

TEACHING AGRICULTURAL SCIENCE AT THE PRIMARY SCHOOL LEVEL OF THE BASIC EDUCATION WITH APPROPRIATE INSTRUCTIONAL MEDIA: ESSENTIAL PARAMETERS

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ABSTRACT

This paper examines the concept of basic education in line with the teaching of agricultural science at the primary level of education. It equally gives different definitions of instructional media as given by some authors. It also identifies classifications of instructional media with relevant illustrations. The author further examines how different types of instructional media can be applied to the teaching of agricultural science especially at the primary schools. The possible ways of misuse of instructional media or instructional materials most especially at the primary schools are highlighted in the paper. The paper concludes by giving some recommendations that will foster the use of instructional materials by the teachers adequately and efficiently for the teaching of agricultural science especially at the primary school level.

Introduction

Basic education refers to the range of educational activities taking place in the various settings (formal, non-formal and informal), that aim to meet basic learning needs. According to the International Classification of Education (ISCED), basic education comprises primary education (first stage of basic education) and lower secondary education (second stage). In country (Developing Countries in particular), Basic education often includes pre-primary education and adult literacy programmes.

The Universal Basic Education is regarded as a priority for developing countries is the focus of Education for all Movement led by UNESCO. It is included in the Millennium Development Goals number 2: Achieve Universal Primary Education by 2015 (Wikipedia, 2011). A special emphasis of all basic education activities is improving opportunities for girls, women and other underserved and disadvantaged population (USAID).

According to UNESCO (2011) education is a fundamental human right: Every child is entitled to it. It is critical to our development as individual and as societies and it helps pave way to successful and productive future. When we ensure that children have access to a rights-based, quality education that

is rooted in gender quality, we create a ripple effect of opportunity that impacts generations to come.

In modern days Nigeria, the overarching goal of basic school is to strengthen elementary education. It is called "basic" because it identifies practices that seek to make education available to every child. It is equally called "basic" because it gives priority to language and to a core of essential knowledge. Another major goal of basic school is to ensure high literacy level. Literacy is broadly defined to include mathematics (numeracy) and the arts (National Policy on Education, 2004). All students are expected to become proficient all literacy skills as these are the fundamental tools from which learning takes place. The pupils are equally become well informed in the disciplines of mathematics, science and history by integrating contents to enhance meaningful connection across disciplines (Croft Basic School, 2007).

In Nigeria today, agricultural science is one of the vocational subjects taught at the primary schools. It is meant to expose the pupils to Nigerian agricultural practices. Agriculture being the major occupation of about 75 percent of Nigerians, agricultural science is taught from primary school level to the tertiary school level of our educational system.

In order to achieve adequate and effective

teaching of the subject, teachers are always advised to use adequate and effective instructional media or instructional materials when teaching agricultural science especially at the primary school level.

Use of Instructional Media for Effective Teaching of Agricultural Science at the Primary School Level

Teaching and learning has become highly scientific in the recent time. In fact, it is no more fashionable for teachers to go to the classroom without equipping themselves with necessary and adequate instructional media, most especially primary school teachers. Hence, the use of instructional media is now a unique factor for successful communication and meaningful interaction between the pupils and the teachers in the classroom communication process.

Therefore, for effective teaching and learning to take place in any field of study, it is essentially important that effective and efficient means of communication should be focused. To achieve this target, the role of instructional media as agents of effective and efficient communication cannot be ruled out. It is very important for all teachers in different fields to be highly inquisitive and resourceful in the use of instructional media in order to make their teaching to be highly interesting and motivating to their pupils. It is therefore not an exaggeration to conclude that effective and efficient classroom communication can only be possible through resourceful and effective use of instructional media in the classroom communication. Every teacher needs to be aware that in the recent time, communication in the classroom cannot be efficiently possible without major involvement of the necessary instructional media process.

What is Instructional Media?

Instructional media has been defined in different ways by authors, educators and other experts in the field of education. Some of these definitions are examined below.

According to Adewoyin (1997), Educational media refer to all educational resources, whether graphics, photographic, electronic or visual mechanized means of arresting, processing or restructuring visual or verbal information or a combination of both. In other words, educational media refer to all forms of communications through which teaching and learning take place.

Akinpelu, Adewoyin and Otunla (1999) defines media (the plural form of medium) as a way, a means a channel or route for passing information from one source to the other.

Media generally stand the position of sustaining the learner's interest, focusing and directing his attention towards a particular instructional objective with a singular goal of enhancing behavioral change.

Classification of Instructional Media Abifarin (2010) asserts that there are various ways of classifying instructional media. The nature of classification by individuals depends on their interest, needs and focus. But whatever the mode of classification, there is usually several points of similarities. Some of the typologies of instructional media are expressed graphically in figure 1-3 below:

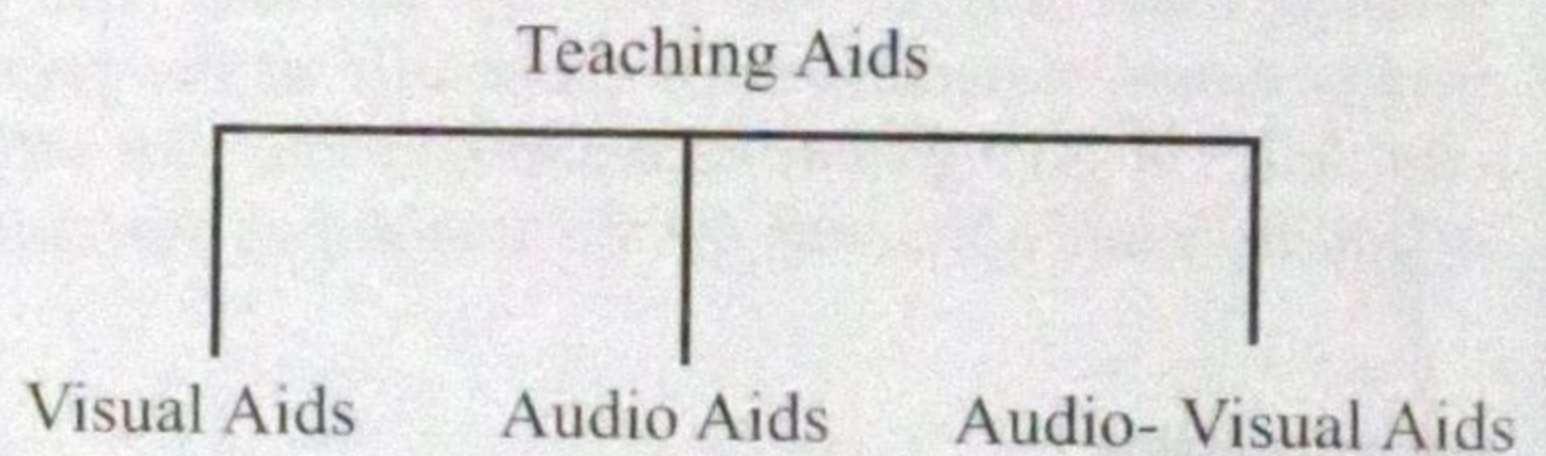


Figure 1: typologies of instructional media

This classification in figure one is the oldest form of classification. But the term teaching aids is now obsolete. However instructional media, instructional material or educational media are mostly used in recent literatures

- (i) **Visual Aids** - All instructional media appealing to the sense of seeing.
- (ii) **Audio Aids** - All instructional media that appeal to the sense of hearing.
- (iii) **Audio- Visual Aids:** - All instructional media that appeal to the sense of hearing and seeing.

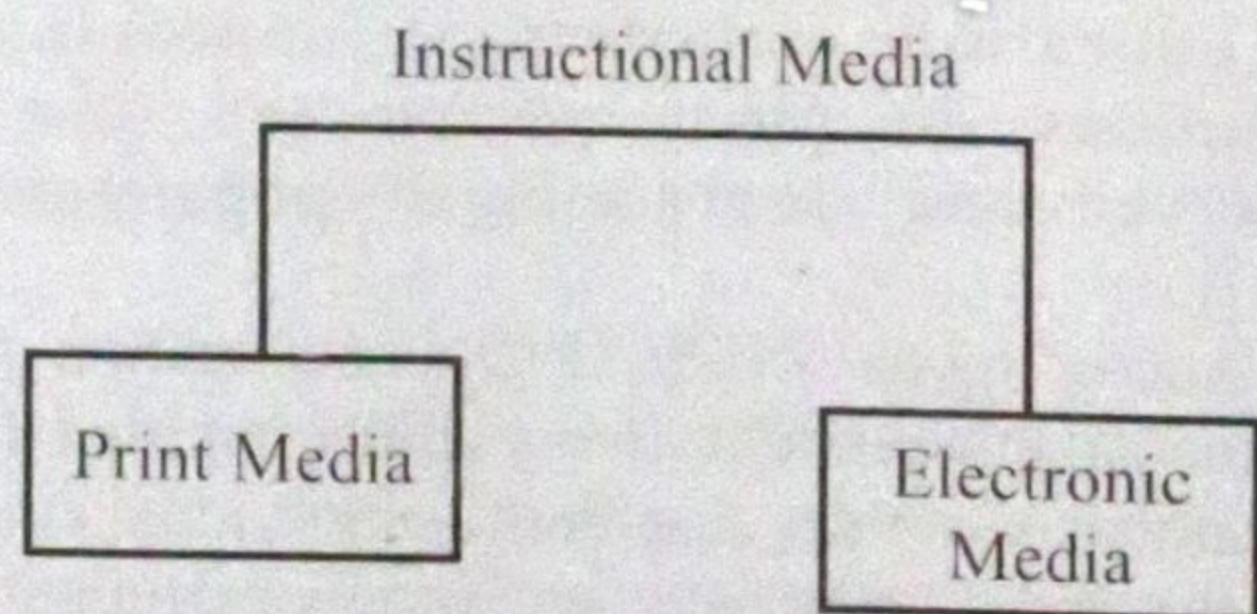


Figure 2: Types of instructional media

In figure two, instructional media is classified into print and electronic media.

(i) Print media refer to any media that are printed such as textbooks, reference books, pictures, posters, diagrams etc.

(ii) Electronic media refer to information carrying devices which can be used for disseminating information, e.g. radio, television, computer, internet etc.

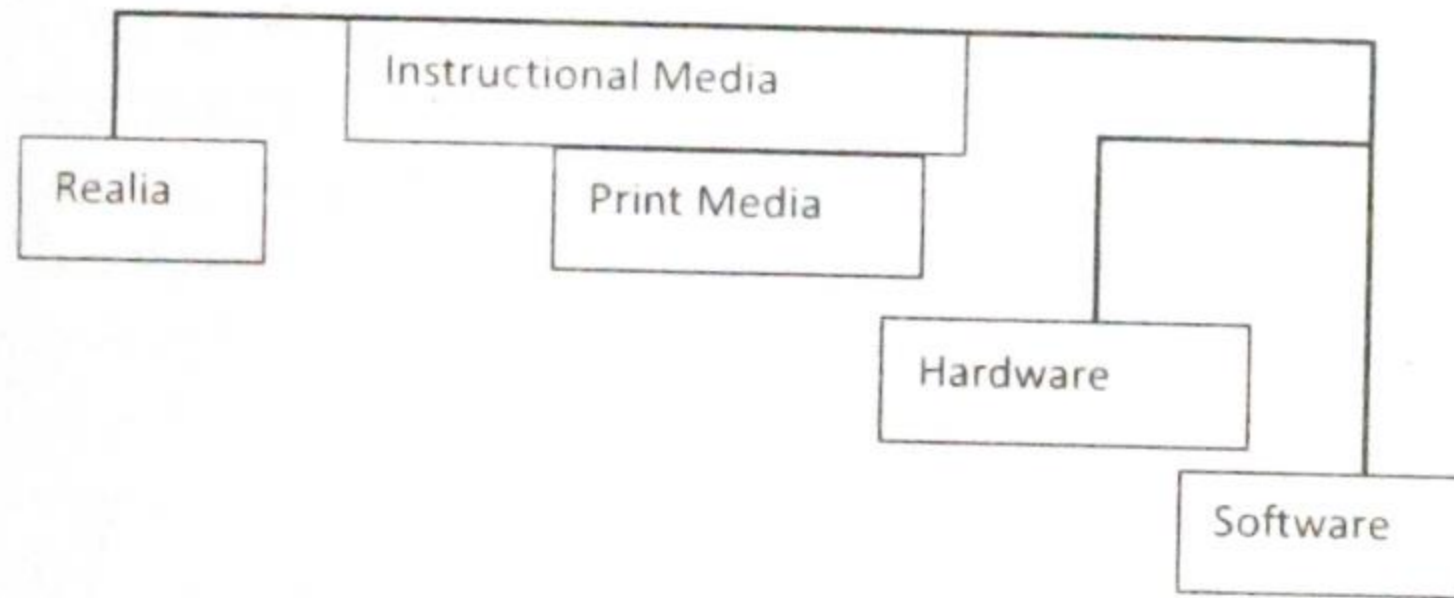


Figure 3: Classification of instructional media

In figure three, instructional media is classified into realia, print media hardware and software.

(i) **Realia** refers to real materials. That is, teaching with the use of real objects e.g. using real mango as an example of fruits in agricultural science class.

(ii) **Print Media** - Any media in printing form.

(iii) **Hardware** - These are the machines, tools, gadgets or equipment upon which the software is transmitted.

(iv) **Software** - These are the information carriers which are used with hard wares e.g. cassettes, VCD, CDS, films, audio tapes, transparencies etc.

Application of Instructional media to teaching of Agricultural Science at the primary school level

Realia:

Realia refers to the use of real materials, objects or equipment for teaching of different topics in agricultural science. For instance, pupils can be taken to different sites of fish ponds such as earth pond, artificial pond to study them physically.

In the area of agricultural mechanization, students can be taken to farm settlements workshop to see and study different types of farm mechanized equipment such as tractors, harrowers, planters, ridgers etc. The exposure of the pupils to this type of learning experience will make them understand what they are learning.

Another example is when you want to teach classification of food, and you bring little grains of

rice, beans, a slice of yam tuber, little red or vegetable oil, little water etc. All these items are examples of different classes of food. The pupils understand the topic better if they are taught through the use of these items which are collectively called realia. Teachers are advised to use realia regularly and frequently when teaching at the primary school level of basic educational programme.

Diagrams and Posters

Diagrams and posters are very good media to teach different topics in agricultural science. But their uses are recommended when realia cannot be found, difficult to use, dangerous to use or expensive to use for a particular topic or topics.

Diagrams and posters are the closest media to the teacher but poorly used by them. Most teachers prepared them hurriedly, poorly and very badly too.

It is advisable that primary school teacher should take time to prepare their diagrams and posters before going to the classroom to teach. They should bear in mind the principles of clarity, comprehensiveness, usability, simplicity, readability and cost effectiveness among other related principles. This is essential because pupils in the primary level of education are mostly attracted to beautiful diagrams and pictures. They equally find learning interesting and understandable when they used appropriately and regularly.

Audio Media

Audio media are the media that appeal to the sense of hearing only. Examples are radio, tape recorder, audio VCD etc.

They are very good media for teaching agricultural science especially at the primary school. For instance, during excursion, where audio-visual gadget such as video camera is not available, experiences during the excursion can be recorded with audio gadgets such as tape recorder or audio VCD. They can be played back when pupils come back from the excursion. Audio-media can equally be supplemented with photographs to enhance remembering of the experiences by the pupils.

In addition, relevant radio programmes on agriculture can be recorded from the radio by the teacher or even the pupils'parents for use in the school. These radio programmes can be edited by the teacher and replayed in the class for all the pupils to listen to.

Audio-Visual Media

Audio-visual media are instructional media that can be used for teaching and learning which appeal to the senses of seeing and hearing. Examples include television, computer, video clips etc.

Instructional Television and Teaching of Agricultural Science

Instructional television refers to the television programmes that are designed to teach certain subjects to specific grade of audience. This can be used extensively to supplement classroom work (Talabi, 2009).

The use of instructional television for teaching of agricultural science in the primary schools is inevitable. For instance, such television programmes will be aimed at presenting relevant materials that correlate with the agricultural science curriculum, age and educational background of the pupils. To ensure the success of instructional television programmes in teaching of agricultural science, agricultural science teachers, curriculum designers and educational administrators should be involved in the planning and executing of the programmes. Similarly, relevant live and deferred programmes on television which are related to the primary school agricultural science curriculum can be recorded and replayed in the classroom for the pupils to watch and make contributions.

Additionally, exciting experiences during field trips and excursion can be recorded with the use of video camera, VCD video camera, phone etc. The recording can be watched and edited by the agricultural science teachers before bringing it to the pupils to watch in the classroom. The pupils learn a great deal from such recordings.

Modern Training Technologies and Teaching of Agricultural Science

In the recent time, modern training and teaching technologies have crept into the field of teaching and learning. Such new training technologies include the use of information and telecommunication technology (ICT), computer, internet, interactive boards and other different modern communication facilities which are very good for teaching and learning.

Information and Communication Technology (ICT) and Teaching of Agricultural Science at the primary school level

Cottrell (2003), Sarfo (2007) and Teacher Education in Sub-Sahara Africa (TESSA) (2009) identify the roles of ICT in enhancing teaching and learning. These include:

- (i) **Enhancing presentation formats through the use of power points, word documents, animation, Corel draw and the rest of them.** This point is very relevant to the teaching of agricultural science. For instance, teaching materials could be better presented in agricultural science class with the aid of power point, Corel draw and the use of animation. The combination of all these presentation modes will make the teaching of agricultural science more effective, stimulating and highly interactive to the pupils.
- (ii) **Capturing things not within reach or dangerous e.g. mountains, wild animals, microscopic organisms etc.**

The teaching of agricultural science involves agricultural land use, wild life, ecology etc. The use of ICT will definitely boost effective teaching of agricultural science especially at the primary school level through the use of different relevant ICT gadgets for teaching some agricultural science concepts which are complex or difficult to teach.

- (iii) **Ensuring that teaching becomes highly interactive.**

Teaching is becoming highly interactive in the recent time through the use of ICT. In the field of agricultural science, ICT has made the teaching of some difficult and abstract topics very easy and the level of interactivity between the teachers and their pupils has equally improved.

- (iv) **Teachers share resources.**

In the recent time, there are teachers' resource centres such as TESSA, where teachers collaborate and learn from one

another (www.tessa.net). For instance, primary school agricultural science teachers in Nigeria can now share teaching resources, through TESSA website, with their colleagues in Ghana and other countries of the world. This has further made the teaching and learning of agricultural science globally based. Additionally, primary school teachers are highly resourceful now with the use of ICT.

Computer and Teaching of Agricultural Science

According to Mangal and Mangal (2009), a computer is a thinking machine of human being that makes use of some well framed meaningful programmes (software) for its operation and utilities. Therefore, as a programmable machine, every computer is known to possess the following two characteristics.

- (a) Responding to a specific set of instruction in a well defined way.
- (b) Executing a pre — recorded list of instructions (a program) for performing various tasks.

There different computer softwares prepared by experts in the field of agricultural science. These softwares are very valuable tools for teaching of different topics in agricultural science at different levels of education which they are prepared for. Some of these softwares allow the pupils to learn on their own through the use of computer. They can also learn at their own pace through individualized instructional packages. This new training technology is very common in the urban centres of Nigeria today. Therefore, primary school pupils should be guided adequately in order for them to benefit adequately from this mode of instructional media.

Internet and Teaching of Agricultural Science at the Primary School Level

Today, there are cyber café or computer laboratories almost in every district especially in the urban areas. In these cyber cafes, internet services are provided to the general public. This is mostly patronized by the youths and elites.

What is Internet?

The internet is the short name for internet system. It is known as the largest WAN (Wide Area Network) in the world. It may be defined as the world's largest inter-network system (the network of networks) that provides the fastest, easiest and

cheapest means for the countless users to get, provide and communicate information on a global basis (Mangal, 2009).

There are latest research findings and other information relating to the field of agriculture on the internet. For instance, information on hybrid animals and plants, treatments for some new animal and plant diseases, new and improved farming technologies can be downloaded from the internet. Both the agricultural science teachers and pupils can sort for the information they need in the field of agriculture through the use of internet. The teachers can also gather information from agricultural science workshops, seminars and agricultural shows throughout the world from the internet for their pupils' use. Weather forecast can also be gotten by teachers and students to monitor their yearly activities on the farm through the use of internet. The teacher and pupils' possession of computer and internet access skills will really assist them in teaching and learning of agricultural science in schools most especially the primary schools.

Misuse of Instructional Media by Teachers

Abimbade (1997) asserts that we talk of “misuse of media when media is not effectively put to use to achieve pre-determined objectives”.

Misuse of media could lead to misconception of ideas, cause confusion and make a learner hate the subject and never gain back the motivation.

How can a teacher misuse instructional media especially at the primary school level?

- (a) Teacher not considering the objective of the lesson before preparing and using of any instructional media.
- (b) Teacher using inadequate or wrong instructional media for teaching a particular lesson.
- (c) Teacher making use of inadequate labeled instructional media for his/her lesson (especially when using diagrams and posters).
- (d) Teacher asking the pupils to hold instructional media for him/her before other students when teaching in the classroom.
- (e) Teacher leaving instructional media permanently on the chalkboard after use during the lesson.
- (f) Teacher littering the classroom with used diagrams, posters, pictures and other instructional media.
- (g) Teacher using pupil-made instructional media without adequately editing them before use in the

classroom.

(h) Use of several instructional media at once when teaching the younger ones.

(i) Total replacement of the teacher by the instructional media.

(j) Lack of adequate knowledge of the instructional media to be used by the teacher.

(k).Teacher over use of a particular instructional media at the expense of the other instructional media.

It is not only enough for the teacher to make use of instructional media while teaching; he/she needs to make appropriate and judicious use of such instructional media if teaching is to be efficient and effective.

Conclusion

In the recent time, there have been technological developments which are affecting every sphere of lives. These developments have equally influenced the field of education positively. For instance, both teacher and pupils can interact more effectively through the use of modern training technologies.

Information from different parts of the world is now accessible by teacher and students within the four walls of the classroom through the use of the new information and technology communication technology. If teachers, especially agricultural science teachers in the primary school struggle to keep abreast of the latest technological developments in the field of teaching and learning, they will be able to teach better and their pupils will equally learn more conveniently, effectively and very efficiently.

Recommendations

From several observations by this author, teachers at different levels of Nigeria educational system are either misusing instructional media or not using them at all when teaching. It is therefore recommended that the government and institutions of learning should enforce the compulsory utilization of instructional media by the teachers at all level.

There should be frequent retraining programmes on appropriate use of instructional media for teachers to avoid misuse of the instructional media available for the teachers. The re-training or refresher courses should make provision for the training of the teachers in the use of modern instructional media which are computer

based. These include multimedia projector, electronic board, animation and the rest of them.

The proprietors of schools, Parent-Teachers' Association, non-governmental organizations and government should invest more in the production of instructional media for schools. The government should fashion out policy that will promote compulsory use of instructional media in schools especially at the primary school by teachers. Government should also give instructional media allowance to teachers to cushion their financial burden on production and utilization.

The Heads of Institutions and Inspectors from the Ministries of Education both at federal and state levels should devote more time to inspect instructional media used by the teachers when they are on routine school inspections. This should be adequately emphasized at the primary school level being the cradle of our educational system.

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