readily obtained from textbooks.
- b. Help bring the teacher up to date in his/her field. When the above are achieved by the agricultural science teacher, he/she will be able to disseminate the instruction or knowledge gained to the students. This aid effective teaching and learning in agricultural science.

2.2.5 Practical Farm or School Gardens

At the secondary school level, some or all, of the classes, the students do not cultivate their own small plots and for them to learn about good methods of gardening and practical farming (Aliyu, 1982). According to William (2004), agricultural education is the type of education that is employed in training learner in the improved agricultural production processes, as well as in the techniques for the teaching of agriculture. In schools, agricultural education referred to the teaching of skills, values, attitudes and related knowledge in production, processing, and marketing of agricultural and related products. In such schools, students are expected to carry on short and long-term practical activities and projects such as cultivation of crops, vegetables and fruits. Raising of livestock for the schools consumption and for local markets.

Agricultural Education in Secondary Schools

The teaching of agriculture at the secondary level in Nigeria today is done at two levels: (i) at the Junior Secondary School (JSS) and (ii) at the Senior Secondary School (SSS). At the Junior Secondary School (JSS), spanning through the first three years of secondary education, “Practical Agriculture” is recommended as one of the core subjects. The National Curriculum for Junior Secondary Schools, outlined the objectives of agricultural education in secondary schools in Nigeria as:

- (i) To stimulate students interest in agriculture.
- (ii) To enable students to acquire basic knowledge of agriculture
- (iii) To develop basic agricultural skills in students
- (iv) To enable students to integrate knowledge with skills in agriculture
- (v) To expose students to opportunities in the field of agriculture
- (vi) To prepare students for further studies in agriculture

- (vii) To prepare students for occupations in agriculture (William, 2004).

The Value of Practical Work in Agricultural Science

The agricultural science teacher can only teach if he/she is convinced that the subject has some importance for the students. Some agricultural science teachers look on the practical side of agricultural science as an extra, and rather a tiresome extra, because it usually requires more preparation than the purely oral lesson. The value of practical work in such subject (agricultural science) is obvious and is at once recognised. In Agricultural Science, it is not necessary to spend so large a proportion of time on practical work, but once the agricultural science teacher understand its value, he/she will not be tempted to omit it.

2.2.6 Secondary School Agricultural Science Materials

The Need for the Tools

Any practical subject like Agricultural Science required tools and materials, and recognizing this, school authorities are to make some provision for these necessities. In Agricultural Science, then, tools and materials are necessary. It is common to find in most secondary schools well equipped for teaching wood work, but without any equipment for practical agricultural science – teaching. The equipment needed for work suggested in this research work is very simple: much of it can either be collected at home or made by agricultural science teachers and students as well. There are, however a few items which must be bought, and there ought to be a small grant or allowance for this.

Improvising Equipments

According to Agun (1982) let no agricultural science teacher supposed that it is impossible to teach agricultural science without most of the apparatus and equipments (instructional materials). Stringent economies may have to be made, the delivery of

apparatus and chemicals may be long delayed, or apparatus may be temporarily unobtainable. The poor agricultural science teacher complains, blames lack of equipment for the dullness of his/her lessons, and allows his/her students to revert to the dull monotony of note-taking and passive learning of the textbook.

The good agricultural science teacher, however, finds in the same circumstances a challenge to his ingenuity. With an alert mind he/she adapts his/her lessons to the materials available. With patience, simplified versions of more complicated apparatus can be made. In fact, “the simpler the apparatus, the better is the students able to appreciate the method used and the facts to be illustrated” (Odukwe, 1983).

Notes on Some Possible Improvisations

Beakers: Canned fruit tins can be used for heat liquid contents.

Botanical Specimens: These can be pressed and dried between sheets of newspaper.

Bottles: Narrow neck, for liquids – various kinds and sizes which when ordinarily purchased from drug, contained medicines, etc., may be used. Those with plastic screw-tops are to be preferred. The paper, or rubber, washer inside the screw-top must be removed and washed or replaced.

Flowers and Plants: A collection of dried specimens is called a herbarium. Its main purpose is to provide a supply of identified plants for general reference and to facilitate the naming of freshly collected specimens.

Cages: The cages for small domestic animals like chicken, rabbit etc., can be made from wooden boxes, and can be of various types and sizes – simple box type, improved type. A cage which has no glass side, is not much use for observation; every school ought to have one, so much the better. An improved cage type is easy to clean, the shallow drawer

at the bottom can be removed for cleaning without opening the cage. If possible, line the drawer with metal.

Feeding Trough: A small tin, can be used as a feeding trough, if the cut sides are rolled inwards to avoid sharp edges. If this hangs by wire hooks, it can be removed without reaching right down into the cage. Some domestic animals like rabbit for example, will drink water from a drinking tube (Balogun, 1986).

2.2.7 Community Resources

The most commonly used for effective teaching of agricultural science in this category includes field trips or excursion-visit. This community resources comprises of people, place, things and materials which are used in educating students. Instructional programs which include, community resources are enriched and learning, becomes more relevant and meaningful to students. They provide excellent opportunities to improving communication between the school and the people in the community and good public relation is established (Agun, 1982).

Resource places according to Ajayi & Salami (1999) required a movement out of the class or school premises to make visits. This is meant to supply additional information on learning experiences to that acquired in the classroom environment. Examples of these places are fish pond, dams and irrigation schemes, market place, parks, industrial establishments, game reserves, agricultural sites or agricultural extension service centres etc. Such visits are educationally motivated with distinct instructional goals. This may also require the use of resource person at such sites to take up

explanations of their functions for their existence especially when studying farm machinery and implements.

According to Omoruyi, et al (1999) the objectives of farm machinery and implements are to enable the students to be able to:

- (i) Recognise the different types of farm machinery.
- (ii) List the functions of the different types of farm machinery
- (iii) Name the major parts of tractor coupled implements and the function.
- (iv) Tractor coupled implements are agricultural implements used in carrying out farm operations which are operated by tractors. Among the examples of tractors coupled implements are ridger and trailer. The three point linkage, the drawbar along with other points of linkage provide the points of attachment to the tractor.

2.3 Characteristics of Instructional Materials

Odukwe, (1983) saw learning materials as essential part of practical teachings as such, in classrooms, pictures, charts and drawings should also be clear and neat. Odukwe added that, it is not good for a teacher to plan a lesson without some ideas of how he/she will stimulate or motivate his/her students by using pictorials illustrations (pictures, diagrams and apparatus) or materials illustrations. Olaitan, (1984) stressed that graphic materials to be used in classroom should be simple, attractive, large enough and not to be crowded with illustrations and colours. Ogundele, (1987) pointed out that good teaching aids must have the following characteristics. This is because, the importance of any instructional materials lies in its ability to:

- a. appeal to the senses (sound and sight)

- b. attract and hold attention
- c. focus attention on essential elements to be learned at the proper time.

In order to achieve the above objectives, any materials to be used as teaching aids must satisfied the following characteristics.

Flexibility: In the college or university, the teacher has been taught different ways of teaching hence, while in the classroom a good agricultural science teacher will attempt to teach his/her lesson using a variety of methods and materials. He/she should therefore, select or construct teaching aids that can be instantly modified to suit change in the approaches to construction.

Colour: Since pupils are attracted by bright colours, these should be used in the preparation of teaching also however, too much brightness should be avoided since it may distract students intention from the objectives of the lesson and the instructional materials.

Simplicity: Teaching aids must be simple and present only a far ideas at a time. This is because, students cannot comprehend complex ideas presented to them at a short-time. If pictures are used, they should illustrate only a very far words or actions. If more detailed pictures are used, student will not know that they are to notice.

Visibility: All the smallest detailed to be used in an instructional materials, should be large enough to be seen by every student in the class. So, such should be placed conspicuously in front of the class to present a clear view to every student.

Anyawu (1989) added that the characteristics of good teaching aids can be seen under the followings:

- a. Sufficiency: Teaching aids must be sufficient enough for use.

- b. Writing and Lettering: The Lettering or writing must be bold, clear, neat and readable.
- c. Attraction: That the aids must be neat and attractive to arouse the interest of students. All the lettering must be bold and attractive.
- d. Purpose: The information in the aids must help the students in learning and must be relevant to the lesson.
- e. Accuracy: They must be accurate in content and language. There should be no mistakes of facts or spelling, that is, misinformation.
- f. Clarity: All details in the aids e.g. drawings, pictures etc., should be easily seen by the students farther away from it. Aids such as radio, tape and television should be clear enough to be heard by all students.

According to Farrant (1980), the characteristics of instructional materials (teaching aids) may be grouped into nine (9) categories – A, B, C as follows:

A	B	C
1. Accurate	4. Bold	7. Clear
2. Appropriate	5. Brief	8. Clean
3. Artistic	6. Bright	9. Carefully handled or finished
A: Accurate – Information presented on every visuals should be up to date in every aspect.		

Appropriate: The visual aids for use, should be relevant to the topic as well as to learners. Visual aids should be used at the exact time when they will convey the right meaning they intend to convey.

Artistic: Pictorial information should be realistically produced to the extent that it will make the same meaning of impression to every learner. It should be well produced.

B: Bold: Information should be boldly presented so that the viewers or learners can see them clearly. Small pictures may not be visible from the back of the large class.

Brief: Only essential information need to be inserted in the visual aids to avoid overcrowdedness and irrelevance. As a rule main ideas should be few and stand out clearly for effective communication.

Bright: Bright vision may brighten the learner view of contents while dull ones may cause a dull effect that may lead them to dozing off.

C: Clear: The visual aid for use, should be clear so that every learner or viewer can quickly grasp its content. “A clustered chart is a confusing chart, if there is a lot of information to convey, develop a series of simple chart, rather than a single complex one” (Abdullahi, 1985).

Clean: A dirty work is unattractive and put off learners. Visuals should be clean and well cared for to avoid damages.

Carefully Handled or Finished: The planning and production of teaching aids, should be carefully carried out to give a deserved impression of good visual. Finally, a good teaching aid will provide adequate interaction.

2.4 Importance and Uses of Instructional Materials

According to Bajah, (1982) the followings were some of the reasons for using instructional materials.

- (i) A good instructional material can supplement spoken or written words.
- (ii) It can bring teaching to life in a way which word cannot.

- (iii) Words can describe people, places and objects but a picture immediately brings reality
- (iv) A teaching aid can simplify and clarify what is complex and difficult to express in words.
- (v) Instructional materials have motivational value for them to develop the interest of the student.
- (vi) Instructional materials can also promote retention as we can understand from the Chinese proverb that says “what I hear I forget, what I see I remember what I do I understand”.
- (vii) They save time, and energy what you will explain in ten minutes, will be possible in less time with the use of instructional materials.

Aids implied to help in teaching of agricultural science, not to be substitutes for teaching the subject, nor for teachers, rather, it should be used to supplement oral explanation and descriptions. Adeyemo (1985) stated that agricultural science involve a lot of simple tests and activities while the students must involve in, at the secondary school level so as to acquire the necessary skills and experiences. This can only be enhanced with the aid of instructional materials. Bakare (1986) said, “Instructional materials include self-supporting materials which are used by the teacher to present a complete body of instruction”. They make a lesson to become more explicit and interesting. Teaching aids are prime importance of both dull and bright students.

Ogundele, (1987) considered teaching aids as an essential part of teaching methods which helps the teacher to express its subject concept to the learners thus promoting students;’ academic performance. That, such aids or materials, should be the responsibility of the agricultural science teachers. Olaitan, (1994) stated that instructional materials are normally used during instruction to enhance proper or effective

learning and to encourage retention. They reduce the workload of the agricultural science teacher in the classroom, reinforce and add clarity to learning.

Ozorehe, (1998) said that instructional materials aids teachers competence and effectiveness of instruction and class control. It makes the learning environment more attractive, appreciable, conducive, bearable and realistic. The learners' attention is better controlled and sustained. Section ten in the National Policy in Education stated that objectives of learning materials are to:

- (i) enhance teaching and improve the competence of teachers
- (ii) make learning more meaningful for students.
- (iii) develop and promote the effective use of innovative materials in schools.

In the same line, Ajayi et al (1999) outlined the following reasons for the importance of using teaching aids in teaching and learning process in our educational settings. They aid learning by aiding the sense of seeing, hearing and touching. They direct teachings to its goals, makes lesson become interesting, arouse students' interest and motivate them to learn. Teaching aids are valuable in the following situation:

- (a) When the object of instruction is either too big or too small or too spread out to be seen effectively by the students e.g. tractor, plough, ridges, and insect pest.
- (b) When an object is inaccessible to students, for example, fish pond, dams and irrigation scheme, such should be displayed to the class with models.
- (c) If an object is too expensive, dangerous or delicate for the students to use, for example a lesson on the treatment or prevention on a certain livestock diseases

may involve the use of syringe and drugs, both may be impractical to have in the classroom.

- (d) When a process being studied is very slow – the agricultural science teacher may use pictures or diagrams to illustrate the various stages involved, for example plants growth, insect stages – metamorphism, rather than physical observation of plant growth and stages of an insect.

When using teaching aids, it is important that agricultural science teachers to consider the following suggestions.

- (i) Ensure that the material is accurate and acceptable to the students.
- (ii) Preview such materials before using them in the class
- (iii) Arrange the materials in such a way that the students will see it from the place they are sitting.
- (iv) Use the materials in the appropriate time in the lesson and after that remove them.
- (v) Do not use only one type of teaching aid to the exclusion of others. Ensure there is change and variety.
- (vi) Always remember that students are different in age/maturity, interest and experience. It is always an advantage to combine the aids to meet the need of various students. The class needs showed determination of the types of aids to be used. Do not cause confusion by presenting too much information (Ajayi, et al 1999).

Ajayi, et al (1999) further observed that instructional materials are versatile tools that are used in different ways for effective teaching and learning of agricultural science. These

aids convey facts and ideas in all forms of communication. They offer quite an easy way of presenting information. Ajayi et al (1999) further outlined some of the importance of instructional materials if the materials are carefully selected they should:

1. help to give correct initial concept
2. help students to learn more
3. speed learning processes
4. provide experiences which are not known before.
5. clarify and give definite meaning to words and the combat verbalism
6. intensify expressions
7. arouse interest by attracting attention
8. build and sustain interest
9. motivate, develop and change attitudes
10. vitalize instruction and provide variety in teaching
11. saves time of agricultural science teachers and students
12. supplement other learning and serves as reminder.

Ibrahim (2000) stated that instructional materials assist agricultural science teachers in the achievement of stated objectives and also help the teachers to make lesson explicit to the students. Fakomogbon (2000) also reported that instructional materials possesses the quality of influencing the psychological, motivational and structural position of the learners. It aids the achievement of any one of the following in the teaching learning process: Attention and motivation; orderliness in the classroom; lesson presentation; recall and remembering; guidance, active participation and response; feedback, assessment of performance and evaluation.

In summary, Oladipo (2001) asserted that instructional materials are important tools for enriching, visualizing, simplifying, transmitting and accelerating the teaching and learning processes, thus enhance students' academic performance in agricultural science. He further said that, effective instruction with instructional materials in the classroom requires careful planning by the agricultural science teacher. This implies that agricultural science teacher should take time to apply special knowledge and skill with respect to selecting, producing and using different kinds of instructional materials.

2.5 Factors Affecting the Instructional Materials Usage

In determining the instructional materials to be used for the conveyance of information in agricultural science, the followings were the factors affecting the use of instructional materials. Bakare (1986) outlined the following factors:

- a. Nature of the subject matter and the objectives to be attained: If the subject matter is such that is diversified, it may involve the use of more than one type of instructional material to achieve its objective.
- b. Number of learners/students involved: If the number of learners to be taught are up to one hundred (100), it would be more logical and efficient to use microphone for the presentation of information.
- c. The space of time available: Time is always limited and has its effect upon the kind of instructional materials used. If there is ample time, the agricultural science teacher is more likely to use the chalkboard and other techniques that encourage maximum participation. But when time becomes a limiting factor, the chalk and talk would be preferred.
- d. Facilities and materials available: The kind and extent of physical facilities and the instructional material available, including community resources, affect the choice of instructional materials that can be used.
- e. Interests and ability of agricultural science teacher: Most teachers have personal preferences and more security conscious in using selected instructional materials. Other things being equal, the teacher should use the methods that he/she likes or uses best. This does not mean that he/she should not be sensitive to other development that supplement or improve upon the instructional materials he/she frequently uses.

- f. Effectiveness of instructional materials: All agricultural science teachers should evaluate instructional materials used in terms of the objectives to be accomplished, and the situation at hand, and choose the one that will best meet the goals of the programme.

Balogun (1986) explained that school environment as the physical and material resources otherwise known as infrastructural facilities available to teachers and students to facilitate their teaching and learning. If the school environment is not conducive and thus affect student academic performance. Abdulkareem (1992): “resources – human and material resources are not equitably distributed among schools in Nigeria” Fakomogbon (2000) observed that one of the causes of failure in Nigerian Secondary Schools is inadequate school resources. He further explained that it cannot be over-emphasized that the provision of adequate resources is a prerequisite for adequate performance in schools. Most of our schools lack necessary infrastructural facilities required for effective learning.

2.5.1 Problems Militating Against Effective Use of Agricultural Instructional Materials

Bakare (1986) observed the following problems to effective use of instructional materials:

Emotion and Feelings: The way a communicator reacts spontaneously and negatively will affect his/her message and such may lead to distortions of the message during presentation. Self-concept or personal or Audience Perception: This is a psychological term which refers to the learners self-worth, perception of self and interpretation of other peoples perception or individuals. Learners have their various levels of understanding of how they use things, or how any of the parties involved in

communication achieve a message, goes a long way towards affecting the truth about it. The learners feeling of adequacy, its expectancy level and aspiration level in learning are largely determined by sense of positive self worth. External Disturbances and noise could discomfort information. Students cultural background or educational level of the learners affects communication. The cultural background of students contributed to the problem militating against the effective use of agricultural instructional materials, thus affecting the academic performance in agricultural science as an individual learning is generally affected by his or her cultural background and the opportunities provided for formal education in that culture. In fact, individual learning and problem-solving strategy may be said to be largely a product of his or her cultural stimulation. The experiences collected from formal and informal training received in individuals culture, also help to direct his or her future learning strategies and serve as learning core for reducing the thresholds of our learning competence. Conflict in goals or objectives – result when the instructional material used and the goals are not properly defined and streamlined. Motivation: motivation is a very important factor or problem militating against effective use of agricultural instructional materials in school learning. According to Makinde (1987), motivation is often described as the drive to action, hence school psychologists, guidance and counselling specialists as well as educators are concerned with motivation factors in school learning. Whenever motivation is absent in the process of learning, effective learning will not take place. Most students studying various subjects in secondary schools in present day Nigeria, have no interest in the subjects they are studying. For instance, most agricultural science students have apathy to the subject because of its practical aspect.

Imogie (1989) remarked that there are numerous problems militating against effective use of agricultural science instructional materials and acquiring them, such problems is examination consciousness. Teachers and students are always interested to finish the syllabus before the external examinations such as Senior School Certificate Examination (SSCE) conducted by West African Examination Council (WAEC) and the National Examination Council (NECO). Therefore, they lack time to acquire instructional materials for effective teaching and students memorises their work as they considered that by acquiring the materials is time waste.

Kareem (1989) indicated that lack of space to keep the learning materials, often makes it difficult to acquire learning materials. According to him, many classrooms are overcrowded which would not allow for thorough supervision by the teacher. Hence, lack of space to keep learning materials always discourage agricultural science teachers to create learning materials and therefore, depend much on talk and chalk leading to distract verbalism. William (2004) concluded that insufficient fund make it difficult for agricultural science teachers to acquire learning materials. William (2004) further reported how lack of fund resulted to inability of agricultural science teachers to produce learning materials and is amused in or her how a principal failed to make money available to purchase cardboard. This is how the ambition of many teachers are being killed through lack of fund in many secondary schools.

2.5.2 Criteria for Selecting and Evaluating Instructional Materials

According to Akolo (1981), teaching aids were meant to be used when necessary. They are not to be used for the sake of using alone. The following, are the criteria to consider in selecting teaching aids.

Purpose: Aids should not be used only because they are attractive or because agricultural science students will like seeing them. Agricultural science teachers should have definite objective in mind before thinking of any aid. The objective to be achieved, this is as immeasurable and quantifiable outcome. This could be manipulative, informative, or attitudinal which are usually based on a particular domains of learning such as cognitive, affective, and psychomotor.

Availability and Durability: Instructional materials should also be selected for use considering its availability in adequate number in the school to facilitate its functional use, practical durability of the materials and equipments, and face-validity of the materials. Other considerations are given to up-to-datedness of the materials, ease of management and operation, familiarity, and replicability of its use.

Appropriateness: In selecting instruction materials for use, consideration is given to time, space and when to use the materials for effective and efficient use of instruction materials.

Cost-effectiveness: The economy and cost-effectiveness is one of the pragmatic determinants of instructional materials selection. This include the cost-benefit analysis, its availability, viability, for a particular learning situation. This is to ensure the integration of such materials to facilitate learning and produce replicable result.

Ogunranti (1981) noted that, no matter how professional a teacher is, his/her interaction with students might not yield an effective outcome as compared to teacher that made use of such versatile materials in his/her teaching. Therefore, a teacher needs to support his/her teaching with appropriate materials in order to advert the lesson. In the area of selection and use of instructional materials in teaching particularly, in agricultural

science, certain consideration should be taken as guiding principles. These include the following:

1. Can the instructional materials serve the intended purpose?
2. Are the instructional materials readily available?
3. Are the instructional materials appropriate to the intended lesson?
4. Can the instructional materials serve as supplement to teaching?
5. Are the instructional materials carefully and systematically organized for effective use?

The above stressed the importance of selecting an appropriate instructional material in teaching agricultural science in particular in order to enhance students academic performance in the subject.

According to Ajayi et al, (1999) audiovisual instructional material must be used intelligently. Sufficient examples of classroom use of audiovisual materials have been given to suggest six main principles for their intelligent use:

1. Select the materials in terms of learning goals.
2. Prepare the students for use for audiovisual materials
3. Prepare for operation of the equipment.
4. Provide opportunity for the students to participate.
5. Provide follow-up activities.
6. Evaluate the outcomes.

In summary, the intelligent selection of many audiovisual materials of instruction are important for the modern agricultural science. Visual materials and devices such as chalkboard flat pictures, graphs, maps, opaque and overhead project, filmstrip and study

display, can facilitate the learning that is accomplished by means of sight. The sound motion picture, should be widely used in secondary school today as it would bring an excellent results.

2.6 Empirical Studies

The researcher compared the past related researches conducted by the experts in the field and the present researches.

Barlo (1981) carried out a research study titled: “The availability and utilization of instructional materials in the teaching of agricultural science in selected secondary schools in Lagos State”. The target population was two hundred and fifty (250) secondary schools out of which, twenty-five (25) secondary schools were selected as the samples using systematic sampling. The instrument used in collecting the data was questionnaire. Five (5) null hypotheses were stated which were tested using the Average Weighted Response (AWR) test statistics at 1.00 level of significance. All the five (5) null hypotheses were accepted. The results showed that the teaching of agricultural science in selected secondary schools depended on the availability and utilization of instructional materials which had negative relationship in the teaching of agricultural science in selected secondary schools in Lagos State.

The present research study is related in the title; “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in secondary schools in Kwara State, Nigeria”. The population for the present research study is two hundred and thirty-five (235) secondary schools compared with two hundred and fifty (250) secondary schools for the past research study. Thirty (30) secondary schools were selected as the sample for the present research study compared with twenty-five (25)

secondary schools selected as the sample for the past research study using systematic sampling. Four (4) null research hypotheses (H_0) were stated using chi-square (X^2) test statistics at 5% (0.05) significance level in the present research compared with five (5) null hypotheses which were tested using the Average Weighted Response (AWR) test statistics at 1.00 level of significance in the past research. All the five (5) null hypotheses were accepted. The past research study was located in Lagos State while the present research study is located in Kwara State.

Ozorehe (1998) also carried out a research study titled: “Utilization of teaching aids in the teaching of vocational agricultural science in secondary schools in Osun State”. The target population was two hundred and thirty one (231) secondary schools out of which fifteen (15) secondary schools were selected as the sample by simple randomization. Five (5) null hypotheses were stated which were tested using correlation coefficient test statistics at 0.68 level of significance, and all the five (5) null hypotheses were rejected. The result showed that about 60% of the respondents made use of the teaching aids effectively which had positive relationship in the teaching of vocational agricultural science in secondary schools in Osun State.

The present research study is similar in the title; “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria”. The target population for the present research study is two hundred and thirty-five (235) secondary schools out of which thirty (30) secondary schools were selected as the sample compared with target population of two hundred and thirty-one (231) secondary schools in the past research study out of which fifteen (15) secondary schools were selected as the sample by simple randomization. Four (4) null

hypotheses were stated in the present research study which were tested using chi-square (X^2) test statistics at 0.05 significance level compared with five (5) null hypotheses stated in the past research study which were tested using correlation coefficient test statistics at 0.68 level of significance. All the five (5) null hypotheses were rejected. The past research study was located in Osun State while the present research study was located in Kwara State.

Oyedun, (2000) carried out a research study titled: “Effects of Instructional Materials on Students’ Performance in Geography in selected Secondary Schools in Ilorin South LGA of Kwara State”. The target population was fourteen (14) secondary schools out of which eight (8) secondary schools were selected as the sample by simple random sampling. Three (3) null hypotheses were stated which were tested using correlation coefficient test statistics at 0.8 level of significance, and all the three (3) null hypotheses were accepted. The results showed that about 80% of the respondents did not make use of the instructional materials appropriately which had negative effects on the performance of students in Geography in Secondary Schools in Ilorin South LGA in Kwara State.

The present research study is similar in the title, “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria”. The target population for the present research study is two hundred and thirty-five (235) secondary schools out of which thirty (30) secondary schools were selected as the sample compared with fourteen (14) secondary schools as the target population in the past research study out of which eight (8) schools were selected as the sample. Four (4) null research hypotheses were stated in the present

research study which were tested using chi-square (X^2) test statistics at 5% (0.05) level of significance compared with three (3) null hypotheses stated in the past research study which was tested using correlation coefficient test statistics at 0.8 level of significance. The present research study was located in secondary schools in Kwara State, Nigeria while the past research study was located in selected secondary schools in Ilorin South LGA in Kwara State.

Oshadumi, (2003) also carried out a research study titled: “Impact of Instructional Materials on Students Academic Achievement in Agricultural Science at secondary Schools in Okene LGA, Kogi State”. The target population was seventeen (17) secondary schools out of which ten (10) secondary schools were selected as the samples by simple randomization. The instrument used in collecting the data was questionnaire. Four (4) null hypotheses were stated which were tested using correlation coefficient test statistics at 1.00 level of significance. All the four (4) null hypotheses were rejected. The results showed that about 70% of the respondents made use of the instructional materials effectively which had positive impact on the students’ academic achievement in agricultural science in Okene LGA.

The present research study is similar in the title “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in secondary schools in Kwara State, Nigeria”. The target population for the present research study is two hundred and thirty-five (235) secondary schools out of which thirty (30) secondary schools were selected as the sample. Compared with seventeen (17) secondary schools out of which ten (10) schools were selected as the sample for the past research study using different questionnaire like the present research to collect the data. Four (4) null

hypotheses were stated like the present research study which were tested using correlation coefficient test statistics at 1.00 level of significance. All the four (4) null hypotheses were rejected. Four (4) null hypotheses were stated in the present research study using chi-square (X^2) test statistics at 5% (0.05) significance level for two tailed (non-directional test). The past research study was conducted in Okene LGA in Kogi State while the present research study is carried out in Kwara State.

Uyagu (2009) carried out a research study titled: “Effects of Instructional Materials’ Usage and Teachers’ Quality on Students’ Academic Performance in Science in Senior Secondary Schools in Zaria LGA in Kaduna State”. The target population was fifteen thousand four hundred and thirty (15,430) senior secondary school students from twenty-four (24) secondary schools in Zaria LGA and one thousand and thirty-three (1,033) teachers. Sample of eighty (80) students were randomly selected with nine (9) teachers. Three (3) null hypotheses and three (3) research questions were formulated to guide the study. t-test statistical tool was used in testing the null hypotheses at 0.05 level of significance. The findings revealed that students performed better when appropriate and improvised materials were made available and utilized in teaching science and teachers possessing good qualifications enhanced students performance in science.

The present research study is similar in the title, “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria”. The target students population for the present research study is eight thousand, one hundred and forty-two (8,142) Agricultural science students and seventy – three (73) Agricultural science teachers compared with the target population of fifteen thousand, four hundred and thirty (15,430) senior secondary school

students from twenty-four (24) secondary schools in Zaria LGA and one thousand and thirty three (1,033) teachers in the past research study. Sample of two hundred and six (206) students were randomly selected in the present research study with thirty (30) Agricultural Science teachers compared with the sample of eighty (80) students and nine (9) teachers which were randomly selected in the past research study. Four (4) null hypotheses were stated in the present research study using chi-square (X^2) test statistics at 5% (0.05) significance level compared with three (3) null hypotheses formulated in the past research study using t-test statistical tool in testing the null hypotheses at 0.05 level of significance. The present research study is located in Kwara State while the past research study was located in Zaria LGA in Kaduna State.

2.7 Summary of the Literature Reviewed

In the review, the types of instructional materials were identified and these included printed and references materials, graphic materials, display materials, project materials, audio and other visual and community resources. The characteristics of instructional materials were also identified as including the following appeal to senses (sound and sight), attract and hold attention, flexibility, simplicity, visibility, clarity, accuracy, sufficiency, purposefulness etc. Also, the importance and uses of instructional materials in our educational setting were treated. This is because, they are of prime importance to both dull and bright students as they aid learning by aiding the sense of seeing, hearing etc., making lesson more interesting, directing teaching to its goals, arousing students interest and motivating them to learn and develop the sense of imagination and comparison.

The factors affecting the instructional materials usage were discussed. Among which included number of learners or students involved, the space of time available, facilities and materials available, interest and ability of agricultural science teachers and effectiveness of instructional materials. Also, the problems militating against effective use of agricultural instructional materials were equally treated which included emotion and feelings, self concepts or personal or audience perception, educational level of the learners or students' cultural background, motivation, etc. Some of the criteria for selecting and evaluating instructional materials were treated as seen or observed in our secondary schools or as related to the materials which included purpose, availability and durability, appropriateness and cost effectiveness.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter describes the methods adopted in carrying out the research study under the following sub-headings.

- 3.1 Research Design
- 3.2 Population for the Study
- 3.3 Sample Size and Sampling Procedure
- 3.4 Instrument for Data Collection
 - 3.4.1 Validation of the Instrument
 - 3.4.2 Pilot Study
 - 3.4.3 Reliability of the Instrument
- 3.5 Procedure for Data Collection
- 3.6 Procedure for Data Analysis

3.1 Research Design

The researcher used Survey Research Design in this study. He collected primary data on certain characters among the randomly selected sampling from the target population who are located at various points in the study areas. The finding from descriptive survey design was used to generalize the researcher's results about the target population. The subjects or respondents were given questionnaire as the instruments to collect the data. According to Osuala (2005) Descriptive Survey Design gives the accurate assessment of the characteristics of the whole populations of people. It is also more realistic than the experiment in that it investigates phenomena in their natural setting.

3.2 Population for the Study

The total population for the study is two hundred and thirty-five (235) Government and Private secondary schools in the three (3) senatorial districts of the sixteen (16) Local Government Areas in Kwara State. The Agricultural Science Students' target population is eight thousand, one hundred and forty two (8,142) with the total of four thousand, two hundred and eleven (4,211) male agricultural science students and three thousand nine hundred and thirty one (3,931) female agricultural science students. Also a total of seventy-three (73) agricultural science teachers comprising of forty-one (41) male agricultural science teachers and thirty-two (32) female agricultural science teachers. The table 3.1 represents the population distribution of agricultural science students and agricultural science teachers in each of the selected Government and private secondary schools.

Table 3.1: Population for the Study

S/No.	List of Secondary Schools	Total Students Population	Male Students Population	Female Students Population	Total Population of Teachers	Population of Male Teachers	Population of Female Teachers
1	GDSS. Afon (Unity)	160	88	72	3	2	1
2	GDSS Otte	146	97	49	2	2	-
3	GSS (Science School) Ilorin	501	501	-	4	4	-
4	GDSS, Fate Ilorin	267	167	100	3	-	3
5	GGDSS Okesuna, Ilorin	298	-	298	2	-	2
6	GDSS Gaa-Akanbi, Ilorin	301	132	169	3	2	1
7	CSS Baboko, Ilorin	437	117	320	5	3	2
8	GDSS	279	-	279	4	-	4

S/No.	List of Secondary Schools	Total Students Population	Male Students Population	Female Students Population	Total Population of Teachers	Population of Male Teachers	Population of Female Teachers
	Adeta						
9	GDSS, Idofin	172	105	67	3	1	2
10	CHS, Ilofa	240	151	89	3	2	1
11	GSS, Gwanara	161	99	62	1	1	-
12	GSS Lafiagi	275	160	115	3	3	-
13	CSS, Tsaragi (Unity)	272	119	153	2	2	-
14	GSS, Kaiama	179	115	64	1	1	-
15	GSS, Jebba	335	144	191	2	1	1
16	GSS Bode Sa'adu	218	138	80	1	1	-
17	GSS, Gadaworo	146	95	51	1	1	-
18	CSS, Tankpafu	166	100	66	2	2	-
19	GSS (former TC) Obbo Aiyegunle (Unity)	473	196	277	3	1	2
20	CSS, Etan	314	205	109	2	1	1
21	GSS, Babanla	190	107	83	2	2	0
22	CSS, Babanloma	251	129	122	2	1	1
23	GSS, Agbamu	344	182	162	3	1	2
24	GDSS, Rore	209	108	101	2	2	-
25	Isin, CSS, Egi-Owu	269	122	147	1	1	-
26	CSS, Olla	224	129	95	1	1	-
27	GSS (former TC) Offa	522	277	245	4	2	2
28	GDSS, Offa	251	153	98	3	1	2
29	GSS (former TC) Igosun	308	142	166	3	2	1
30	GDSS, Igbomina	234	133	101	2	1	1
	TOTAL	8,142	4,211	3,931	73	41	32

Source: Kwara State Ministry of Education, Science and Technology (MOEST), Ilorin, (2010).

3.3 Sample Size and Sampling Procedure

A sample of thirty (30) Government and private secondary schools were randomly selected. Ten (10) agricultural Science teachers and seventy (70) agricultural science students, that is seven (7) students per school were randomly selected to represent Kwara Central Senatorial District. Also eight (8) Agricultural Science teachers and sixty-four (64) agricultural science students, that is eight (8) students per school represented Kwara North Senatorial District, while twelve (12) agricultural science teachers and seventy-two (72) agricultural science students, that is six (6) students per school were randomly selected to represent Kwara South Senatorial District.

In selecting schools to represent the samples, all the Government and private Secondary Schools were sampled. They were two hundred and thirty-five (235) secondary schools which their names were written on pieces of papers and thirty (30) schools were picked one after the other. In every seventh (7th) number, the researcher picked one (1) which were selected to represent the school sample. In selecting agricultural science students to represent the sample, the researcher wrote 'YES' on folded piece of papers on every fortieth (40th) number and 'NO' for other piece of papers. All those students that picked 'YES' were selected to represent students sample at 40% of the population. It was confirmed by Best and Khan (1986) that the more restricted part of that group or individuals the better that have one or more characteristics common that are of interest to the researcher to generalize the result appropriately to the entire population. While those that picked 'NO' were not selected to represent the students sample. One (1) Agricultural Science teacher for each of the sampled secondary schools. Table 3.2 represents a sample distribution of Agricultural Science teachers and their students as follows:

Table 3.2: Sample Size for the Study

S/No.	Senatorial Districts	Sampled Secondary Schools	Sampled Agric. Science Teachers	Male Teachers	Female Teachers	Sampled Students	Males Students Sampled	Females Students Sampled	Sampled Agric. Science. Teachers and Students
A	Kwara Central	10	10	4	6	70	34	36	80
B	Kwara North	8	8	7	1	64	33	31	72
C	Kwara South	12	12	8	4	72	40	32	84
	Total	30	30	19	11	206	107	99	236

3.4 Instrument for Data Collection

The researcher used questionnaire as the instrument for the data collection which were made up of questions arranged systematically based on the research questions to collect data and information from both the students and teachers of agricultural science in the thirty (30) selected Government and private Secondary Schools in the area of study.

The questionnaire for the teachers and students are divided into two (2) sections: Section 'A' is on bio-data and section 'B' is on questions related to the research questions. Section 'B' is further divided into four (4) parts:

- Part 1: identify the types of instructional materials available for use to influence the academic performance of students in agricultural science in the area of study.
- Part 2: determine the characteristics of instructional materials being used to influence students' academic performance in agricultural science.
- Part 3: evaluate the importance of using instructional materials to influence academic performance of students in agricultural science.

Part 4: examine the factors affecting the use of instructional materials to influence students' academic performance in agricultural science.

Each research question was meant to answer research statements/items as follows:

Research Questions	Research Statements/Items
1	1-5
2	6-9
3	10-14
4	15-20

3.4.1 Validation of the Instrument

The instrument used in this study was vetted by the supervisors and experts in the field of measurement and evaluation in the Faculty of Education, Ahmadu Bello University, Zaria. This was to determine the face and content validity of the instruments. However, all necessary corrections and modifications made by the experts were effected and items or research statement(s) reconstructed based on the satisfactory comments of the supervisors and experts on the field.

3.4.2 Pilot Study

A pilot study was carried out in Patigi Secondary School (P.S.S), Patigi in Patigi Local Government Area in Kwara State, which was not part of thirty (30) sampled secondary schools. A total of four (4) agricultural science teachers and thirty (30) students were given questionnaire. The purpose of the pilot study was to determine the reliability of the instruments, its difficulty level and also to determine whether the questions are free from ambiguity and whether it has power to discriminate over results.

The instrument was personally administered by the researcher and scored. This was to give room for final corrections of the questionnaire items for possible commencement of field work.

3.4.3 Reliability of the Instrument

The data collected from pilot study was used to calculate the reliability coefficient using split-half method or techniques. Also, Pearson Product Moment Correlation Coefficient (r) was adopted to determine the reliability coefficient of the instrument which gave 0.87. This indicated that the items were reliable within the acceptable limits. According to Osuala (2005) the requirements for internal consistency is an average value of the correlation coefficient which must be higher than 0.80.

3.5 Procedure for Data Collection

The researcher administered the instruments (questionnaire) to the subjects or respondents with the help of three (3) research assistants. Before moving to the sampled secondary schools, permission was sought from the Kwara State Ministry of Education Science and Technology, Ilorin and Kwara State Teaching Service Commission, Ilorin through a letter of introduction from the Researcher's institution. The researcher met the agricultural science teachers and students in their various selected thirty (30) Government and private secondary schools in the three (3) senatorial districts in Kwara State and administered questionnaire to them. A total of thirty (30) copies of questionnaire was administered to the agricultural science teachers and two hundred and six (206) copies of questionnaire was administered to the students. This was administered within eight (8) weeks. The three (3) research assistants were given guidelines on the modality of administering the questionnaire.

3.6 Procedure for Data Analysis

The teachers' and students' bio-data and the research questions answered were analyzed using the frequencies and percentages on demographic variables of the respondents. The percentage was computed for the calculated 'Agreed' and 'Disagreed' statements (that is, Strongly Agree and Agree represent agreed statements, while Disagree and Strongly Disagree represented disagreed statements. The percentage was calculated from the frequency of respondents to the items. Any percentage agreed item with 50% and above was considered to be of significant effect while any item below or less than 50% was considered not significant. The percentage was computed for the calculated Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) statements:

Likert – type scaling

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

The data was computed using contingency chi-square (X^2) statistical tools. Null hypotheses (Ho) 1-4 were tested using contingency chi-square statistics at 0.05 level of significance for 2-tailed test (non-directional test). This is because, it is the most suitable inferential statistical tool which can determine whether significant relationship exist or

not. It also examined the extent to which the frequencies that are actually observed in the study, differ from the frequencies that are expected if the null hypotheses is correct.

Decision rule: The null hypothesis (H_0) is rejected if the calculated value in each research hypothesis is greater than the corresponding table value (Critical Value) which implies there exists a significance relationship (positive). While the null hypothesis (H_0) is retained if the calculated X^2 value is less than critical value, it implies that there exist non significant relationship (negative).

CHAPTER FOUR

PRESENTATION AND DATA ANALYSIS

The research work was on the Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria. This chapter presented the report of the research findings based on the data collected from teachers and students.

The first set of data were presented in tables of frequencies and percentages on demographic variables of the respondents. The research questions were presented in table of frequencies and percentages with relevant items while the last sets of data were the results of tested null hypotheses.

In the analysis of the data, the two groups of respondents were treated separately, but the results obtained were added together in answering the research questions and the test of null hypotheses. The data collected were summarized into “agreed” and “disagreed”. All the computations except the analysis of Bio-data were based on the rating scale format as shown on subsequent paragraphs. The details of responses to research questions are shown in Appendix IV, but the summary of responses are shown in the analysis of each research question.

4.1 Demographic Variables of Respondents

The demographic variables of respondents were presented in Tables 4.1.1 to 4.1.4

Table 4.1.1: Gender of Teachers

Gender	Frequency	Percentage (%)
Male	19	63.3
Female	11	36.7
Total	30	100

Table 4.1.1 showed the distribution of respondents by gender. It indicated that 19(63.3%) were males and 11(36.7%) were females. This revealed that there were more male agricultural science teachers than females in the study area.

Table 4.1.2: Highest Qualification of Teachers

Highest Qualification	Frequency	Percentage
NCE	3	10
HND/PGDE	5	16.7
B.Ed/B.Sc	2	6.7
B.Agric	6	20
B.A/B.Sc(Ed)	14	46.6
M.A./M.Ed.	-	-
M.Sc./M.Sc(Ed.)	-	-
Ph.D	-	-
Total	30	100

Table 4.1.3 showed teachers highest educational qualifications. Teachers who had B.A/B.Sc. (Ed) 14 (46.67%) formed the majority of the respondents'. Those with B.Agric. followed with 6(20%). While those with HND/PGDE with 5(16.7%) followed by those with N.C.E. with 3(10%) and followed by those with B.Ed/B.Sc. who were 2 representing 6.7%, while there was no respondent with M.A./M.Ed., M.Sc/M.Sc. Ed. and Ph.D. degrees. This indicated that majority of Agricultural Science teachers were B.A/B.Sc. Ed., which might be that they did not go for further studies.

Table 4.1.3: Number of Years of Teaching Experience

Years of Teaching Experience	Frequency	Percentage
5-10	2	6.7
11-15	11	36.7
16-20	9	30
21 and above	8	26.6
Total	30	100

Table 4.1.3 showed the distribution of teachers (respondents) by number of years of experience. It was revealed that majority of the respondents 11(36.7%) were in their 11-15 years of teaching experience, while those with 16-20 years of experience were 9 representing 30%. Also, 8 respondents (26.6%) had 20 and above years of experience, while 2 respondents (6.7%) had 5-10 years of teaching experience. This indicated that agricultural science teachers had many years of teaching experience since the majority of them had 11-15 years of experience.

Table 4.1.4: Gender of Students

Gender	Frequency	Percentage (%)
Male	107	51.9
Female	99	48.1
Total	206	100

Table 4.1.4 showed that were one hundred and seven (107) representing 51.9% were males, while the female students were ninety nine (99) representing 48.1%. This indicated that there were more male agricultural science students than females.

4.2 Analyses of Data to Answer the Research Questions

The data provided by the respondents to the four research questions of the study were analysed and presented in Tables 4.2.1 to 4.2.4. In the course of the analysis, opinions of teachers and students were categorised into two groups of “agreed” and “disagreed” for a better understanding and clear interpretation of data and the responses were scored using four-point rating scale.

4.2.1 Research Question One

What are the types of instructional materials available for use to influence the academic performance of agricultural students in secondary schools in Kwara State?

In order to enable the researcher to present the answers to this question, questionnaire items one to five in appendix two were used and the summary of response is as shown in Table 4.2.1

Table 4.2.1: The Percentage Summary of Responses on Types of Instructional Materials Available for Use

N = 236

QI	SA		A		D		SD		TA	TD	TR	%A	%d	Rating	Remark
	Std.	Tch	Std	Tch	Std	Tch	Std	Tch							
1	308	32	240	45	64	10	17	2	625	93	718	87.05	12.95	1 st	Sig.
2	108	4	105	18	104	32	92	7	235	235	470	50.00	50.00	4 th	Sig.
3	140	16	30	21	144	22	89	8	207	263	470	44.04	55.96	5 th	N/S
4	172	36	330	42	80	8	13	3	580	104	684	84.80	15.20	2 nd	Sig.
5	116	8	159	15	108	30	70	8	298	216	514	57.98	42.02	3 rd	Sig.
Total									1945	911	2856	68.10	31.90		

QI = Questionnaire Item
 SA = Strongly Agreed
 A = Agreed
 D = Disagreed
 SD = Strongly Disagree
 TA = Total Agreed
 TD = Total Disagreed
 TR = Total Response
 %A = Percentage Agreed
 %D = Percentage Disagreed
 Std = Student
 Tch = Teacher
 N = Number of respondents
 Sig. = Significant
 N/S = Not Significant

S/No.	Items
1	Good relevant textbooks were necessary to influence the academic performance of students in agricultural science
2	Pictures, models, drawings and specimens influence student academic performance in agricultural science
3	We have good practical school farms in the school
4	Community resource places – industrial establishments, market place, game reserves and agricultural extension service centres influence student academic performance in agricultural science.
5	Teachers use appropriate charts and diagrams for the immediate illustration of agricultural science lessons.

Table 4.2.1 showed the percentage responses of respondents on the types of instructional materials available for use to influence the academic performance of Agricultural Science in secondary School in Kwara State. Questionnaire item one sought to assess whether good and relevant textbooks are necessary to influence the academic

performance of students in agricultural science. In response to this item, respondents who strongly agreed scored 308 for students and 32 for teachers, those who agreed scored 240 and 45 for students and teachers respectively. Respondents who disagreed scored 64 and 10 for students and teachers respectively while those who strongly disagreed had 17 and 2 for students and teachers respectively. The score for total agreed for item one stood at 625 representing 87.05% as against score of 93 for disagreed representing 12.95%.

Questionnaire item two sought to find out whether pictures, models, drawings and specimens influenced students academic performance in agricultural science. Responding to this item, respondents who strongly agreed scored 108 and 4 for students and teachers respectively. Those who agreed had 105 for students and 18 for teachers. Students' respondents who disagreed scored 104 and teachers had 32, while respondents who strongly disagreed scored 92 and 7 points for students and teachers respectively. Total agreed for item two stood at 235 points representing 50%, while disagreed also stood at the same point (235) representing 50%.

Item three sought to determine whether there are good practical farms or gardens in schools to influence students' academic performance. In response to this item, students respondents who strongly agreed scored 140, while teachers scored 16. Respondents who agreed scored 30 and 21 for students and teachers respectively. Those who disagreed scored 144 for students and 22 for teachers, while respondents who strongly disagreed had 89 and 8 students and teachers respectively. Total agreed for item three stood at 207 points respectively 44.04% as against 263 points for disagreed representing 55.96%.

Item four was to determine whether community resource places –industrial establishments, market place, game reserves and agricultural extension service centres influence students’ academic performance in agricultural science. Responding to this item, respondents who strongly agreed scored 172 and 36 for students and teachers respectively. Those who agreed scored 330 for students and 42 points for teachers. Respondents, who agreed scored 80 and 8 for students and teachers respectively, while student respondents who strongly disagreed scored 13 and teachers respondents had 3 points. Total respondents who agreed that community resource places –industrial establishments, market place, game reserves and agricultural extension service centres influence students’ academic performance in agricultural science scored 580 points represented by 84.80% as against 104 for disagreed representing 15.20%.

Questionnaire item five sought to find out whether teachers used appropriate charts and diagrams for the immediate illustration of agricultural science lesson. Responding to this item, respondents who strongly agreed scored 116 and 8 for students and teachers respectively. Those who agreed scored 159 for students and 15 for teachers. Respondents who agreed scored 108 and 30 for students and teachers respectively, while student respondents who strongly disagreed scored 70 and teachers respondents had 8 points. Total respondents who agreed that motivation and interest of agricultural science teachers in improvising instructional materials influence students academic performance in agricultural science scored 298 points represented by 57.98% as against 216 for disagreed representing 42.02%.

The overall score of those who agreed for research question one was 1,945 representing 68.10% against score of 911 representing 31.90% for those who disagreed.

From the rating of the types of instructional materials available for use to influence students' academic performance in agricultural science in Table 4.2.1. Table 4.2.1, item one was rated 1st that good relevant textbooks are necessary to influence the academic performance of students in agricultural science. Followed by item four rated 2nd that community resource places – industrial establishments, market place, game reserves and agricultural extension service centres influence students' academic performance in agricultural science. Item five, 3rd that teachers used appropriate charts and diagrams for the immediate illustration of agricultural science lesson. Item two, 4th pictures, models, drawings and specimens influence students academic performance in agricultural science and item three was rated last (5th) that stated we have good practical school farms or gardens in the schools. This implied that both students and teachers agreed that good and relevant textbooks were the major instructional material that can influence the students' academic performance in agricultural science.

4.2.2 Research Question Two

What are the characteristics of instructional materials being used to influence the academic performance of students in Agricultural Science in Kwara State?

In order to enable the researcher to answer these questions, questionnaire items six to nine in appendix two section B were used. The summary of the responses is as shown in Table 4.2.2.

Table 4.2.2: The Percentage Summary of Responses on Characteristics of Instructional Materials Being Used
N = 236

Q1	SA		A		D		SD		TA	TD	TR	%A	%D
	Std.	Tch	Std	Tch	Std	Tch	Std	Tch					
6	492	32	198	51	18	6	8	2	773	34	807	95.79	4.21
7	404	76	204	12	44	4	15	3	696	66	762	91.34	8.66
8	548	84	198	21	2	2	2	1	851	7	858	99.18	0.82
9	48	8	75	15	178	26	80	10	146	294	440	33.18	66.82

Total		2466	401	2867	86.01	13.99
Q.I	=	Questionnaire Item	TR	=	Total Response	
SA	=	Strongly Agreed	%A	=	Percentage Agreed	
A	=	Agreed	%D	=	Percentage Disagreed	
D	=	Disagreed	Std	=	Student	
SD	=	Strongly Disagree	Tch	=	Teacher	
TA	=	Total Agreed	TD	=	Total Disagreed	
N	=	Number of respondents				

Table 4.2.2 showed the responses of respondents on the characteristics of instructional materials being used to influence the academic performance of students in agricultural science. Questionnaire item six sought to determine whether instructional materials to be used must be visible to every student in the class. In response to this item, respondents who strongly agreed scored 992 and 32 for students and teachers respectively, those who agreed scored 198 for students and 51 for teachers. Respondents who disagreed scored 18 and 6 for students and teachers respectively while those that strongly disagreed had 8 points for students and 2 points for teachers. Total agreed stood at 773 points representing 95.79% against total disagreed of 34 points representing 4.21% for questionnaire item six.

Item seven sought to determine whether simplicity of instructional materials influenced students academic performance in agricultural science. Responding to this item, students respondents who strongly agreed scored 404 and teacher respondents scored 76 points. Respondents who agreed had 204 and 12 for students and teachers respectively. Respondents who disagreed had 44 and 4 points for students and teachers respectively, while those who strongly disagreed scored 15 and 3 points for students and teachers respectively. Total agreed for item seven stood at 696 points representing 91.34% as against total disagreed score of 66 representing 8.66%.

Questionnaire item eight sought to determine whether instructional materials for use must be appropriate and relevant to the topic as well as to students. In response to the

item, respondents who strongly agreed scored 548 and 84 for students and teachers respectively; those who agreed scored 198 and 21 points for teachers and students respectively. Respondents who disagreed had 2 and 2 points for students and teachers respectively while those that strongly disagreed scored 2 and 1 points for students and teachers respectively. Total respondents who agreed had score of 851 representing 99.18% as against total disagreed score of 7 points representing 0.82%.

Item nine sought to find out whether the sufficiency and attraction of instructional materials influence the academic performance of students in agricultural science. Respondents who strongly agreed had 48 and 8 points for students and teachers respectively those agreed scored 75 points for students and 15 points for teachers. Students respondents who disagreed scored 178 and teachers scored 26 points while those who strongly disagreed scored 80 and 10 points for students and teachers respectively. Total agreed stood at 146 representing 33.18% against total disagreed score of 294 represented by 66.82% for questionnaire item nine.

On the overall, agreed, score stood at 2466 points representing 86.01% for those respondents that agreed that visibility, simplicity, relevance to the topic and attractiveness as the characteristics of instructional materials being used to influence the academic performance of students, as against disagreed score of 401 representing 13.99%. This showed that instructional materials for use must possess the characteristics of appropriateness and relevancy to the topic as well as to the students.

4.2.3 Research Question Three

Of what importance is the use of instructional materials to influence students academic performance in agricultural science in secondary schools in Kwara state?

In order to enable the researcher to answer this question, items ten to fourteen of the questionnaire in appendix two section B were used. The summary of the responses of the respondents is as shown in Table 4.2.3.

Table 4.2.3: The Percentage Summary of Responses on Importance of Instructional Materials to Influence Students' Academic Performance

N = 236

QI	SA		A		D		SD		TA	TD	TR	%A	%D
	Std.	Tch	Std	Tch	Std	Tch	Std	Tch					
10	76	28	384	54	94	4	12	3	542	113	655	82.75	17.25
11	508	84	228	18	4	4	1	1	838	10	848	98.82	1.18
12	56	16	63	9	164	26	89	10	144	289	433	33.26	66.74
13	36	8	123	6	204	20	54	16	173	294	467	37.04	62.96
14	288	52	381	42	10	4	2	1	763	17	780	97.82	2.18
Total									2460	723	3183	77.29	22.71

Q.I	=	Questionnaire Item	TR	=	Total Response
SA	=	Strongly Agreed	%A	=	Percentage Agreed
A	=	Agreed	%D	=	Percentage Disagreed
D	=	Disagreed	Std	=	Student
SD	=	Strongly Disagree	Tch	=	Teacher
TA	=	Total Agreed	TD	=	Total Disagreed
N	=	Number of respondents			

Table 4.2.3 showed the responses of respondents on the importance of instructional materials to influence students academic performance. Questionnaire item ten sought to determine whether instructional materials can influence learning and improve the competence of agricultural science teachers. Responding to this item respondents who strongly agreed scored 76 and 28 points for students and teachers respectively. Those who agreed scored 384 and 54 points for students and teachers respectively. Respondents who disagreed had 94 and 4 points for students and teachers respectively while those who strongly disagreed had 12 for students and 3 for teachers.

Total agreed for questionnaire item ten stood at 542 points representing 82.75% against total disagreed score of 113 points representing 17.25%.

Questionnaire item eleven sought to determine whether instructional materials can simplify and clarify what is complex and difficult to express in words. In response to this item, students respondents scored 508 points and teachers scored 84 for strongly agreed; the respondents who agreed had 228 and 18 points for students and teachers respectively. Respondents who disagreed had 4 points for both students and teachers while those who strongly disagreed scored 1 point for both students and teachers. Total agreed for item eleven stood at 838 points representing 98.82% against total disagreed of 10 points representing 1.18%.

Item twelve sought to find out whether motivational value has influence on the use of instructional materials on students academic performance in agricultural science. In response to this item students who strongly agreed scored 56 points and teachers scored 16 points. Those who agreed had 63 and 9 points for students and teachers respectively. Respondents who disagreed scored 164 and 26 points for students and teachers respectively, while those who strongly disagreed scored 89 for students and 10 points for teachers. Total agreed score for questionnaire item twelve stood at 144 points representing 33.26% as against total disagreed score of 289 points representing 66.74%.

Questionnaire item thirteen sought to find out whether instructional materials saves time and also promotes attention. In response to this item, respondents that strongly agreed scored 36 and 8 points for students and teachers respectively, those who agreed scored 123 and 6 points for students and teachers respectively. Respondents that disagreed scored 204 for students and 20 points for teachers while those who strongly

disagreed scored 54 for students 16 for teachers. Total agreed score for questionnaire item thirteen stood at 173 points representing 37.04% against total disagreed of 294 points representing 62.96%.

Item fourteen sought to assess whether instructional materials arouse interest by attracting attention of agricultural science students. Responding to the item, those who strongly agreed scored 288 and 52 points for students and teachers respectively. Those who agreed scored 381 for students 42 points for teachers. Respondents who strongly disagreed had 10 points for students and 4 points for teachers while those who strongly disagreed scored 2 and 1 points for students and teachers respectively. Total agreed for questionnaire item fourteen stood at 763 points representing 97.82% against total disagreed score of 17 points representing 2.18%.

The overall score of those who agreed for research question three stood at 2,460 points representing 77.29% against total disagreed score of 723 representing 22.71%. This indicated that both teachers and students agreed that instructional materials can simplify and clarify what is complex and difficult to express in words.

4.2.4: Research Question Four

What are the factors affecting the use of instructional materials to influence students academic performance in agricultural science in Kwara State?

In order to enable the researcher to answer this question, items fifteen to twenty of the questionnaire in Appendix Two Section B were used. The summary of responses is as shown in Table 4.2.4.

Table 4.2.4: The Percentage Summary of Responses on Factors Affecting the Use of Instructional Materials to Influence Students Academic Performance
N = 236

Q1	SA		A		D		SD		TA	TD	TR	%A	%D	Rating
	Std.	Tch	Std	Tch	Std	Tch	Std	Tch						

15	344	72	324	15	18	8	3	3	755	32	787	95.93	4.07	3 rd
16	640	84	126	21	4	2	2	1	871	9	880	98.98	1.02	1 st
17	12	4	21	6	202	30	95	12	43	339	382	11.26	88.74	6 th
18	132	48	450	39	26	6	10	2	669	44	713	93.83	6.17	2 nd
19	68	4	69	3	148	24	92	11	144	285	429	33.57	66.43	5 th
20	268	36	288	56	60	4	13	1	646	78	724	89.23	10.77	4 th
Total									3,128	787	3,915	79.99	20.10	

Q.I = Questionnaire Item TR = Total Response
SA = Strongly Agreed %A = Percentage Agreed
A = Agreed %D = Percentage Disagreed
D = Disagreed Std = Student
SD = Strongly Disagree Tch = Teacher
TA = Total Agreed N = Number of respondents

Table 4.2.4 showed the responses of students and teachers on the factors affecting the use of instructional materials. Questionnaire item fifteen sought to determine whether the space of time allocated for agricultural science affects the use of instructional materials. Responding to the item, respondents who strongly agreed scored 344 and 72 points for students and teachers respectively, those who agreed scored 324 and 15 for students and teachers respectively. Respondents who disagreed scored 18 for students and 8 points for teachers while those who strongly disagreed scored 3 points each for students and teachers. Total agreed score for questionnaire item fifteen stood at 755 points representing 95.93% against total disagreed score of 32 points representing 4.07%.

Questionnaire item sixteen sought to determine whether teachers' qualifications and experience were the factors that affect the use of instructional materials. In response to the item, students respondents who strongly agreed scored 640 points and teachers scored 84 points. Respondents who agreed had 126 and 21 for students and teachers respectively, those who disagreed scored 4 and 2 points for students and teachers respectively while those who strongly disagreed score 2 points for students and 1 point for teachers. Total agreed for questionnaire item sixteen stood at 871 points representing 98.98% as against total disagreed 9 points representing 1.02%

Item seventeen sought to determine whether the number of students in overcrowded classes had influence on the use of instructional materials. In response to this item, respondents who strongly agreed scored 12 points while teachers scored 4 points, those who agreed scored 21 and 6 points for students and teachers respectively. Respondents who disagreed had 202 for students and 30 for teachers while those who disagreed scored 95 for students and 12 for teachers. Total agreed for questionnaire item seventeen stood at 43 points representing 11.26% as against total disagreed of 339 points representing 88.74%.

Item eighteen sought to determine whether physical facilities and community resources influence the use of instructional materials. Responding to this item, respondents who strongly agreed scored 132 and 48 points for students and teachers respectively, those who agreed scored 450 for students and 39 points for teachers. Respondents who disagreed scored 26 and 6 points for students and teachers respectively while those who strongly disagreed scored 10 points for students and 2 points for teachers. Total agreed score for questionnaire item eighteen stood at 669 points representing 93.83% as against total disagreed score of 44 points representing 6.17%.

Questionnaire item nineteen sought assess whether students cultural background has influence on the use of instructional materials. In response to this item, respondents who strongly agreed scored 68 and 4 points for students and teachers respectively those who agreed scored 69 for students and 3 points for teachers. Student respondents who disagreed scored 148 points for students and 34 points for teachers while those who strongly disagreed scored 92 and 11 point for students and teachers respectively. Total

respondents who agreed scored 144 points representing 33.57% as against total disagreed score of 285 representing 66.43%.

Questionnaire item twenty sought to determine whether students motivation and interest influence the use of instructional materials by the teacher. In response to this item, respondents who strongly agreed scored 268 for students and 36 for teachers, those who agreed had 288 and 54 for students and teachers respectively. Respondents who disagreed scored 60 and 4 points for students and teachers respectively while those who strongly disagreed had 13 points for students and 1 point for teachers. Total agreed score for questionnaire item twenty stood at 646 points representing 89.235 as against total disagreed score of 78 points representing 10.77%.

On the overall for research question four, total agreed score stood at 3,128 points representing 79.90% as against total disagreed of 787 points representing 20.10%. From the rating of the factors that affect the use of instructional materials in table 4.2.4 item sixteen was rated 1st, followed by item eighteen 2nd, item fifteen 3rd, item twenty 4th, item nineteen 5th and item seventeen was rated last (6th). This implied that teachers qualification and experience were the major factors affecting the use of instructional materials in secondary schools.

4.3 Testing of Null Hypotheses

Contingency chi-square statistics was used to test all the four null hypotheses. The choice of this statistical tool for these null hypotheses was because it provides an index of measuring the test of independence that is, independent and dependent relationships (Nworgu, 2006). Buttressing this, Ary, Jacob and Razevich (2002) stated that it has found extensive applications in many field of studies because it is suitable in

the analysis of data in form of frequencies or categories. All the four null hypotheses were tested at 0.05 level of significance. In the process, if the calculated chi-square (X^2) is greater than critical value of chi-square (X^2), the null hypothesis was rejected. This implied that there is significant relationship between the variables. If on the other hand, the chi-square (X^2) calculated is less than the critical value of chi-square (X^2), the null hypothesis was retained. This implied that there is no significant relationship between the variables. The summary of the results for test of null hypotheses were shown in Tables 4.3.1 to 4.3.4.

4.3.1 Null Hypothesis One

There is no significant relationship between the use of available instructional materials and students academic performance in agricultural science in secondary schools in Kwara State.

The contingency chi-square statistics was used to test null hypothesis one at 0.05 level of significance; the use of available instructional materials and students academic performance in agricultural science. Result of the finding is presented in Table 4.3.1.

Table 4.3.1: Summary of chi-square test result for Research Question one

X^2 Cal	X^2 Crit	Df	& level
551.46	21.03	12	0.05

X^2 Cal = Chi-square calculated,
 Df = Degree of freedom
 X^2 Crit = Chi-square critical value
 & level= Alpha level

From table 4.3.1, it was revealed that there was a significant relationship between the use of available instructional material and students' academic performance in agricultural science in secondary schools. This was because the chi-square calculated (X^2)

Cal) 551.46 is greater than chi-square critical (X^2 Crit) 21.03 and therefore the null hypothesis was rejected. This implied that the use of available instructional material can influence the performance of students in Agricultural Science in Secondary Schools.

4.3.2 Null Hypothesis two

There is no significant relationship between the characteristics of instructional materials used and academic performance of students in agricultural science in secondary schools in Kwara State.

Contingency chi-square statistics was used to test the relationship between characteristics of instructional materials and students' academic performance in agricultural science at 0.05 level of significance. The summary is as presented in table 4.3.2.

Table 4.3.2 The summary of chi-square test result for Research Question two

X^2 Cal	X^2 Crit	Df	& level
1268.58	16.92	9	0.05

X^2 Cal = Chi-square calculated, X^2 Crit = Chi-square critical value
 Df = Degree of freedom & level= Alpha level

From Table 4.3.2 it was revealed that there is significant relationship between the characteristics of instructional materials used and students' academic performance in agricultural science. This was because the chi-square calculated (X^2 Cal) 1268.58 is greater than the chi-square critical (X^2 Crit) 16.92. Therefore the null hypothesis was

rejected. This implied that instructional materials with necessary characteristics can influence students academic performance in agricultural science positively.

4.3.3 Null Hypothesis Three

There is no significant relationship between the importance of using instructional materials and the academic performance of students in Agricultural Science in secondary schools in Kwara State.

Contingency chi-square statistics was also used to test the null hypothesis of relationship between the importance of using instructional materials and students academic performance in agricultural science at 0.05 level of significance. The summary is as presented in Table 4.3.3

Table 4.3.3 Summary of Chi-square test result for Research Question Three

X^2 Cal	X^2 Crit	Df	& level
1570.42	21.03	12	0.05

X^2 Cal = Chi-square calculated, X^2 Crit = Chi-square critical value
 Df = Degree of freedom & level= Alpha level

Table 4.3.3 revealed that there is a significant relationship between the importance of using instructional materials and students' academic performance in agricultural science. This was revealed by the calculated chi-square value of 1570.42 which is greater than the critical value of 21.03. Therefore the null hypothesis was rejected. This indicated that instructional materials can be used as an important ingredient to influence students' performance in Agricultural Science.

4.3.4 Null Hypothesis Four

There is no significant relationship between the factors affecting the use of instructional materials and students' academic performance in agricultural science in secondary schools in Kwara State

The hypothesis was tested using contingency chi-square statistics to establish the relationship between the factors affecting the use of instructional materials and students' academic performance in agricultural science at 0.05 level of significance. The summary of the result is as presented in Table 4.3.4.

Table 4.3.4: Summary of Chi-Square test Result for Research Question Four

X^2 Cal	X^2 Crit	Df	& level
2685.66	25.00	15	0.05

X^2 Cal = Chi-square calculated, X^2 Crit = Chi-square critical value
 Df = Degree of freedom & level= Alpha level

From Table 4.3.4, it was revealed that there is significant relationship between the factors affecting the use of instructional materials and students academic performance in agricultural science. This was shown because the calculated chi-square (X^2 Cal) 2685.66 is greater than the chi-square critical (X^2 Crit.) 25.00. Therefore, the null hypothesis was rejected. This showed that factors affecting the use of instructional materials can influence students' academic performance in Agricultural science.

4.3.5 Major Findings

The findings of the results of the tested null hypotheses included among others, that good and relevant textbooks were the instructional materials available to be used to influence students academic performance in agricultural science, that good instructional materials should possess the characteristics of visibility, sufficiency, simplicity,

attraction, clarity, and other qualities. That the use of instructional materials are important to influence students' academic performance in agricultural science, that teachers qualification and experience were the major factor affecting the use of instructional materials to influence students academic performance in agricultural science in secondary schools.

4.4 Discussion of Findings

The research work was specifically designed to determine the influence of instructional materials on the academic performance of students in agricultural science in secondary schools in Kwara State. In order to achieve this purpose, four specific objectives, four research questions and four null hypotheses were raised. Simple percentage and frequencies were used in analyzing the personal data of respondents and answering the research questions. Contingency chi-square statistics was used to test the four null hypotheses at 0.05 level of significance.

The first objective was to identify the types of instructional materials being used to influence students' academic performance in agricultural science in secondary schools in Kwara State. Data collected were analysed and rated. It was observed that good and relevant textbook were the major instructional materials being used to influence students academic performance in agricultural science, this was because it was rated first by the respondents. It was also revealed that pictures, model, charts and drawings were being used to influence students academic performance. This findings coincided with Anyawu and Anyawu (1987) who stated that textbooks were the most common instructional materials that teachers used to disseminate knowledge.

The second objective of the study was to determine the characteristics of instructional materials that can be used to influence students' academic performance in agricultural science. It was found out based on the analysis of the data collected from the respondents that instructional materials must have the characteristics of visibility, sufficiency, simplicity, attraction, appropriateness and relevancy to the topic, and simplicity if they must be used to influence students' academic performance in agricultural science. This finding is in line with Ogundele (1987) who stated that a good teaching aid must be visible, attractive and hold attention.

The third objective was to evaluate the importance of using instructional materials to influence students' academic performance in agricultural science. Data collected to achieve this objective were presented in Table 4.2.3 in which the result showed that instructional material are very important to influence students' academic performance in agricultural science. This finding was buttressed by Adeyemo (1985) who stated that instructional materials should be used to supplement oral explanation and descriptions.

The fourth objective was to examine the factors affecting the use of instructional materials to influence the academic performance of students in agricultural science. Data collected in respect of this objective were presented in Table 4.2.4. The items were rated and it was observed that teachers qualification and experience in the use of instructional materials were the major factors affecting effective use of instructional materials to influence students' academic performance in agricultural science. Also it was found out that motivation, facilities and materials, space of time available, number of learners and others were factors that can affect the effective use of instructional materials. This finding agreed with Bakare (1986) who listed factors affecting the use of instructional

materials to include; nature of the subject matter, objective to be attained, interest, teachers' ability and so on.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study was carried out to determine the Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria. In order to achieve this objective, four specific objectives were raised which included: to identify the types of instructional materials available to be used to influence students academic performance in Agricultural science. In line with these objectives, four research questions were formulated and four null hypotheses were posited . The total population for the study is 235 Government and Private Secondary Schools which was made up of 8,142 Agricultural Science students and 73 Agricultural Science Teachers in the 3 senatorial districts of the 16 Local Government Areas in Kwara State. The researcher used questionnaires as the instrument for the data collection. Descriptive Survey research design was adopted for this study. A total of 236 respondents made up of students and teachers were used for the study. The data collected were presented in tables and analyzed using simple percentages and frequencies. The four null hypotheses were tested using contingency chi-square statistics at 0.05 level of significance.

5.2 Conclusion

Based on the findings in this study, the following conclusions were drawn:

- a. The failure rate of students will be curtailed if agricultural science teachers were made to utilize appropriate and relevant instructional materials while teaching agricultural science in secondary schools.

- b. Students will perform better in agricultural science when the instructional materials possess the characteristics of appropriateness, relevancy, visibility, sufficiency, simplicity and attraction, hence improve students academic performance in agricultural science.
- c. Instructional materials were very important to influence students academic performances in agricultural science as they can simplify and clarify what is complex and difficult to express in words.
- d. The agricultural science knowledge and subsequent performance of students in both junior and senior secondary schools and agricultural science as a subject becomes more interesting to learn when it was taught by experienced, well committed, dedicated and qualified agricultural science teachers.

5.3 Recommendations

The following recommendations were made based on the findings of the study.

1. The agricultural science teachers should endeavour to use and try to improvise instructional materials for effective teaching of agricultural science in the secondary schools.
2. Government should ensure the adequate employment of dedicated and qualified agricultural science teachers to teach the subject in all secondary schools in the study area and in the state.
3. Suitable textbooks on utilization of agricultural science materials should be made available to all secondary schools.

4. Government should make available funds and sponsor the teachers' attendance at conferences, seminars and workshops on utilization of agricultural science instructional materials.
5. The government through the Ministry of Education, Science and Technology (MOEST), should make available agricultural science instructional materials for use by teachers to enhance students' academic performance in agricultural science.
6. There is need for a well-equipped laboratory and farms for agricultural science practicals. This will go a long way in ensuring that students are exposed to different aspects of practical learning.
7. Parents should not be left out in the drive to provide and encourage the effective utilization of agricultural science instructional materials by their children in secondary schools. Once parents and guardians realize the importance of instructional materials in the education of their children and wards, they will not hesitate to give moral, material and financial support for the use of agricultural science instructional materials.

5.4 Limitation of the Study

During the course of the study, researcher encountered some hindrances as constraints which included, accessibility to the areas, like town schools in riverine areas and some roads are not motorable.

5.5 Suggestions for Further Studies

The researcher suggests the following areas for further studies.

1. A way of ensuring a larger scope for this study could be through the involvement of a larger sample from all the local government areas of Kwara State. Future research work should attempt to use more samples drawn from Kwara State.
2. Research should also be carried out on teachers' attitude towards improvisation of teaching resources for effective teaching of agricultural science.
3. This study concentrated on the influence of instructional materials on students' academic performance in agricultural science, other subjects such as Chemistry, English, and Biology should also be researched into, for a total upliftment of education in Nigeria.
4. An assessment of competence teachers in the agricultural science contents should be carried out too. This is to assess the personnel handling the teaching of agricultural science and arrange for their capacity building.
5. The researcher also recommends the basic instructional materials for special students (disables).

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APPENDIX I
LETTER OF INTRODUCTION

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

2nd November, 2010

Dear Respondent,

REQUEST TO FILL QUESTIONNAIRE

I am a postgraduate student of Agricultural Science Education Section in the Department of Vocational and Technical Education, Ahmadu Bello University, Zaria carrying out a research work on “Influence of Instructional Materials on the Academic Performance of Students in Agricultural Science in Secondary Schools in Kwara State, Nigeria”. Therefore, this questionnaire is to solicit your assistance and cooperation in providing the required information by ticking the items. It is purely an academic exercise for the award of Masters of Science in Agricultural Education. The information provided shall be treated strictly for that purpose.

Thanks for your cooperation

Yours faithfully,

UMARU, KOLO IBRAHIM
(M.Sc/Educ/01845/2008-2009)

APPENDIX II

QUESTIONNAIRE FOR AGRICULTURAL SCIENCE TEACHERS

SECTION A: PERSONAL DATA/BIODATA

Please tick (✓) as appropriate on the spaces provided:

Name of Respondent (Teacher)

Sex: Male [] Female []

Town Local Government Area

Name of the School

Number of years spent in the school.

Last or highest qualification obtained:

NCE [] HND/PGDE []

BA/B.Sc(Ed) [] B(Ed)/B.Sc. []

B.Agric. [] MA/M.ED []

M.Sc/M.Sc(ED) [] Ph.D []

Position/post held in the school

Number of years of experience in teaching:

5-10 [] 11-15 []

16-20 [] 21 and above []

SECTION B

INSTRUCTION: Tick (✓) appropriate in the column provided against the option of your choice.

KEY FOR RATING (LIKERT-TYPE SCALING)

Strongly Agree (SA) 4 points

Agree (A) 3 points

Disagree (D) 2 points

Strongly Disagree (SD) 1 point

S/No.	What are the types of instructional materials available for use to influence the academic performance of agricultural science students in secondary schools in Kwara State?	SA	A	D	SD
1	Good relevant textbooks were necessary to influence the academic performance of students in agricultural science				
2	Pictures, models, drawings and specimens influence students academic performance in agricultural science				
3	We have good practical school farms or garden in the school				
4	Community resource places – industrial establishments, market place, game reserves and agricultural extension service centres influence students academic performance in agricultural science.				
5	Teachers uses appropriate charts and diagrams for the immediate illustration of agricultural science lesson.				
S/No.	What are the characteristics of instructional materials being used to influence the academic performance of students in agricultural science in secondary schools in Kwara State?	SA	A	D	SD
6	Instructional materials to be used must be visible to every student in the class				
7	Simplicity of instructional materials influence students academic performance in agricultural science				
8	The instructional materials for used must be appropriate and relevant to the topic as well as to students				
9	The sufficiency and attraction of instructional materials influence the academic performance of students in agricultural science				

S/No.	What is the importance of instructional materials to influence students academic performance in agricultural science in secondary schools in Kwara State?	SA	A	D	SD
10	Instructional materials influence learning and improve the competence of agricultural science teachers				
11	Instructional materials can simplify and clarify what is complex and difficult to express in words				
12	Motivational value has influence on the use of instructional materials on students academic performance in agricultural science				
13	Instructional materials save time and also promotes retention				
14	Instructional materials arouse interest by attracting attention of agricultural science students				
S/No.	What are the factors affecting the use of instructional materials to influence students academic performance in agricultural science in secondary schools in Kwara State?	SA	A	D	SD
15	The space of time available allocated for agricultural science influence students academic performance in agricultural science				
16	Teachers qualification and experience (mastery of the subject matter) influence the academic performance of students in agricultural science.				
17	The number of students in the classes overcrowded has influence on the use of instructional materials				
18	The physical facilities and community resources influence students academic performance in agricultural science.				
19	Students cultural background or educational level of the students has influence on the use of instructional materials on students academic performance in agricultural science				
20	Students motivation and interest of agricultural science teachers in improvising instruction materials influence the academic performance of students in agricultural science				

APPENDIX III

QUESTIONNAIRE FOR AGRICULTURAL SCIENCE STUDENTS

SECTION A: PERSONAL DATA/BIODATA

Name of Student

Name of the School

Sex: Male [] Female [] Class

Age

Post/Position held in the school

Local Government Area

SECTION B

INSTRUCTION: Tick (✓) appropriate in the column provided against the option of your choice.

KEY FOR RATING (LIKERT-TYPE SCALING)

Strongly Agree (SA) 4 points

Agree (A) 3 points

Disagree (D) 2 points

Strongly Disagree (SD) 1 point

S/No.	What are the types of instructional materials available for use to influence the academic performance of agricultural science students in secondary schools in Kwara State?	SA	A	D	SD
1	Good relevant textbooks were necessary to influence the academic performance of students in agricultural science				
2	Pictures, models, drawings and specimens influence students academic performance in agricultural science				
3	We have good practical school farms or garden in the school				
4	Community resource places – industrial establishments, market place, game reserves and agricultural extension service centres influence students academic performance in agricultural science.				

5	Teachers uses appropriate charts and diagrams for the immediate illustration of agricultural science lesson.				
S/No.	What are the characteristics of instructional materials being used to influence the academic performance of students in agricultural science in secondary schools in Kwara State?	SA	A	D	SD
6	Instructional materials to be used must be visible to every student in the class				
7	Simplicity of instructional materials influence students academic performance in agricultural science				
8	The instructional materials for used must be appropriate and relevant to the topic as well as to students				
9	The sufficiency and attraction of instructional materials influence the academic performance of students in agricultural science				
S/No.	What is the importance of instructional materials to influence students academic performance in agricultural science in secondary schools in Kwara State?	SA	A	D	SD
10	Instructional materials influence learning and improve the competence of agricultural science teachers				
11	Instructional materials can simplify and clarify what is complex and difficult to express in words				
12	Motivational value has influence on the use of instructional materials on students academic performance in agricultural science				
13	Instructional materials save time and also promotes retention				
14	Instructional materials arouse interest by attracting attention of agricultural science students				
S/No.	What are the factors affecting the use of instructional materials to influence students academic performance in agricultural science in secondary schools in Kwara State?	SA	A	D	SD
15	The space of time available allocated for agricultural science influence students academic performance in agricultural science				
16	Teachers qualification and experience (mastery of the subject matter) influence the academic performance of students in agricultural science.				
17	The number of students in the classes overcrowded has influence on the use of instructional materials				
18	The physical facilities and community resources influence students academic performance in agricultural science.				

19	Students cultural background or educational level of the students has influence on the use of instructional materials on students academic performance in agricultural science				
20	Students motivation and interest of agricultural science teachers in improvising instruction materials influence the academic performance of students in agricultural science				

APPENDIX IV

PERCENTAGE SUMMARY OF RESPONSES TO RESEARCH QUESTIONS

Q1	R E S P O N S E S C A T E G O R Y												
	SA		A		D		SD		TA	TD	TR	%A	%D
	Std	Tch	Std	Tch	Std	Tch	Std	Tch					
1	308	32	240	45	64	10	17	2	625	93	718	87.05	12.95
2	108	4	105	18	104	32	92	7	235	235	470	50.00	50.00
3	140	16	30	21	144	22	89	8	207	263	470	44.04	55.96
4	172	36	330	42	80	8	13	3	580	104	684	84.80	15.20
5	116	8	159	15	108	30	70	8	298	216	514	57.98	42.02
6	492	32	198	51	18	6	8	2	773	34	807	95.79	4.21
7	404	76	204	12	44	8	15	3	696	70	766	90.86	9.14
8	548	84	198	21	2	2	2	1	851	7	858	99.18	0.82
9	48	8	75	15	178	26	80	10	146	294	440	33.18	66.82
10	76	28	384	54	94	4	12	3	542	113	655	82.75	17.25
11	508	84	228	18	4	4	1	1	838	10	848	98.82	1.18
12	56	16	63	9	164	26	89	10	144	28	433	33.26	66.74
13	36	8	123	6	204	20	54	16	173	294	467	37.04	62.96
14	288	52	381	42	10	4	2	1	763	17	780	97.82	2.18
15	344	72	324	15	18	8	3	3	755	32	787	95.93	4.07
16	640	84	126	21	4	2	2	1	871	9	880	98.98	1.02
17	12	4	21	6	202	30	95	12	43	339	382	11.26	88.74
18	132	48	450	39	26	6	10	2	669	44	713	93.83	6.17
19	68	4	69	3	148	34	92	11	144	285	429	33.57	66.43
20	268	36	288	54	60	4	13	1	646	78	724	89.23	10.77

Q1 = Questionnaire items
 SA = Strongly Agree
 A = Agree
 D = Disagree
 SD = Strongly Disagreed
 TA = Total Agree

TD = Total Disagree
 TR = Total Responses
 %A = Percentage Agree
 %D = Percentage Disagree
 Std = Students
 Tch = Teachers

APPENDIX V
POPULATION ANALYSIS OF AGRICULTURAL SCIENCE TEACHERS AND
STUDENTS IN THE SELECTED SECONDARY SCHOOLS

APPENDIX VI

WAEC RESULTS IN AGRICULTURAL SCIENCE FOR THE YEAR 2009

S/No	Schools	Total Students Enrolment	Total Passed	% Passed	Total Failed	% Failed
1	GDSS Afon (Unity)	92	44	47.83	48	52.17
2	GDSS, Fate Ilorin	123	47	38.21	76	61.79
3	GGDSS. Okesuna, Ilorin	137	13	9.49	124	90.51
4	CSS, Baboko, Ilorin	253	57	22.53	196	77.47
5	GSS, Gwanara	81	6	7.41	75	92.59
6	GSS, Lafiagi	125	16	12.80	109	87.20
7	CSS Tsaragi (Unity)	191	117	62.30	72	37.70
8	GSS, Kaiama	68	13	19.12	52	80.88
9	GSS, Jebba	112	11	10.00	101	90.00
10	GSS, Bode Sa'adu	60	20	33.33	40	66.67
11	GSS, Gada Woro	34	18	52.94	16	47.06
12	CSS, Tankpafu	65	17	26.15	48	73.85
13	CSS, Babanloma	283	136	48.06	147	51.94
14	GSS, Agbamu	88	78	88.64	10	11.36
15	GSS (former TC), Igosun	252	17	6.75	235	93.25

SOURCE: School Examination Offices, (2010)

**APPENDIX VII
LIST OF INSTRUCTIONAL MATERIALS**

S/No.	Items	Available/ Relevant	Available Not Relevant	Not Sufficient	Not Available
A	Chalkboard				
B	Charts				
C	Models and shows				
D	Specimens – soils, seeds, fertilizer, etc				
E	Practical school farm garden				
F	Survey equipment				
G	Simple farm tools				
H	Tractor/machinery equipment				
I	Textbooks				
J	Cages for small animals, etc				
K	Feeding trough and watering can				
L	Work books				
M	Journals and magazines				
N	Graphs, maps/Atlases				
O	Display board				
P	Overhead projector				
Q	Slides and slide projector				
R	Radio				
S	Television				
T	Computer system				
U	Pictures				

**APPENDIX V: POPULATION ANALYSIS OF AGRICULTURAL SCIENCE
TEACHERS AND STUDENTS IN THE SELECTED
SECONDARY SCHOOLS**

S/No.	LGA	Name of Secondary School Selected	Sex	JSS 1-3 Total	Males	Females	SS 1-3 Total	Males	Females	Target Population (JSS & SS)	Total Males (JSS & SS)	Total Females (JSS & SS)	Po of Sc Te
A:	KWARA CENTRAL SENATORIAL DISTRICT												

S/No.	LGA	Name of Secondary School Selected	Sex	JSS 1-3 Total	Males	Females	SS 1-3 Total	Males	Females	Target Population (JSS & SS)	Total Males (JSS & SS)	Total Females (JSS & SS)	Pos of Sc Te
1	Asa	GDSS Afon (Unity)	Mixed	86	49	37	74	39	35	160	88	72	3
		GDSS, Otte	Mixed	77	50	27	69	47	22	146	97	49	2
2	Ilorin East	GSS (Science School) Ilorin	Male	294	294	-	207	207	-	501	501	-	4
		GDSS Fase, Ilorin	Mixed	146	97	49	121	70	51	267	167	100	3
3	Ilorin South	GGDSS, Okesuna, Ilorin	Female	168	-	168	130	-	130	298	-	298	2
		GDSS Gaa-Akanbi, Ilorin	Mixed	157	68	89	144	64	80	301	132	169	3
4	Ilorin West	CSS Baboko, Ilorin	Mixed	236	64	172	201	53	148	437	117	320	5
		GDSS, Adeta	Female	138	-	138	141	-	141	279	-	279	4
5	Oke-Ero	GSS, Ilorin	Mixed	94	56	38	78	49	29	172	105	67	3
		CHS, Ilofa	Mixed	117	81	36	123	70	53	240	151	89	3
		TOTAL		1513	759	754	1285	599	689	2801	1358	1443	32
B	KWARA NORTH SENATORIAL DISTRICT												
1	Baruteen	GSS, Kwanara	Mixed	79	51	28	82	48	34	161	99	62	1
2	Edu	Gss, Lafiagi	Mixed	146	93	53	129	67	62	275	160	115	3
		CSS, Tsaragi (Unity)	Mixed	132	62	70	140	67	83	272	119	153	2
3	Kaima	GSS, Kaiama	Mixed	104	69	35	75	46	29	179	115	64	1
4	Moro	GSS, Jebba	Mixed	177	81	96	158	63	95	335	144	191	2
		GSS, Bode Sa'adu	Mixed	106	73	33	112	65	47	218	138	80	1
5	Patigi	GDSS, Gada Woro	Mixed	79	51	28	67	44	23	146	95	51	1
		CSS Tankpafu	Mixed	86	48	38	80	52	28	166	100	66	2
		TOTAL		909	528	381	843	442	401	1752	970	782	13
C	KWARA SOUTH SENATORIAL DISTRICT												
1	Ekiti	GSS (former TC) Aiyegunle (Unity)	Mixed	276	110	166	197	86	111	473	196	277	3
		CSS Etan	Mixed	154	92	62	160	113	47	314	205	109	2

S/No.	LGA	Name of Secondary School Selected	Sex	JSS 1-3 Total	Males	Females	SS 1-3 Total	Males	Females	Target Population (JSS & SS)	Total Males (JSS & SS)	Total Females (JSS & SS)	Percentage of Sc Te
2	Ifelodun	GSS Babanla	Mixed	98	50	48	92	57	35	10-	107	83	2
		CSS, Babanloma	Mixed	142	74	68	109	55	54	251	1129	122	2
3	Irepodun	GSS, Agbamu	Mixed	174	92	83	169	90	79	344	182	162	3
		GDSS, Rore	Mixed	93	48	45	116	60	56	209	108	101	2
4	Isin	Isin CSS, Egi-Owu	Mixed	137	65	72	132	57	75	269	122	147	1
		CSS, Olla	Mixed	108	58	50	116	71	45	224	129	95	1
5	Offa	GSS (former TC), Offa	Mixed	259	137	122	263	140	123	522	277	245	4
		GDSS Offa	Mixed	144	88	56	107	65	42	251	153	98	3
6	Oyun	GDSS (former TC) Igosun	Mixed	168	80	88	140	62	78	308	142	166	3
		GDSS, Igbonna	Mixed	113	63	58	121	70	51	234	135	101	2
TOTAL				1869	957	910	1722	926	796	3589	1883	1706	28
Grand total				4289	2244	2045	3853	1967	1886	8142	4211	3931	73

SOURCE: Kwara State Teaching Service Commission (TSC), Ilorin (2010)