COURSE GUIDE

EDT 831
INSTRUCTIONAL MEDIA DESIGN AND PRODUCTION

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INTRODUCTION

Instructional media have become central to the effective delivery of instruction. The concern of this course is to open to you the variety of media that are available for instruction. In addition the course is to help your design and produce some basic instructional materials that you will need for your own teaching. The course has provided background information theoretical framework and some practical Audience and has treated the media format separate for easy reference.

Within your environment, there will probably not be production facilities for some of the formats where you could go and gain some experience. However you should find excitement in trying out such areas as graphics, real things, games and simulations and the use of inexpensive materials that you can find in your environment.

COURSE OBJECTIVE

After interacting with this course material, you should be able to:

(a) Trace the stages of development leading to the system approach of instructional technology and instructional communication
b) Identify some of the concepts developed through learning theories that you can apply to your teaching
c) Identify some of the concepts developed through communication theory° and research in media that you can apply in teaching
d) List the major features of the three teaching learning modes
e) List the major groupings of instructional media
f) Produce some items of graphic materials
g) Explain the two formats of television production
h) list sources of materials that you can use for improvisation
i) Explain three levels of the instructional media organisations in Nigeria

LENGTH OF TIME

The course is a second semester course designed for 13-14 weeks. However, it may take you more time to complete.

TESTING

The course is designed to help you monitor your own progress through self-assessment exercise. Each course unit has at least two exercises. Each exercise has an answer kit. At each exercise point pause and think, then carry out the exercise. Resist the temptation to consult the answer kit and only refer to it afterwards to check how well you have done the exercise. Note the differences between your performance and the answer kit. If the differences are much go over the material again.

There is one tutor-marked assignment at the end of each unit. National open University will tell you how many of the assignments you will submit to them.

SELF CONTAINED

The Units are designed to be self-contained. However, read as widely as you can even outside the references that have been made. The more you read, the more you have a store of knowledge for yourself and from which you can draw to assist you in your teaching activity.

STUDY TIME

Work out your own convenient times for study when and where you can concentrate. Try and be consistent. Enjoy your study time.

Good Luck .

MAIN COURSE

CONTENTS

MODULE 1

UNIT 1 HISTORICAL PERSPECTIVE OF INSTRUCTIONAL MEDIA

Unit Structure

1.1 Introduction

Education, as old as man, has persisted and would most likely remain with man. It is a very powerful dynamic process metamorphosing with constantly changing needs of man and society from one generation to another. Education in its informal format is concerned with the indigenous norms and values, in the non-formal nature emphasizes apprenticeship skill acquisition, while the formal education is the school format also referred to as modern education. From its origins before the 7^{th} century B.C., modern education has experienced tremendous growth. This has included constant efforts to improve the quality and learning.

The era of instructional technology has represented a very important aspect of these efforts. This unit is concerned with showing you how improvements have occurred in the use of instructional materials leading to the present systems approach of instructional technology. The approach has drawn attention to the different aspects to which you should pay attention and the place of instructional technology in that system. The unit has provided you the whole scope of instructional technology of which instructional materials are only a sub-unit even among instructional resources.

1.2 Learning Outcomes

By the end of this unit, you will be able to:

- Discuss the meaning of vital concepts in this course
- Evaluate the differences between the pragmatic and liberal models of education
- Explain the improvements that occurred through the change from visual instruction to instructional technology, and;
- Analyse the major differences between instructional technology and instructional communication

1.3 Concept Clarifications

Education: There are varied definitions of education that no single one attracts universal acceptability. However, one of the earliest views is that it is the leading out of the in-born powers and potentialities of individuals and acquisition of skills, aptitudes, and competencies necessary for self-realization and coping with life problems. Hinging on this earliest definition, and from Educational Technology point of view, Achuonye (2019) sees education as ‘a continuous life process of identifying, developing, utilizing and managing human capabilities for meeting various needs’. Formal education is your major concern in this course and it is important you note here that ideally, it is systematically planned and characterized by curriculum, designated teachers and learners, strategies and materials, examination and certification. Formal education occurs in a structured environment whose explicit purpose is teaching learners.

Teaching or Instruction: The term, ‘teaching’, is too generic to be applied to the school situation alone. It has two inclinations namely the common or informal teaching (which anybody/everybody does), and formal teaching (professional teachers in formal educational setting). This professional format is specialized job of deliberate efforts made by

a more knowledgeable and experienced person to help the other to learn; an attempt to assist students in acquiring or changing some skills, attitude, knowledge, idea or appreciations; a process of making someone to learn, creating or providing opportunities from which learners can gain such positive experiences that enable them acquire the knowledge, skills, attitudes that will serve as tools for life.

Attempts to distinguish teaching and instruction have generated slight controversy. To some authors, teaching is a broad concept of teaching almost anything, while instruction is about instructing someone on specific set of tools and tasks to do something specific. Instruction is subsumed as only a part of teaching, and often used interchangeably with teaching. Therefore, educators particularly, Educational Technologists, see instruction as the formal teaching which embraces all the activities of the teacher and learner in the classroom process, and so often, referred to as instructional process.

Instructional Media: These are means or channels of communication in instructional process; and encompass all the **materials** and physical means a teacher might use to implement **instruction** and facilitate students' achievement of instructional objectives. Such materials and facilities can be used to ease, encourage, improve and promote teaching and learning activities. You should this point note that use of the term, **'teaching aid'** is obsolete as it denotes materials that help only the teacher; but today, educators generally agree that these materials also help learners to learn more and faster. Therefore, you should prefer the terms: instructional/educational media, resources or materials.

Instructional Media Design: You should note that this is also known as Instructional Design and Technology; this focuses on the principles and techniques of creating instructional materials - educational resources in various formats or combinations and prepares individuals to function as instructional media designers. It also Include instruction in the techniques specific to creating in various media; the behavioral principles applicable to using various media in learning and teaching; the design, testing and production of instructional materials; and the management of educational/instructional media facilities and programmes. Instructional Media Design involves the development and implementation of resources to fulfill educational needs.

1.3.1 Origin of Modern Education

1.3.1 Sparta – Educational Model

Modern education is traced to the Greek city states of Sparta and Athens where the present alphabet was in regular use in the 7th century B.C.

Sparta developed a model of education with emphasis on the practical learning of the art of war for the defense of the State. Included in the curriculum were physical exercises of running, jumping, throwing and skills of stealth, patience, endurance, deception etc. This kind of education became known as pragmatic education because it placed emphasis on skilled learning and utility.

1.3.2 Athens - Model of Education

Most important changes in educational aims and instructional practices can be attributed to particular social, political, and economic influences. Athens, another Greek city-state, transformed from an agricultural slave-labour dependent-society into a leading maritime power - commercial state. With the wealthy merchants, it developed a model of education, along with military skill training which placed emphasis on cognitive learning and culture. The concern was to produce intellectuals as leaders or what they called philosopher kings, as those to set examples of learning and civilized behaviour. Learning was for its own sake, and not for utility. This model of education came to be known as liberal education because of its emphasis on cognitive learning and social behaviour.

1.3. 3 Rome - Model of' Education

Rome, another state adopted and perfected both the pragmatic and liberal models of education into an educational system which helped the Romans to build an extensive empire. The military training helped her to build a formidable army and the liberal training helped them to produce the administrators to sustain the empire. The Romans developed the arts and culture and used their empire to propagate their model of' education. They established a unified system of education which gave teachers special privileges including salary scales for teacher in the three levels of education; elementary, grammar and rhetoric schools.

Great Britain as one of the Roman colonies benefited from the Roman model of education. In turn as a British colony, Nigeria benefited from the Roman model of education through Britain on whose model the Nigerian system of education was originally built.

1.4 Current Shift

In the late 18th century a Scott, Andrew Bell, developed in India the monitorial model of education using pupil teachers, lessons were broken up into units each unit to be successfully completed before the next one could be learnt. The model was adopted in the United States of America at independence as a means of providing education to large number of

people at minimum cost. The model was perfected there and was adopted in Nigeria in 1976 as 6-3-3-4 system of education, which has further metamorphosed into Universal Basic Education (UBE) programme of 9-3-4 system. The course credit systems which has divided the courses you are taking into course units which are completed on their own is in line with that model of education.

Self-Assessment Exercise

Identify the main differences between pragmatic and liberal education.

1.4.1 Historical Background of Instructional Materials

The pre-19th century did not just feature the development in the philosophical line but also in instructional materials. During the stone age communication was a face-face process aided by simple versatile materials such as talking drums and gongs, symbols and figures scratched on rocks, stones, walls and wood, seeds, sticks, leaves, smoke, rocks, pebbles, etc. These were followed by the Egyptian's Hieroglyphics – the beginning of writing, and this ushered in printing. A complete new dimension was established in 1445, when in Mainz, Germany, Johann Gutenberg invented the first printing machine which printed the first book, the Bible. Books still remain indispensable tools of our educational process, opening wider horizon to learning. Slate was introduced as a supplement to books; and for demonstration purposes, chalkboard then called blackboard emerged to create a common focus for class.

Teachers found means of visually reinforcing what they taught. As early as the 4th century B.C., Plato had stressed the importance of imitative play. By the 19th century AD the use of real things was stressed and plays facilities such as swings, slides, climbing frames etc. had been invented to aid learning. Also invented were building cubes and different shapes such as triangles, rectangles etc. as instructional aids, these aids were however not built into teaching in a formal and scientific manner.

The incorporation of teaching aids into instruction started in the 1920s and involved the use of pictures and objects to provide what was called visual experience. Visual instruction as this was called was the attempt to make abstract ideas concrete and to promote intellectual or cognitive learning. In the 1940s, the approach became audiovisual instruction when an audio channel accompanied the visual so that the learner could both see and hear and explanations, description etc. Audio-visual

equipment which include different types of projectors and audio players were considered the modern technological means of providing rich and concrete learning experiences by 1950s. Film projector for instance incorporated an audio track while other projectors such as for slide had a separate audio recording to accompany the presentation.

1.4.2 Instructional Communication Models

Communication is purposeful process of transferring information from one person (sender) to another (receiver). Instructional communication refers to the type that occurs between the teacher and learners for the purposes of instructional process. The Second World War promoted the extensive use of radio and put media on a large or mass scale. It also led to the adaptation of these mass media and the development of others for instructional purposes. There was a renewed interest in and recognition for the integration of audio visual into the teaching – training system. This interest led to the development of communication models which signaled a change from the emphasis on equipment to emphasis on importance to education because it provides the theoretical framework for effective teaching.

Communication model simply refers to conceptual models used to explain the human communication process. The first major communication model was a linear model propounded by Shannon and Weaver in 1949, a one-way model consisting of the sender encoding a message channeled to the receiver with no feedback or response. This was, however, expanded in 1960 by David Berlo as SMCR communication model (Fig. 1.1), where “S” stands for Source, “M” for Message, and “C” for Channel and “R” for Receiver. Source is the sender/teacher, message including the subject matter/content and how to teach it and channel include all the instructional materials interacted with through either one or all senses organs of the body. Receiver is the learner (pupil/student). Feedback is the response from any point/end which includes answers and reactions to questions, queries, problems or actions, written or verbal, and may be diagnostic, formative or summative evaluation exercises.

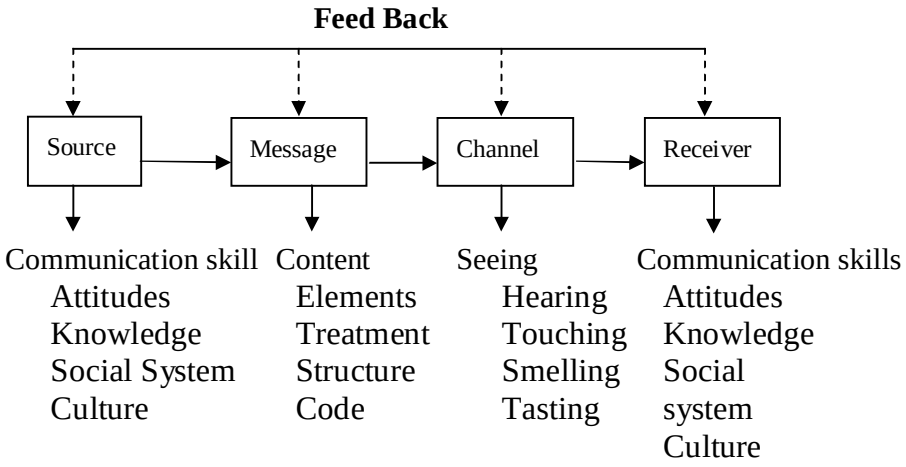

Figure 1.1 - The SMCR Model of Communication

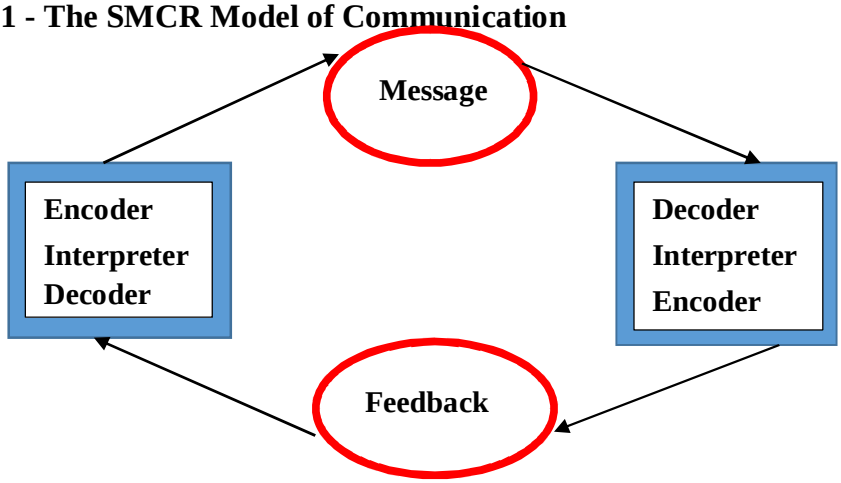

Figure 1.2 Schramm's Model of Communication

Figure 1.1 has specified the senses as the means for collecting information, while Figure1. 2 has more direct application to instruction with signal connecting the field of experience of the teacher and of the learner. The instructional system or black box concept in figure 1.3 goes a step further to divide instruction on the bases of number indicating large group (mass) small group and individual study. It also spelt the accompanying methods or modes of instruction to include lecture, teaching and individual study.

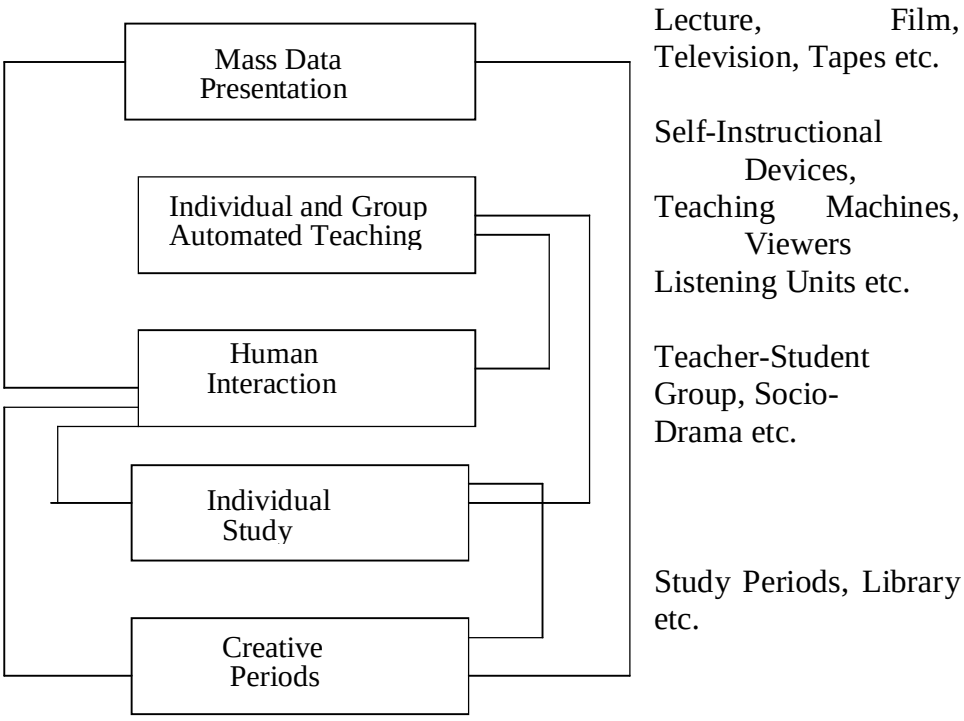

Figure 1.3 The Instructional systems or Black Box Concept

The model has specified the media to be used on the basis of choice of instructional interaction to bring about effective communication in instruction.

Exercise 1.2

List the contribution of SMCR and Schramm's models of communication to instruction

1.4.3 Concept of Instructional Technology

Instructional technology is a summation of the systems approach based research. It is concerned with the facilitation of human learning through the systematic identification development, organization and utilization of full range of learning resources and through the management of these resources.

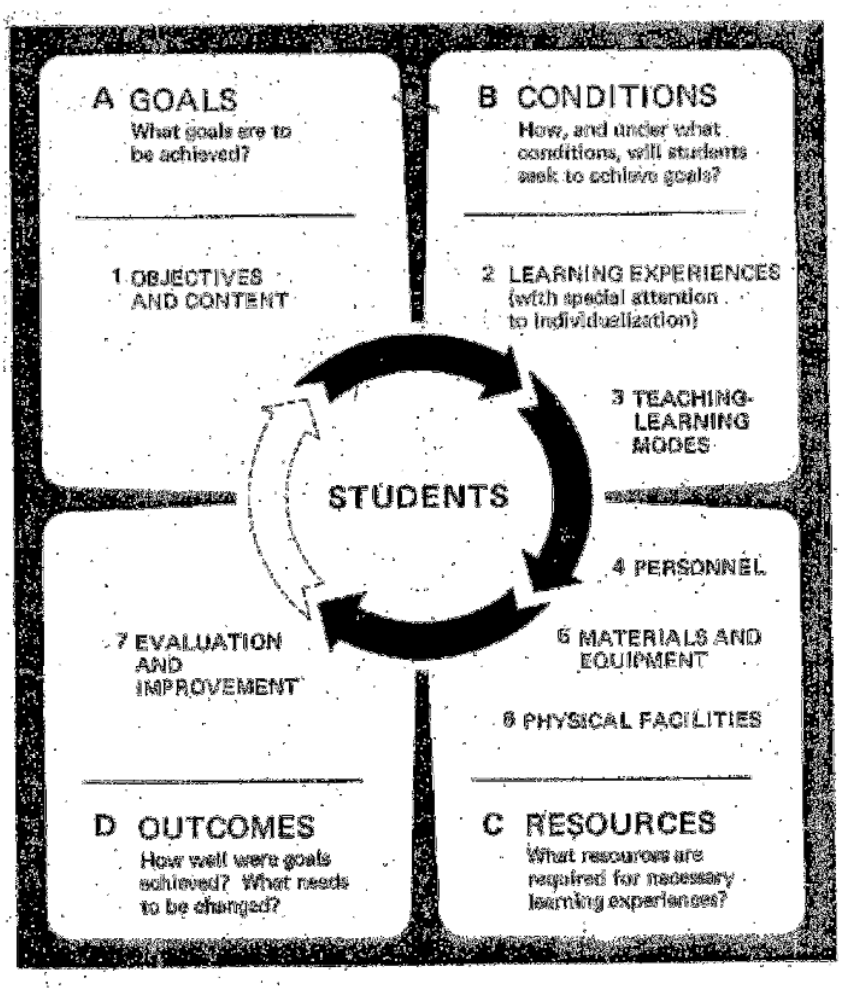

Figure 1.4 the Systematic approach of instructional technology

1.5 Concept of Instructional Communication

Educationists from the late 1970s Eble (1976), Peter (1977), Curzor (1990) and Sotto (1994), seeing the undue stress being placed on usage of equipment or things, placed emphasis on communication and related concepts based on the knowledge of effects of cognitive theory and experience maturation in providing for effective learning. In addition, they were skeptical about the appropriate of the communication model that has been in standard use in teacher education (figure 5). It was regarded as not representing what happens in actual classroom environment. Rather it is a mass communication model.

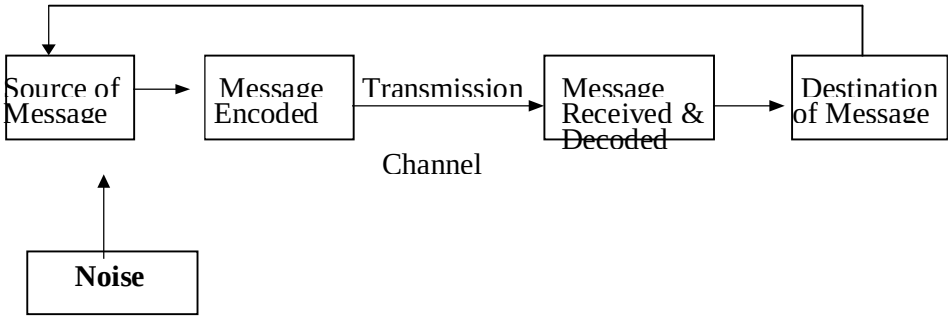

Figure 1.5 - The Mass Communication Model

As you can see, communication is a one-way process in line with earlier models developed by mass communicators. It has left out guidance provided by cognitive theory including perception and the senses. In the technology orientation, transmission channels are media not the senses and although it has included the concept of noise, this is identified only at the media equipment stage. The instructional communication model has rectified these lapses in figure 6 to bring it in line with classroom practice.

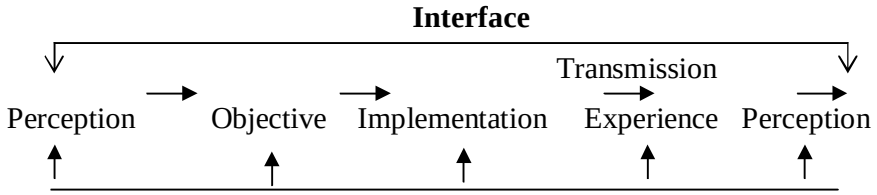

Figure 1.6 the Instructional Communication Model

For you as a teacher, the process of teaching starts from perception or a mental picture of what you are to teach and how you are to teach it. This leads to constructing objectives and implementing instruction using as many of the senses as possible of the learners. Their previous experience along with your new materials leads to perception and learning or gaining a new experience. This is what you try to find out at the end of a lesson.

Communication is dynamic and interactive rather than being one way as in the mass communication model. Noise or interference can occur at any of these stages. In more details the instructional communication approach as a system in figure 7 complements the model and shows the components and sub-components involved. The sub-components also show the different areas of possible noise.

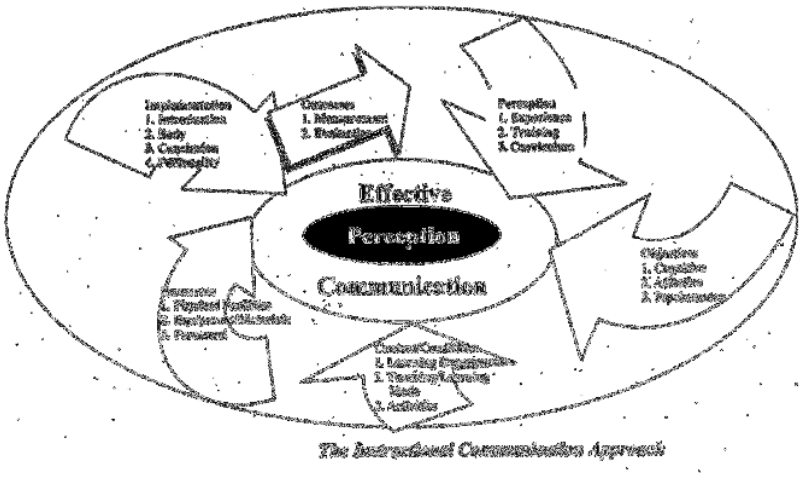

Figure 1.7 the Instructional Communication Approach

Self-Assessment Exercise

What additions have been made to make instructional communication fall in line with practice.

1.6 Summary

This Unit has discussed the historical progress in the area of instructional technology. It provides background information to the detailed discussion to be carried out in subsequent units. The unit shows the different and continuing efforts being made to ensure effectiveness in instruction and how this relates to you directly as a teacher.

1.7 References/Further Reading/Web Resources

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1.8 Possible Answers to SAEs

Answer Kit: 1.1 Practical, and educational skill learning, whereas liberal education is concerned with utility, cognitive, culture and arts learning for their own sake

Answer Kit: 1.2 Senses field of experience, teacher as source and students as destination, group, models of instruction, media.

Answer Kit: 1.3 Perception, two-way flow interactive, human senses, noise factor expanded. Experience or previous knowledge, implementation.

i. Discuss the different changes that have occurred in the development of instructional materials showing their relevance to you as a teacher.
ii. Briefly discuss three communication models and their implication to instructional process

UNIT 2 LEARNING THEORIES AND CLASSIFICATION OF LEARNING

Unit Structure

2.1 Introduction

In the continued attempt to improve on learning, psychologist have attempted to explain, through research and experimentation, how learning takes place. From the late 19th century, learning theories began to be developed, of which most of them based on experiments with animals. Today, learning theories could be categorized into three major groupings or schools of thought which are: the behaviourism, the cognitive and constructivism theories. The concern for accurate evaluation of learning also led to the classification of learning into a taxonomy of learning.

This unit is intended to provide you with such theoretical framework because it has been noted (Hilgard and Bower, 1975) that a teacher without a strong theoretical orientation inescapably makes little more than busybody assignments. The unit provides you insights into the nature of learning and the groupings in learning.

2.2 Learning Outcomes

By the end of this unit, you will be able to:

- Discuss how learning takes by applying the behaviourism and Cognitive theories;
- Analyze the three domains of learning

2.3 Learning Theories

2.3.1 Behaviourism Theories

The theories developed by this group of psychologists resulted mainly from experiments carried out on animals and principally rats. The experiments were carried out to find out whether given certain conditions, animals could learn or imbibe certain pattern of behaviour that would be repeated with minimum error over a period of time. This group of theories is also referred to as 'associative theories' because they were developed based on relationships; between a stimulus or an action and the response of the animal. Again this is the reason this group of theories is referred to as S→R or Stimulus →Response theorists.

The basic outlook of these group theories is that Physical world is governed by natural laws which operate inexorably and without change and that the basic principle of the universe is that of cause and effect. Learning involved four kinds of connections or associations which would aid and strengthen memory. These included; contiguity of ideas or ideas being put together (car and petrol), succession of ideas in a series, similarity of ideas and contract of ideas.

Self-Assessment Exercise

What is the basic outlook of the behaviourism school.

Some Behaviourism Psychologists - Thorndike is usually identified as the starting point of this group of theories although the concept of connections or associations is traced back to Aristotle. Thorndike identifies the bond and connection theory as an association between sense impressions and impulses to action or response. This is more commonly referred to as learning by trial and error or learning by selecting and connecting.

He believed that the most characteristic form of learning of both lower animals and man was by trial and error. But this learning could be strengthened by reward.

Pavlov introduced the concept of classical conditioning. In the S → R concept a conditional stimulus would result in a conditioned response the stimulus would result in a conditioned response, the stimulus having been conditioned by repetition. The dog that had been conditioned to salivate when a piece of meat was given to him when a bell was rung, would salivate at the ring of the bell. The bell which is a conditioned stimulus is associated with meat resulting in the conditional response of

salivation. But this conditioned response required repeated reinforcement in the form of the piece of meats.

Guthric introduced contiguous conditioning in his concern with the issue of recall. According to him as an indication of recall, an animal would favour the most recent act. However, he differed from other psychologists in believing that learning was a sudden process without the need for reward.

Hulls re-enforcement theory introduced the concepts of insight which to some extent was an element that did not conform with the basics behaviourism theory. Behaviourists believed that a science of Psychology must be based on a study of things that could be observed; physical stimuli, muscular movements and glandular secretions which they aroused. Insight did not fall with the conclusions that could be arrived at by observation because it involved some mental logic of doing something and waiting to see what happened first before the next action. This was an indication of some limitation in the basic outlook of behaviourism theory.

Skinner's operant conditioning addressed the organization of learning. The matter to be learnt needed to be broken down into small discrete steps and carefully organised into a logical sequence. What was to be learnt depended on what had happened in the past.

The behaviourism school or group of theories presented learning as being mechanical. Part of the criticism of their experiment was that in using animals' that created human conditions for them. In addition.interpretation of results was based on human standards. However, these theories have provided guidance in education particularly in the design of self-instructional packages such as the ones you are using, as well as in instructional task analysis.

Self-Assessment Exercise

Name the Psychologists and their contributions to behaviourism theory.

2.3.2 Cognitive Theories

Cognitive theories developed as a reaction to behaviourism theories. They challenged the mechanical approach to learning noting that learning was more complex. Cognitive theories are also referred to as Gestalt or Field theories. Field referred to a learning environment which included not just the present or physical, as with the behaviourist but also the past and the future. Learning involves individual interpretation

based on past experience. Present conditions and expected experience or use. This is in an organised pattern or an organized whole. There is emphasis on motivation because human beings are governed by purpose and there is purpose in what is learnt. Some of the proponent of cognitive theory included Kohler, Lewin and Tolman among others.

This group of theories is called cognitive in recognition of the central nature of the mind to learning. Major concepts that relate to the mind include the senses, perception and schema. The human being collects information through the senses and is passed to the mind to be processed. Processing involves already stored information from past interactions with the environment, from the present and with expectations for the future. These experiences would be physical, mental and psychological and collection of past experiences is said to be the chief competitor to learning. Those experiences fuse with present experiences to create new experiences which are learning or changed behaviour.

Learning is a mental process regardless of what is being learnt and teaching and learning is a process of mental communication. According to these theorist the differences in past experiences account to be a large extent how much each one of your students is able to learn as compared to each other.

Cognitive theories thus come in agreement with communication theory in the use of the senses. They have helped to confirm the complex nature of human learning and thereby promote research in learning. Rather than being a mechanical event, cognitive theorist have shown how complex teaching is and have confirmed your role as a teacher as that of a facilitators, one who creates the environment to make it possible for your student to learn.

2.3.3 Constructivism Theories

Constructive learning principles are an extension of cognitive learning principles. In constructivism, students actively work to shape their own learning experience while relying on previous knowledge. Students are encouraged to reflect on personal experiences in creating a construct or schema for understanding. In the middle school classroom, a constructivist approach to teaching asks students to predict what will happen next in a story. Activities that ask students to classify, analyze or create new understanding based on knowledge they already possess are constructivist in nature. Additionally, group projects and project-based learning allow students to understand key concepts.

Constructivism is described as a learning theory based on authentic and real-world situations. Students internalize and construct new knowledge based on past experiences. The constructivism theory is student-centredand encourages higher level processing skills to apply their working knowledge (Termos, 2012).The educational impact of constructivism is positive, in that instruction is based on students' prior knowledge, allowing them to make significant connections and solve complex problems.

In terms of process of learning, acquiring and constructing new knowledge, the student plays an active role. The student brings past experiences and prior knowledge to the classroom and uses them to actively connect with new ideas or problems that are presented. 'Knowing' is being able to internalize the material, connecting it with things you already know. Students use higher level processing skills, such as evaluating, analyzing and synthesis to apply newly constructed knowledge to problems or situations.

According to the theory of constructivism, students' responsibility is greater, as they discover how new knowledge connects with prior knowledge. The learner continuously asks questions and guides their own learning process. Students learn that there is not just one way to solve problems, but rather multiple ways of finding answers. The teacher's role is to anticipate and address students' misconceptions while presenting authentic questions and real-world problems or questions, but guides the students to make sense of how things work according to what their past experiences are and how it applies to the new knowledge they are constructing.

Typical classroom instruction, consistent with the constructivist learning theory may include:
Problem-based approach to teaching, hands-on activities, including the use of manipulative, experimentations, and simulations, constructivist theory allows teachers to be creative and innovative in teaching. Overall, the constructivist approach to teaching allows students actively be involved in decision-making problem-solving scenarios. Prior knowledge and past experiences help shape students' connections to new materials. Students use higher level processing skills and apply that knowledge to the world in which they live.

Constructivism as paradigm or world view posits that learning is an active, constructive process. The learner is an information constructor. People actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge, thus mental representations are subjective based on the premise that we all construct our own perspective of the world through individual experiences and schema. Constructivism focuses onpreparing the learner

to problem solving in ambiguous situations. Constructivists believe that learner construct their own reality or at least interpret it based on their perceptions of experiences. So an individual's knowledge is a function of one's prior experiences, mental structures, and beliefs that are used to interpret objects and events.

2.4 Kinds of Learning

A major problem with teaching and learning was identified as that of finding out if learning has taken place. Examiners who met in Boston, United States of America addressed this issue through the classification of learning. It was found that certain kinds of learning involved mainly mental activity while others involved attitudes and yet others involved mainly skeletal-muscular activity. Learning was therefore classified accordingly falling into three domains which were named cognitive, affective and psychomotor domain.

2.4.1 Cognitive Domain

In cognitive learning, what is to be learnt includes knowledge, theories, principles and other intellectual material. This involves continuous narration with or without illustrations with learners listening and perhaps taking notes. Six levels of behaviour have been identified in cognitive learning. They include:

(a) Knowledge - Simply recalling facts
(b) Comprehension - interpreting the information
(c) Application - applying it in given situations
(d) Analysis - breaking the information into parts
(e) Synthesis - bringing together its elements to form a new whole
(f) Evaluation - assessing and finding the outcome of input

The highest level of cognitive level is shown by the ability to use information collected in an original manner. The lowest is the ability to simply recall facts such as events, dates, names etc. In between is the ability to interpret information to use it and to be able to analyse or break it into parts.

For you as a teacher, this means that having provided information to your class in a lesson, you could be interested in simple recall, or interpretation to show that they understand the use of that information in another situation. Breaking information in this manner has helped with the writing of objectives leading to evaluation.

2.5.1 Affective Domain

The national Policy on Education has prescribed values and attitude to be taught in Nigerian schools. There is the area covered by this domain: how to teach and evaluate learning of feeling and attitude. Learning attitudes and feeling involves narration and practical learning. Five levels are recognised in this domain although the domain is difficult to classify since it deals with human feelings however the levels include:

(a) Receiving - attracting the learner's attention
(b) Responding - learners willing to reply or take action
(c) Valuing - committing himself to take an attitudinal position
(d) Organization - making adjustments or decisions from among several alternatives
(e) Characterization of value complex - integrating his beliefs ideas and attitude into a total philosophy

Learning in this domain has demarcated related steps which could be evaluated separately. From attracting the learner's attention or interest, his willingness to act, acceptance of an attitude and being, to make that attitude part of his philosophy are all parts, but assimilated to the highest desirable level.

2.5.2 Psychomotor Domain

The domain involves mainly skeletal-muscular learning leading to the acquisition of acceptable skill levels. In other words, is the individual being able not only to learn the skill but to be able to perform it at the speed, accuracy and finesse expected? The individual learns the skill at his own pace.

The grouping in this domain includes:

(a) Gross bodily movement-arms, shoulders, feet and legs
(b) Finely Coordinated movements - hand and fingers, hand and eye, hand and ear, eye and foot etc.
(c) Non-verbal communication - facial expression, gesture, bodily movements
(d) Speech behaviours - sound production and projection. sound. gesture coordination

The first two levels deal directly with general skill learning which involves gross bodily movement and where speed, accuracy and finesse are aspects of finely coordinated movements including muscular coordination. Non-verbal communication is found even in cognitive

learning with facial expressions betraying whether or not your learners are following your lesson.

The division of learning into domains has proved to be very useful in designing and developing instructional material. Instructional materials have to be capable of reflecting the particular kind of learning. However, the division does not mean strict demarcation since each instructional activity includes the three domains in varying degrees.

Self-Assessment Exercise

How has classification of learning been able to assist you in planning instruction?

2.6 Summary

This unit has provided you the basic theories of learning as an additional background material that is especially useful in media design. The kind of learning determines the kinds of learning materials required. But the unit has especially provided you with the theoretical background to learning as an area of central concern to you as a teacher.

2.7 References/Further Readings/Web Resources

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2.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer kit: 1.1 Physical world, natural laws, constant, changeless, universe.

Answer kit: 2.2 Thorndike- bonds and connectivism, Pavlov- conditioning, Guthric- sudden, no reward, Hull- insight, Skinner organization of learning.

Answer Kit: 2.3 Design objectives, assemble relevant content resources and more accurate evaluation.

In what ways do the learning theories and the classification of' learning assist your work as a teacher?

UNIT 3 COMMUNICATION THEORY AND MEDIA DESIGN

Unit Structure

3.1 Introduction

Communication theory complements learning theories in the attempt to provide you a strong theoretical orientation. As a basic consideration in the implementation of instruction communication theory deserves close attention. However, another important area of application of communication theory is in the design of instructional materials. Instructional materials should be able to assist in conveying meaning and have therefore to be based on how people relate or communicate. The unit therefore provides you with background information to the design of instructional materials from communication theory perspectives.

3.2 Learning Outcomes

By the end of this unit, you will be able to:

- Discuss the areas that have been of concern in research on media.
- Describe how environmental factors affect the use of media

3.3 Communication Theory

Communication theory shows that human beings collect information through their senses and that they can use more than one sense at a time. Intrapersonal communication is that process by which the sense collects information to keep the individual aware of his environment. When the collection of information includes exchange between two or more people, this is interpersonal communication; extension of information a population covering a wider geographic location it called mass communication. Nevertheless, the main concern here is the senses because in whichever instance the senses are useful to collect information.

Studies on Communication theory reveal several viewpoints such as:
Mechanistic view- this considers communication simply as 'a perfect transfer of message from the sender to the receiver'. This theory supports mere hearing and memorization of the message, does not expect the receiver to change any part of the information. It is the theory behind rote learning which to a large extent hinders creativity and innovations.

Psychological view considers communication as the act of sending a message to a receiver, and the feelings and thoughts of the receiver upon interpreting the message. This view supports the learning theories as learning styles and individual differences in instructional process particularly the influence of individual perception and previous experiences.

Social Constructionist (Symbolic Interactionist) considers communication as a product of the people, interacting, sharing and creating meaning. This group believes that how the sender says something determines what the message is. It also stands on the assumption that "truth" and "ideas" are constructed or invented through the social process of communication. Constructivist learning theories align with this view, promoting active participation in learner-centered instructional process.

Communication theory with regards to media design is concerned with how the different senses work and with how they collect information. Vision for instance is an aspect of light while hearing is that of sound waves. The issue then becomes how can knowledge about sight and light aid the use of` instructional media? What conditions promote good seeing or hearing for instance? These relates to media design which led to a wide range of research in this field.

3.4 Research in Design and the Basic Media

Research has guided the design and production of instructional material. It has helped to provide guidelines for the production of these media. This aspect that is more directly relevant to you as a teacher. As a teacher, you should be in a position to design and produce simple visual aids for use in your classroom.

3.4.1 Graphic Materials

Graphic materials are basic instructional materials that pass information summarized manner. Examples include drawing graphs charts,maps, posters, comics and cartoons, etc. Graphic materials can be used directly or they can be converted into slides, overhead transparencies or even used in film and television productions. A major concern is centrally placed within the medium. Proportions have therefore been specified for each of the formats that would ensure that information is properly placed to be visible.

Format Dimensions

Slides	4 x 5 (Standard)
	2 x 3 (Standard)
	I x 1(126 & 100 films)
4 x 4 (half frame)	
Films	4 x 3 (motion & super 8)
Filmstrips	3 x 4 (35mm single frame)
	2 x 3 (35mm double frame)
Overhead transparencies	4 x 5
Television	3 x 4

Figure 3.1 Dimensions of Media Formats

These dimensions show units of measurement vertically and horizontally. Among the design concerns of graphics include layout or the manner in which the information is distributed to cover the space. Another consideration is simplicity or the heed to present one idea at a time and to make sure that there is not too much information. Drawings are required to be bold, and simple and to contain only the key elements. Letters used should be easy to read and these could be in captions, titles or labels. When there are important elements to be emphasized, this could be done through size of letters.

Self-Assessment Exercise

Name any three concerns in graphic design.

3.4.2 Transparencies

Transparencies are also basic instructional materials since they can be converted from graphics or produced directly at the point of teaching using coloured felt pens. Production of a transparency starts with an idea, a problem or an identified need for a lesson. This idea, problem or need should be put down in writing. Design considerations are however the same as with graphic but each transparency should have an objective for it to be effective.

3.4.3 Television

Television or more accurately video recording has become a basic medium in the fact that it is easily accessible. Portable and battery operated equipment make the format available even in remote villages. It is used to present events and demonstration. As an instructional medium research has shown that it is most effective when the recording is made in the way the learner is to view the event or demonstration.

An important consideration is the choice of shots. There are three basic shots which include Long Shot (LS), Medium Shot (MS) and Close-Up (CU). These respectively show a general view such as the setting or subject for orientation show the subject by eliminating unnecessary background and concentrate on the part or section of the subject that is of interest. These shots provide a variety of views and enable you to show just what has learning benefits.

3.5 Environmental Factors in Media Use

The media, especially electronic media are very useful in supporting instruction but they are effective only under certain conditions or environment. When these conditions are absent, media use becomes a best a distraction. The major environmental factors include lighting, acoustics and thermal environment and seating. Research has provided information on how they should be controlled to enhance media use.

3.5.1 Lighting

In lighting, two properties of concern are quantity and quality. Research has provided light levels or quantities required for a wide range of learning activities. The concern generally is with the provision of sufficient lighting for viewing efficiency. Lighting is critical in instructional spaces generally and especially where media are used because most media provide the visual stimulus for identifying information. A simple chalkboard for instance needs twice the amount

of lighting at the teacher's position as compared to the learner's seats so that they can see properly. While some media such as films, slides and filmstrips requires low levels of light, others such as overhead transparencies and television can tolerate higher levels of light.

Lighting in instruction, whether of tasks or as uses with the media is designed to take advantage on the nature of the human eye. It has a core of only 2 degrees of 100 percent accuracy in vision at the point at which the eyes comes to a halt. The area of critical vision forms a cone of 30 degrees. In detecting informational cues, the eye is involuntarily drawn to bright objects or surfaces or areas that contrast with the general background. The concept of Brightness Contrast Ratio) BCR) is used to exploit these properties. The area to which attention is to be directed is well-lighted or is made to contrast with its background. How well an object is seeing is a factor of the amount of light that it reflects, and the principle by which white paint is used in classroom as a means of increasing light levels. Work tables such as in laboratories should be well lighted to increase visual efficiency.

Two types of lighting fixtures are used. These include fluorescent fixtures in the forms of tubes for general or orientation lighting. Thus, where there is need for general lighting, flourescent fixtures are used and incandescent fixtures used for higher level lighting. Where media are used, some of the lights could be switched off except where there are dinner fixtures to dim lights. In most instructional spaces, these fixtures are used in combination.

Self-Assessment Exercise

Explain why lighting is important in instruction.

3.5.2 Acoustics

The auditory is just as important as vision. Instructional materials are usually accompanied by an audio component as an audio track or the teacher's voice. The concern with acoustics is to ensure that the audio component is clear. For instance the way a teacher talks determines if he can be heard which includes volumes and articulation. Recorded audio's quality is determined by the quality of the original recording or copy and by the quality of equipment used for playback.

Acoustics is also concerned with how the environment is prepared. For instance, sound bounces off hard surfaces could result in echo. Sound absorption materials are used to reduce echo and therefore enhance the

quality of sound. In large areas, public address systems are used to amplify sound for listeners to be able to hear. For projection such as of films, it helps to place speakers directly below the projection screen.

3.5.3 Thermal

Heat and cold affect concentration in the learning environment. In Nigeria, heat is more of a problem although some season and parts of the country can get very cold. Heat therefore requires planned use of spaces in terms of avoiding over-crowding and the use of mechanical means such as fans and air-conditioners and the use of windows for cross-ventilation.

Particularly for media equipment and materials, heat affects the life of both of them. It affects the life of projector lamps and causes film damage and equipment malfunction.

3.5.4 Seating

Research has indicated the importance of seating to learning and has specified how seats should be constructed. For instance, they should have bucket seats and straight backs. Surfaces of writing tables need to be slanted at 45° for comfortable writing.

Generally, research has shown environment factors can be controlled and how concern for effective communication could be the catalyst for effective learning. You need to be familiar with the areas of research and how they can assist you in your teaching.

3.6 Summary

This unit provides you some level of -guidance on the general findings from research to do with media design. Subsequent units will deal on production of specific medium in more details.

3.7 References/Further Reading/Web Resources

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Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 3.1 Dimension if to be converted, layout, simplicity, contents, letters size,
emphasis and use of colour.

Answer Kit: 3.2 Light and vision, attention general lighting, task lighting, with
media. Visual efficiency, properties of the eye.

UNIT 4 TEACHING LEARNING MODES WITH MEDIA

Unit Structure

4.1 Introduction

The instructional systems or block box concept has indicated three modes of teaching and learning and has also indicated the media to support each of the teaching learning modes. This indicates the mass or large group, small group teaching mode and the individual or self-instruction mode. These modes of instruction have group sizes as their determining factors which also involve the different communication patterns involved. This unit is concerned with the characteristics of each of these teaching learning modes which will indicate their application in the teaching-learning activity. This also provides the different options that are available to you as a teacher especially because this is related to the kind of materials to be selected and used. The group approach is also related to the three domain of learning already discussed.

4.2 Learning Outcomes

By the end of this unit, you will be able to:

- Discuss the essential features of the three teaching-learning modes
- Describe their relatedness with domains and media

4.3 Teaching Learning Modes

The three teaching-learning modes indicating the different approaches to the implementation of instruction include lecture, teaching and individual instruction. They are designed to promote effectiveness of

communication based on group sizes. By understanding their essential features, you should be able to determine when to use them and how to use them effectively. This ultimately would facilitate effective learning in your students.

4.3.1 Learning/Tutorials

The lecture/tutorial mode of instruction is used in large group instruction and applies mainly in higher education. It is used for the purpose of transmitting large volume of information within the lecture period. The group could be made up of different programmes which share a common course.

Since the mode is designed to give as much information as possible, it does not tolerate interference. Thus, it has to be fast paced impersonal and to discourage questioning and similar forms of interruption, the teacher talks down to the listeners and assumes a higher and more authoritative position. The lecture deals with theoretical material and is therefore cognitive by orientation. Electronic or mass data presentation media are used to add more effect to the lecture method. These include public address system; overhead, slide and video projection. The media used are to amplify both sound and visuals in view of the large number of students involved.

The tutorial becomes the quality control component where the large group is broken down into small groups for in-depth discussion with individual attention paid to students. Individual opinions are expressed and critical analysis is made of the lecture usually with assistance from a reading list for individual study. The tutorial is therefore an integral part of the lecture mode of instruction.

4.3.2 Teaching

Teaching is a genetic name for all those involved in formally assisting others to learn. However, teaching is also a mode of instruction.

The essential features of the teaching mode relate to its concern for achieving both quantity and quality or rather balancing of quantity and quality within the lesson. Teaching is concerned with achieving a proof of learning, at the end of the lesson. Teaching as a mode of instruction is use in small or medium group instruction usually in primary and secondary education. It has to be interactive for change of behaviour to occur.

Teaching combines both giving out of information and monitoring how it is received, thus the reason why it is interactive. It is concerned not so

much with what you give as information but with what you students receive or are able to absorb. Activities therefore assume particular importance. Teaching has therefore to be highly structured interactive and intimate and requires careful preparation and delivery on you part as a teacher.

In terms of the media, this mode of instruction requires basic media such as graphics, photographs and transparencies. However, electronic media can be used to bring in live experiences, procedures and processes that would otherwise not be possible. The main instructional medium for the teaching mode remains the chalkboard.

4.4 Individual/Self-instruction

This is the mode of instruction in which the students interacts with the material to be learnt without physical presence of a teacher. This could be called self-directed learning, also referred to as autodidactism (a contemplative, absorbing process of 'learning on your own' or 'by yourself', or as 'a self-teacher'). Nevertheless, the fact remains that such autodidacts spend a great deal of time reviewing the resources of libraries and educational websites developed by someone – *an indirect teacher*.The materials could be in packages of print materials such as those you are using or through recorded audio and video materials. Behaviourismtheories have helped a great deal in the design of instructional packages for this mode of instruction.

Individual/Self instruction as a mode is also referred to as modular instruction because the materials are presented in small digestible tasks or modules. In your case, the small digestible tasks are called units. The modular approach presents materials in small bits which are absorbed on their own. Imbedded in the presentation are means for the student to monitor his progress. The approach allows him to read at his own pace and to choose study times that are convenient to him.

Presentation of material in small digestible unit makes it easier for the student to learn especially because non-essential material is eliminated. However, this mode of learning is expensive as it requires extensive preparation and the provision of all the materials required for learning which could be in print form, audio tapes or video tapes. It therefore has great demands on media since the individual has to work on his own. Some of the materials could require practical or skill learning and the learner has to practice on his own to be able to attain the required skill level.

Self-Assessment Exercise

What are the major features of the three teaching-learning modes?

4.5 Interrelationships

Many factors come into play in the teaching-learning mode as shown in figure 4.1. These include the classification of learning into domains and its direct bearing on the objectives, communication dynamics in terms of group sizes and the related media.

The lecture/tutorial falls within the cognitive domain of learning since it is concerned with theoretical material and volume of information. Objectives in this mode of instruction are in the cognitive domain. These can be constructed in line with the levels of the cognitive learning. The media to be used are for amplification of both sound and visual, thus the use of projection equipment and public address system. This is to enable students to both see and hear.

The teaching mode involves small/medium group instruction. Teaching combines both information and practical learning. Objectives will depend on whether the material is theoretical or practical. The teaching mode because of its interactive, is the best for teaching values, attitudes and feelings or materials in the affective domain. Media use is optional in terms of electronic media but teaching requires the use of basic instructional media especially the chalkboard.

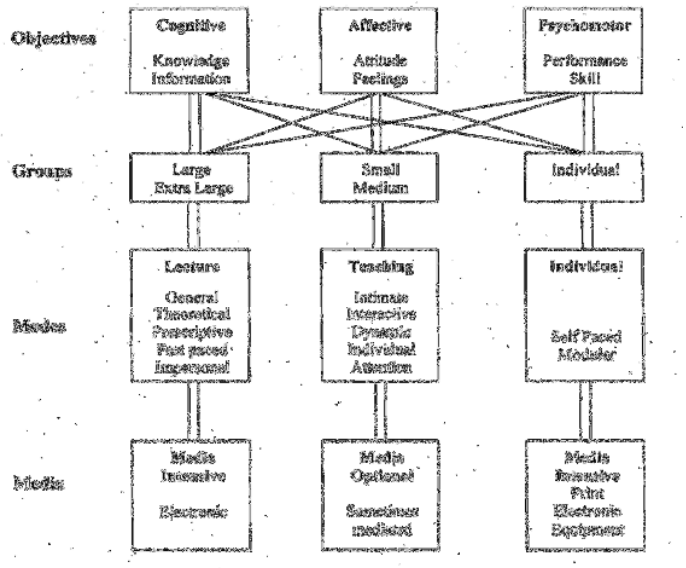

Figure 4.1 Interrelationships in Instruction

Individual instruction falls within the psychomotor domain and therefore requires that objectives are drawn for performance and skill learning. Individual mode of instruction allows the student to go at his own pace. It requires intensive use of media such as print, electronic or equipment such as in a laboratory.

4.6 Summary

The unit has concentrated in providing you guidance on the modes of instruction available for use. Considering the class you teach, you already have seen the suitable mode for your use. But you should also be conscious of the differences in the types of materials to be taught as to whether it is mainly informational or mainly practical.

4.7 References/Further Reading/Web Resources

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4.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 4.1 Lecture - must have tutorial, part-paced, theoretical, large volume of talking, no interaction, and large group, impersonal.

Teaching - Small/medium group interaction, intimate, individual attention, concern for quality of learning

Individual - Individual study, modular, self-paced. Self-monitoring. Small-units, easier, expensive.

UNIT 5 SIGNIFICANCE AND CLASSIFICATION OF INSTRUCTIONAL MEDIA

Unit Structure

5.1 Introduction

The discussion in all the preceding units has shown that there are two sides to instruction of what the Schramm model referred to as field of experience. On the one side is the teacher while on the other is the student/learner. Since they cannot communicate directly through their brains, there has to be a connecting medium.

The media represent the different forms in which information can be presented to be picked up by the senses. This unit therefore presents the potentials of the instructional resources and their various classification modes that you can use in getting information to your students. You can get information to your students through hearing, sighting, smelling, tasting and feelings such as of texture or heat and cold.

5.2 Learning Outcomes

By the conclusion of this unit, you should be able to:

a. enumerate the potentials of instructional materials in teaching-learning process
b. name the different media groupings and their features

5.3 Significance of Educational Media

The potentials of resource materials in instructional process cannot be over-emphasized as they are the heart of instruction, serving as channels of communication, vehicles carrying messages (subject-matter/content) to ensure the lesson objectives are achieved. These materials need not be digital or expensive to be useful; small can indeed be beautiful, and inexpensive can be effective. In whatever form, resource materials are very useful in -

- making learning more meaningful and permanent
- stimulating and sustaining learners' interest to engage in the work of learning
- enhancing active participation of learners in the instructional process
- supplying concrete basis for conceptual thinking and reducing meaningless word responses of learners as a result of poor understanding of abstract information
- developing continuity of thoughts and stimulating transfer of learning
- increasing teachers' efficiency by reducing excess verbalism
- promoting pace learning to enable every member of the class to cope
- providing experiences not easily obtained through other means and contributing to the effeiciency, depth and breadth of the topic
- enhancing growth of meaning and vocabulary development and extending creative-ability of both the teacher and learners in terms of self-produced learning materials
- promoting the acquisition of interpersonal skills as teachers and learners work cooperatively in building up a large collection of learning materials.
- enriching teaching and learning environment and providing suitably challenging learning experiences.

5.4 Classification Models of instructional materials

Learning resources are as old as education, the list is as dynamic as the society, and as endless as innovation. Attempts to categorize instructional materials have yielded varieties of classification models; some common formats include:

a. *Print and Non-Print Materials*: print materials are such materials that are produced through any form of printing particular on paper such as newspaper, journals, magazines, graphic materials. Non-print materials are all other instructional materials that are not produced through printing process which includes all non-paper materials, specimens, models, etc.

b. *Visuals, Audio, and Audio-Visual Materials:* This classification is based on sense organ stimulated by the material. Therefore, visuals appeal to eye (sense of sight), audio materials appeal to the ear (sense of hearing), while audio-visuals simultaneously appeal to both eye and ear – seeing and hearing all at the same time. Examples of each category are shown in the table below:

Visual materials	Audio materials	Audio-visual materials
Books	**Radio**	**Television**
Charts	**Microphone**	**Video**
Graphs	**Cassette /CD players**	**Cine films**
Pictures	**Telephones**	**Computers**

c. *Projected and Non-Projected Media:*Materials that require any form of projector are called projected materials which includes all films and transparencies. Other instructional materials that can be used without projection are non-projected media such as models, real things, books etc.

d. *Software and Hardware Materials:* This is a complimentary model where each one needs the other to function properly. Therefore, software carry information/message in form of CD, films, tape/cassette, while the hardware is the machine/electric gadgets such as projectors, television box, video machine, disc player, and computer hardware.

e. *High-Tech and Low-Tech:* High-technology materials, sometimes referred to as Big/New Media, are the expensive sophisticated, fragile media. The low technology materials also called small media are the cheap, common, easy to use, durable materials such as the chalkboard, graphic materials, etc.

5.4.1 Print Media

This group of media includes the information carrying devices in which information is printed on paper or fabric, and mass produced. The group includes books, journals and other periodicals, course materials, pamphlets and booklets as separate print formats. These cover a wide range of subjects and are used for different purposes. Books can be used as textbooks or books required to be used by students or reference books to be located at a point and used by all to whom they have relevance.

Print materials have been the mainstay of instruction because they are relatively cheap, easily accessible and can be used for a long time. This also means that they can easily get out-of-date. Textbooks specifically provide a convenient way to access information by students. Students' control that use since they can usually skip areas, but they should serve mainly as complementary materials to you as teacher that are not of interest. Periodicals generally do not but have a long shelf life since new editions are produced but they serve as reference material for previously published articles.

The library is the depository of print media and provides opportunities for you as a teacher to broaden your scope and prepare you for your lessons. It also serves to broaden the minds of students and to teach them skill of self-study. It also helps them to develop interest in a variety of area even outside of their courses. As a teacher, you should encourage your students to use this group of media by giving them assignments and the use of reading lists.

5.4.2 Projected Media

This refers to all the media format which require one form of projector or the other for presenting information. Information here is not restricted to the aural but includes visual such as diagrams, charts, maps etc. Formats in this group are generally categorized as still projected media (e.g. slides microforms, filmstrips, and transparencies) and motion picture e.g. cine/movie films and video. The information is printed on transparent materials and light beams using mirrors project and amplify the information on to a screen. Projected media equipment also include projection screens although as a teacher, you could improvise by using a suitable wall.

Specifically, projected materials are characterized as follows -

- Use of projectors and other accompanying materials,
- Require electric power to function
- Require some sort of screen to display the visual image
- Visuals are usually magnified
- Have relatively very high fidelity
- Can be combined with other types of teaching materials and methods
- Are relatively effective in communicating factual information and certain skills.

Projected media are usually suitable for large group and individual instruction but can be used in small groups to enrich teaching. In using projected media, attention must be paid to creating a suitable environment. Of concern are the environmental conditions such as lighting. However, of concern is also the seating distance that would allow comfortable viewing. These are expresses as minimum and maximum viewing distances. This refers to the distance of the front seats from the projection screen and the distance from the back seats respectively. Although research has suggested the distances for all the projected media and there is a difference between film and television for example, the concern is with comfortable viewing by the students. Remember that sitting too close to the screen such as with television could have harmful effects on the eyes.

5.4.3 Non-projected Media

These media are usually grouped together under print media but there are some differences. Non-projected media do not have to be in printed form. They include graphics, mass globes and still photographs. Graphic covers a wide range of items including graphs, charts, posters, drawings and cartoons. There is therefore variety in non-projected media.

They form the basic instructional materials to support instruction and present an area of creative activity by both the teacher and students. The activity can include the construction of graphic materials in projects assigned to individuals or groups. As a teacher, you need to make efforts to produce some of these materials for your use.

Self-Assessment Exercise

What do the print and projected media have in common with non-projected media?

5.4.4 Audio Materials

This involve the use of audio or sound reproduction which could range from the voice of the teacher, the narrator to even the sound made by a bird or animal, used for instructional purposes. Audio materials carry information of different kinds. They could carry a narration that explains a concept or principle or that simply provides a body of subject information. Audio materials provide this information through the use of sound waves which are picked up by ear. The formats of their presentation include sound track accompanying a film for instance, red-to-red, cassette and CD recording. They can also be sourced through radio broadcasts.

Apart from assisting the teacher, audio materials are important to the development of listening skill in students. Hearing is one thins and listening quite another. Hearing is involuntary whereas listening involves paying careful attention and developing the ability to choose sounds and to discriminate sounds. It is listening skills that enables your students to detect areas of emphases in you presentations. You need to assist your students to develop listening skills.

5.4.5 Audio-Visuals - Television/Video

The medium is made up of your main format or ways of delivery. These broadcast television for which television stations are set up to beam television programme live to viewers. A television broadcast can be recorded on video tape to be watched later.

Cable television refers to television format by which programmes are distributed by cable to subscribers. Programmes are now distributed by microwaves. The format was originally used to reach areas to which regular television could not be accessed because of natural barriers. It has a distribution point to which are connected and provides a variety of programmes. This arrangement represents a local arrangement.

Satellites television is a global version of cable television. There is a service provider to whom subscriptions are paid. In return the subscriber is applied with a satellite dish with which he can by the service provider. Unlike cables television which has limited channels the subscribers the satellites system has choices and varieties of programmes even beyond television to include musical programmes and specialisedprogrammes. Channels are now dedicated to specific programmes such as the poplar discovery channel.

Self-Assessment Exercise 2

Name at least three televisions, one located cable. one satellite system and one dedicated channel

5.5 Realia (Real Things)

Realia refers to real objects that can be used in instruction. It is usually because the real thing, scene etc. is not readily available that there are substitutes through film, slides and video recordings. The use of real things where this is possible is the list Real objects make materials being taught to come alive since some of them can be seen including their natural habits. A school visit or excursion for this purpose, provides additional learning experiences.

There are three groupings of real thins or objects which cover an extensive or inexhaustible list of natural life including plants and animals - insects, birds, ants and their habitations. Also included are their creations. Some of the most spectacular creations of habitats include those of ants and termites. The other groupings include unmodified real things, modified real things and specimens.

5.5.1 Unmodified Real Things

These are objects as they would be found in nature except perhaps that they are removed from their natural habitats and placed in artificial ones such as at a zoo. The chick, frog, lizard or plant that is brought into the classroom is an unmodified real thing. In the same manner a Nigerian flag with the real colour and dimensions and an old gramophone player with long play break records to show developments in musical technology are unmodified real things. In trade fair, car engines are mounted in such a way that they can run as they would in a car, this is an unmodified real thing.

5.5.2 Modified Real Things

These could be natural things as plants and flower made out of plastic which show the dimensions and colour of the real thing. In biology for instance, human skeletons made out of plastic or other synthetic materials are modified real things. Components of an object or of objects could be made in this manner to forcefully show differences. The human skeleton can be put side by side with that of a baboon to show their differences. Modified real things also include cutting away or removing sections to show hidden parts.

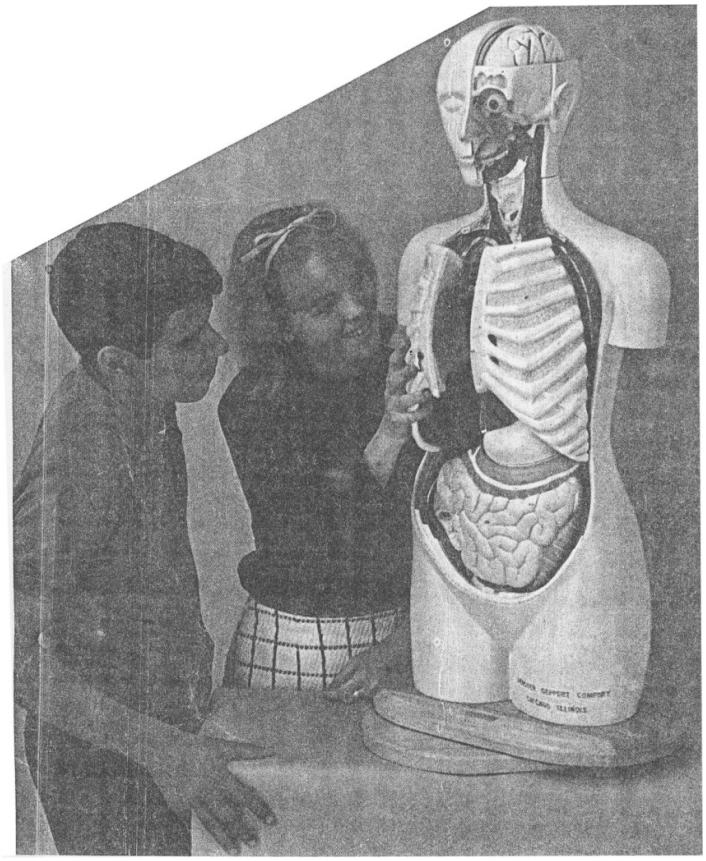


Figure 6.1 Human Skeleton showing inner organs

5. 5.3 Specimens

This is usually refers to an item or part of it that is typically of others in the same group. A butterfly, a fly or a rat are all specimens of butterflies flies and rats respectively. Specimens are usually packaged in containers sometimes with preservatives. They can also sometimes be packaged within glass. For instance, specimens could be used to show the life-cycle of living things or recreate history or culture with respect to common objects.

5.5.4 Importance of Real Things in Instruction

Generally, the uses of real things allow students to:

a) See, hear, taste, smell and think an object or substance
b) See the natural colour
c) Observe proportions, parts or detailed
d) Observe the natural habits or environment
e) Become a participant or have personal involvement

Self-Assessment Exercise 3

Explain what real tings are and why they are important to instruction.

5.6 Summary

This unit has provided a definition and potentials of instructional media by showing the different types and formats. This however is an introduction to the educational media. Subsequent units will treat them in more details.

5.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition). Port Harcourt, Pearl Publishers.

Achuonye, K. A. (2007). Microteaching: a practice on teaching skills (2ndedt.) Port Harcourt, Pearl Publishers

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

5.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 5.1 Non-projected media form the basic materials for illustrations in print
and projected media (graphs, charts, drawing, cartoons, captions, titles etc)

Answer Kit: 5.2 NTA, DITV, PRTV etc; ABG; CNN and SKY Sport

Answer Kit: 5.3 Kinds of real things, general use of real things in instruction.

MODULE 2

UNIT 1 PRINT MATERIALS PRODUCTION

Units Structure

1.1 Introduction

Print materials go through similar stages of production and although modern technology has transformed some of the stages, words liked typesetting are still being used. Computer technology has taken over most of the functions involved in printing.

Print materials which have been named in the previous unit, all start with an idea, a problem or an issue to be addressed. Most often, this is probably triggered off by something someone else had done or failed to do. With the book format, an individual or group of individuals have something to say which they think others should know or might be interested in knowing. In all cases, print materials serve to exhibit what is in a writer's mind.

1.2 Learning Outcomes

By the end of this unit, you will be able to:

- Describe the basic steps in book and journal production
- Analyze the ISBN and ISSN of five books and two journals.

1.3 Concept of Printing

Printing refers to both the industry as well as the action of putting down the words on paper or what is now more accurately referred to as making impressions. The machines used to make the impressions are therefore called printing machines. Printing machines have achieved a very high level of sophistication to the extent of eliminating human labour in some of the processes. The materials which go through the process of printing which also connote mass production include books, journals or periodicals generally, posters, fliers, leaflets and similar materials.

1.3.1 Book Production

As earlier stated, book production has gone through a revolutionary process. Books are available on virtually any subject and are directed at a wide range of readers. Some books are academic in nature, dealing with serious subject matter while some are mainly for entertainment. Some are used as reference material where the reader can find facts on any subject.

Writing books in the past had been a laborious exercise. Writing was done by hand and additional copies were copied by hand. The invention of the printing press was a landmark that was revolutionary to knowledge. It brought about the process of mass production of books making them more easily available and cheap.

Writing a book usually starts with an idea which could lead to the collecting of information through literature search or carrying out an experiment or field trial. This enables the writer or author to work out details of content and to write a manuscript. The manuscript goes into a process of cleaning until the author has a final draft. Having satisfied himself of the contents of the manuscripts including diagrams, tables, figures etc, it is then given out for typesetting.

Typesetting is done by decisions on lay-out, font type and size, titles and subtitles. The processes also include drawing up a table of content and an index, diagrams, illustrations and tables which can be constructed with the text otherwise they are produced separately and posted at the appropriate places. When this work is completed, it is printed out in a clean copy and the manuscript is now said to be camera-ready. It is then photographed and made into plates which are then run on the printing machine in the process of running impression.

Publishers are organizations registered by the National Library of Nigeria to carry out this whole process although in most cases they give

out parts of the process to others. For instance, a publisher may not have a printing press and therefore gives out the making of impressions to the owner of a printing press. Each of the books published is allocated a number called the International Standard Book Number (ISBN). The number is to be found at the copy right page.

There are processes involved in making book covers which include choice pictorial concept and colour separation if the covers are in colour. After running the impressions and making the book cover, the book is then collated and bound through a process called stitching. The book is then trimmed to result in a neat looking ready for the market.

The stage of running impressions is critical since an otherwise well-written book could end up with unclear type, blobs of ink, wobbling lines and similar blemishes.

Publishers offer different terms for their work. The well-established publishers would usually offer to publish a book after assessment, on a royalty basis. They pay to the author a certain percentage of the price of each book sold and this also means that they take care of marketing.

Self-Assessment Exercise 1

Summarize the steps in book production.

1.3.2 Journal Production

Journal production follows a similar process with book production. The main difference is in their format. While a book is usually written by one person or a few people, a journal is a collection of articles written by different people. The group in which the journal falls is called periodicals because they are produced on a periodic basis, annually, bi-annually, quarterly etc. A journal that is published every three months or with four copies a year is also called a quarterly.

A journal is directed at specific group readers and could contain materials on different subjects or items. Journals and periodicals generally could contain light reading materials. A journal also usually has a large production crew that includes an editorial board, writers and different types of editors including a production editor.

Journals also have publishers who could be individuals or organizations who have be registered with the National Library of Nigeria. A publisher of a journal when registered is given an identification called

the International Standard Serial Number (ISSN) which is easily recognizable visually and is carried at the topic of the front cover.

A journal is a reference material because in carrying articles on different subjects or themes, a reader probably selects articles that are of interest or relevance. It is useful in carrying information that is usually up-to-date but readers can usually refer to back issues to read articles that become of interest. Schools need to subscribe to journals that are of interest to self and students.

1.4 Posters

This is a general name given to materials which are usually printed on cardboard or other extra-large sheets of paper. They are usually to be displayed and cardboard makes them more durable.

A poster could carry a picture, graph, chart or similar instructional material. It could carry a caption instructions and similar verbal material.

The process of production of posters is similar to the other print forms including concepts, typesetting, plate making and running impressions. When prepared in colour the process separation is also done. The poster is usually produced from graphic materials.

In the classroom situation, posters do not only carry useful information, they beautify a classroom preventing it from looking bare and serve as reference materials or reminders to students. This is an area in which you as a teacher can encourage creativity in your students. Posters can be designed and made by students.

1.5 Fliers and Leaflets

These are small printed materials usually folded by hand and distributed free of charge. They are usually printed to be folded into four, six or more pages. Fliers and leaflets go through the same production process but they are used to advertise an event or article of sale and other services. School use fliers and leaflets to announce school activities such as speech. They do not carry identification numbers but would carry the name of the person or organization distributing them. Having done the write-up or the artwork, printers usually have the facilities for carrying through the whole process.

1.6 Summary

This unit has very briefly discussed the process involved in the production of different types of print materials. It goes through the same process of preparation of manuscripts or artwork, getting them camera ready and then filmed to make plates. Impressions are then run in what is also called printing. It has shown that you, as teacher can write a book and can an article to a journal.

1.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

1.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 6.1 An idea, information collection. writing_ typesetting. camera ready copy, plate-making, running impression, collating, binding. Trimming.

UNIT 2 GRAPHICS AND TRANSPARENCIES PRODUCTION

Unit Structure

2.1 Introduction

Graphics are basic to the production of other instructional media materials. They can be used directly as posters in the form of graphs, charts, diagrams, maps etc in a classroom and can therefore satisfy your basic needs in small group instruction. Transparency production is first the short step of putting graphics materials on transparencies. Graphics and transparencies are therefore more closely related and are considered basic instructional materials.

This unit therefore discusses the two types of media together since understanding the production of graphics leads to the production of transparencies for overhead projection. The unit is intended to provide you the information for you to be able to produce some of these materials yourself.

2.2 Learning Outcomes

By the end of this unit, you will be able to:

- Describe the different types of graphic materials and produce two of them

- Differentiate between direct and indirect ways of making transparencies

2.3 Types of Graphic Material

According to Brown, Lewis and Harderoad (1977), graphic materials serve as a universe help to readers generally and to you as a teacher specifically to convey huge amount of information. At a glance, for instance, a graph or chart or a cartoon will provide information that would take many pages to convey. Graphics are therefore of immense value to you as a teacher because they save time for yourself and your students. However you have to take time to design them to convey the exact information you want to convey.

The types of graphics of interest include; graphs, charts, diagrams, cartoon and signs. Posters are sometimes the vehicles for carrying graphics messages. These are materials you could produce by yourself or easily source for from books, newspapers and journals. Graphic materials also include maps and globes which could be more difficult to produce.

Self-Assessment Exercise 1

Name the different types of graphics materials.

2.3.1 Graph

Various categories of graphs include: line graph, bar graph, pie/circle graph, and pictorial graph.

2.3.1.1Line Graph

A line graph is made up of two axes placed at right angles to show a vertical and a horizontal measure. Each measure uses a scale which could be that of amount, height, weight, time, period etc. The line graph which is a line drawn from the vertical scale on the left, is used to show relationships through the movement of that line. The line graph in figure 7.1 shows a relationship of production in a factory over time.

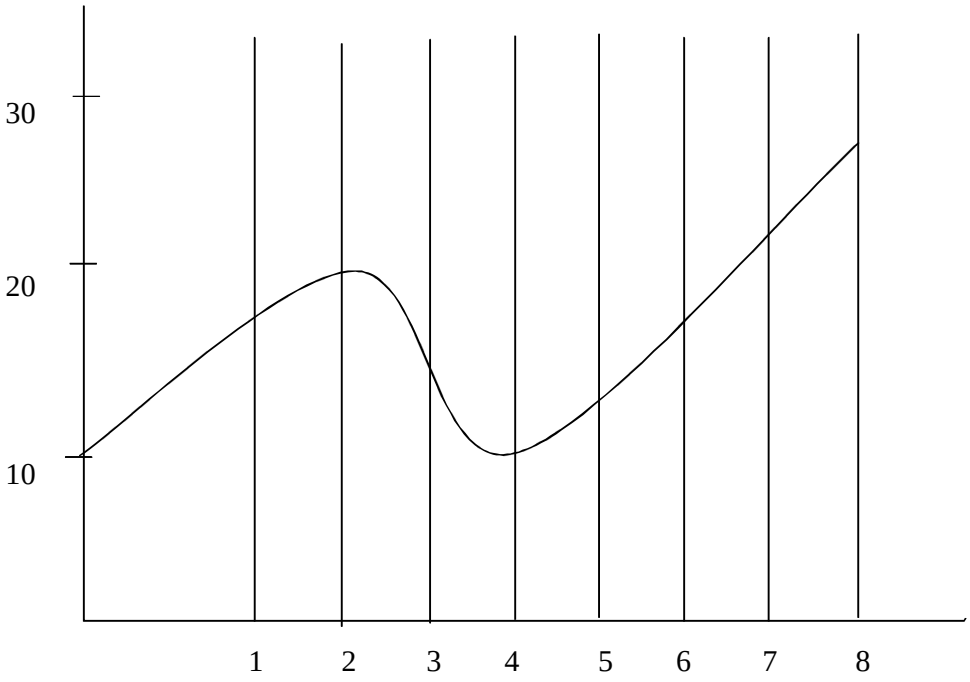


Figure 7.1 Production January to February 2002 weeks in thousands (000)

The production level of ten tons rose within two weeks to twenty tons but dropped to fifteen tons by the end of January. From then it rose steadily to twenty tons by the end of February. This basic information has its implication for management production efficiency, marketing etc.

The line graph could show the performance of different specific items over the same period of time with each item represented by a line.

Items

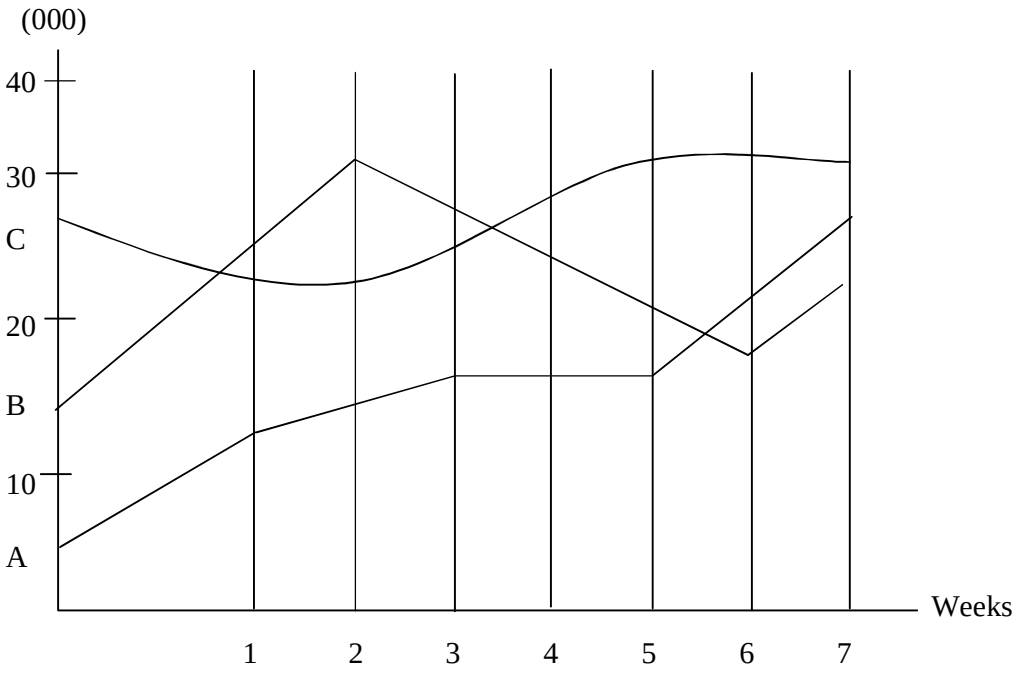


Figure 7.2- Line graph

The different items in figure 7.2 production levels in thousands show mixed fortunes with one items rising almost consistently and with only other showing decline by the end of February after a 4-week period of steady rise in production. One item had dropped to the same production level of 150,000 items with which the comparison started.

Based on these two axes and as a means of showing progress, the line graph is a very useful instrument over a comparing performance for students in your class over a period of time. Your students can use line graphs by themselves too.

2.3.1.2 Bar Graph/Chart

Instead of using a line, the bar graph conveys the same information using bar or a narrow rectangular shape. However, a bar graph shows comparison between two or more items. The advantage of the bar graph especially when colour is used is that it is less visually taxing. The information is clearer and easier to read.

Taking the line graph in figure 7.2 and based on the peaks reached that information can be presented as in figure 7.3. But as you can see, the advantage of a line graph is that it shows details of progress where the bar graph show a static situation, say at the end of the period.

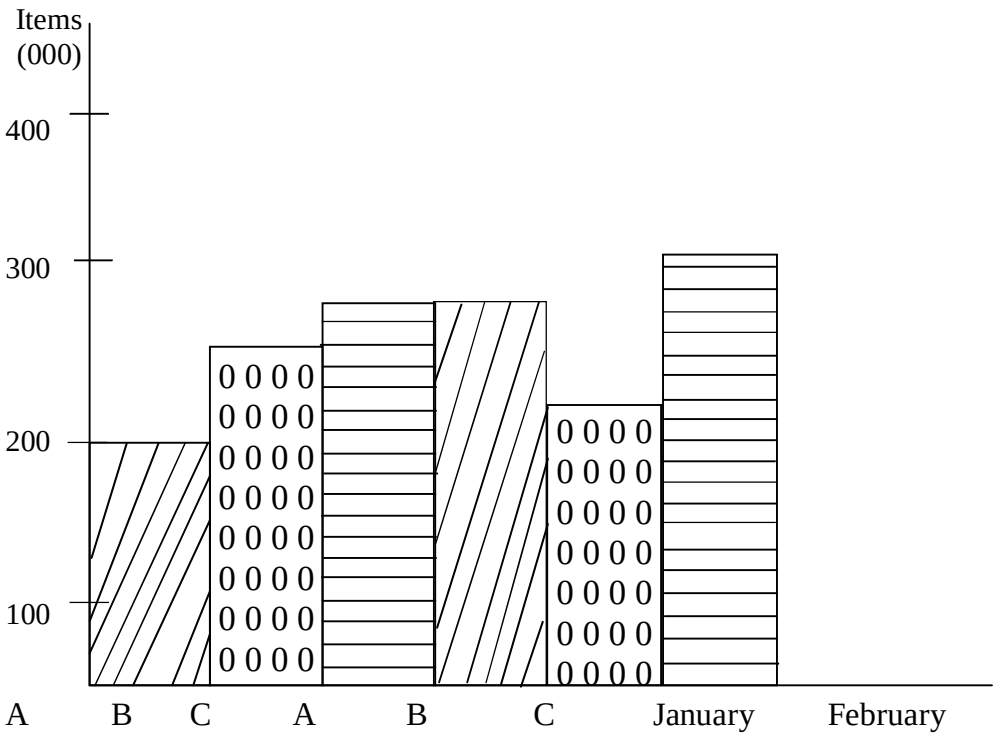


Figure 7.3 - Bar Chart

Production of each item can be compared with the other items within each month or within itself over the two months. Again items A and C appreciated at the end of the whole period while item B depreciated. Item A rose from 50,000 to 200,000 items by the end of January and again rose to 250,000 by the end of February as an example.

2.3.1.3 Pie or Circle Graph/Chart

This type of graph is used to show relationships in terms of the sharing of a common item among individuals or graphs. The whole is considered to be 100 percent and sharing is on a percentage basis. The growth shows at a glance who has the largest share which could be assets or even responsibilities.

If for instance the revenue generated by a school is made up of 50 percent school fees, 40 percent PTA contributions and 10 percent donations, then pie is divided up in these proportions as in figure 7.4.

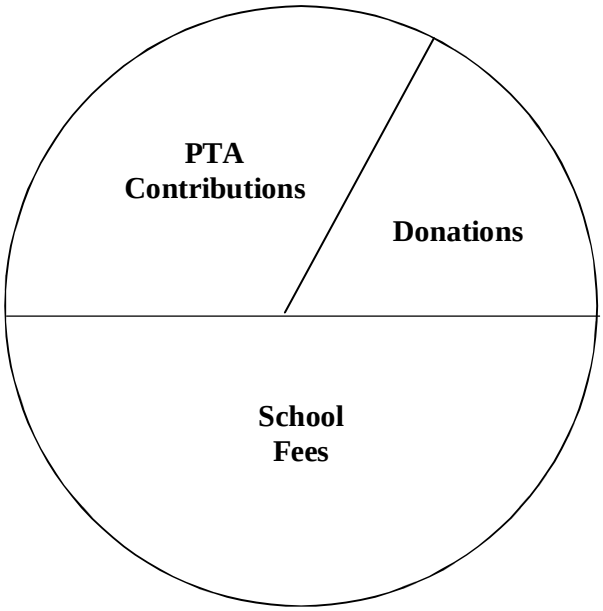


Figure 7.4 - Revenue generated by our school

Visually, the relationship of revenue are very clear and ordinarily figures 50, 40, 10 would not have brought out this clarity.

Self-Assessment Exercise 2

What is the basic characteristics of charts?

2.3.2 Charts

There are different types of charts which are also used for different purposes. Like graphs are also a shorthand that convey, huge amounts of information. They include flow charts which show the flow of a process, responsibilities or work relationship or genealogy which is also referred to as a tree chart. A sequence chart shows the sequence or period of time within which event occurred.

2.3.2.1 Sequence Chart

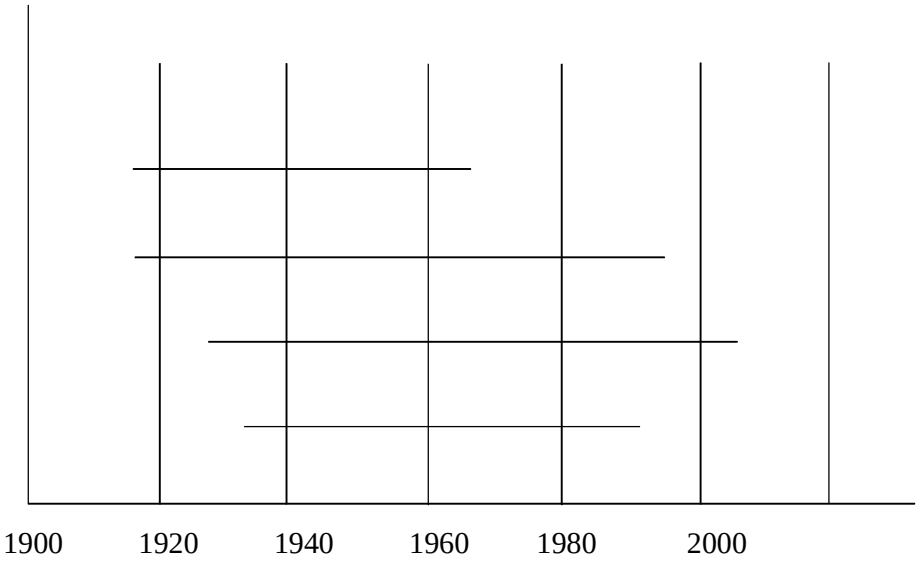


Figure 7.5 Nigerian Leaders

In the chart shows comparatively the life spans of some Nigerian leaders each represented by a line. The line shows when each leader was born and when he died. The chart shows which of the leaders were contemporaries by birth, which of them lived long and those who had relatively short life-spans.

2.3.2.2 Flow Chart

This type of chart is used to show the flow of an activity in terms of its sequence. At the flow chart when time frame for each event becomes a work plan. The chart can take many forms but it must show the direction of flow. As demonstrated in figure below, by following the arrows, this shows the subsequent steps for changing tyre, follow until the arrow stops.

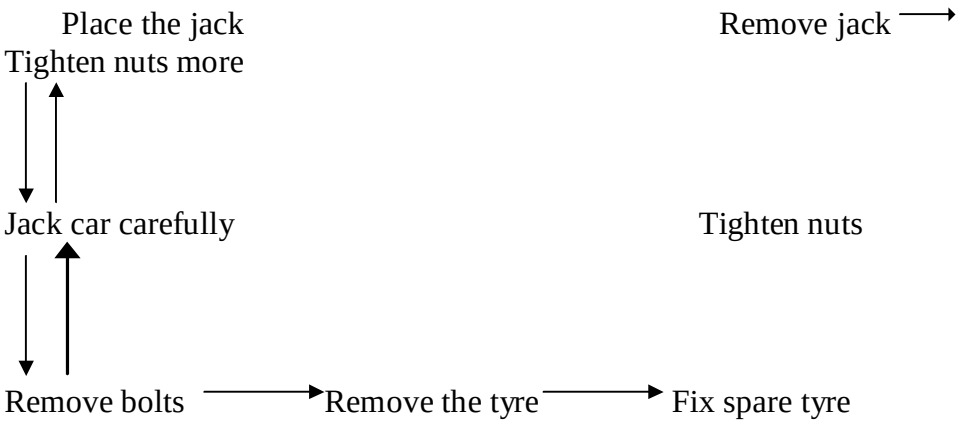


Figure 7.6 changing a tyre

The chart can show the steps in the flow on one cardboard paper. When, however, in a flow or process the steps are to be shown separately and in more detail the flipchart is used. In the above chart, you could show in diagrams each of these different steps so that they can be seen visually. They will then be drawn on separate cardboards and each cardboard is flipped over when you have finished with it to reveal the next cardboard and the next step.

2.3.3 Flash Cards/Flashcards

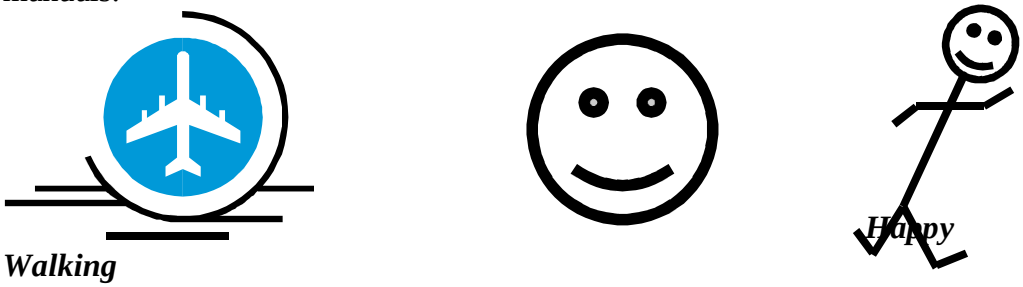
These are simple, versatile cards bearing information on both sides which are intended to aid memorization. They are visual materials commonly consisting of words, pictures, diagrams, symbols or other graphic representations, and sometimes, used alone or on flannel boards during an instructional process. Flash cards are very useful particularly in nursery classes in helping learners –

- engage in active recall
- utilize their metagonitive faculties
- participate in confidence-based repetition

Flashcards can be purchased as separate packs or accompanying part of a book. Teachers can also easily make flashcards based on the content and objective at hand. Furthermore, learners can engage in a guided production of flashcards which could be pinned to a flannel board or larger card to form a set.

2.3.4 Symbols

Graphics generally are shorthand and this is even more so with the use of symbols used in graphic communications. However, all the symbols used are those accept for general use in the society. Most of the symbols are use internationally such as to indicate a hospital or as used in driving manuals.



Walking

Airplanes, Airports

Figure 7.7 Examples of symbols and signs

2.4 Enlarging Pictures and Diagrams

The opaque projected had been used for enlarging solid materials like photographs, diagrams and other materials. The picture, chart, diagram etc. is projected on to wall or piece of paper where it can be traced. Opaques are now however obsolete
you can however enlarge or reduce these materials to suit your use through a simple method called the squaring method (see figure 7.8).

Exercise 7.3: What is the difference between a flow chart and a flip chart?

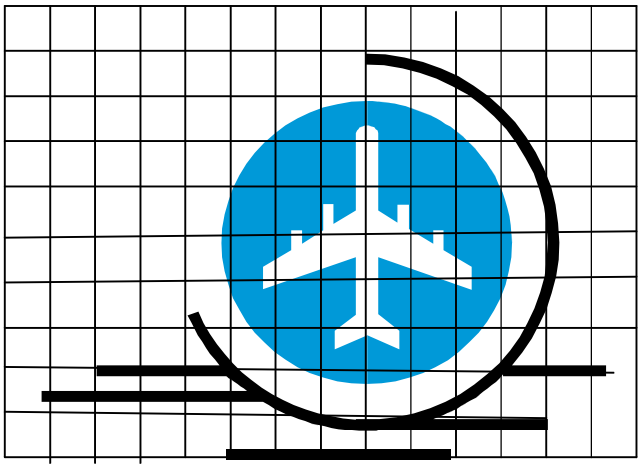


Figure 7.8 The sequence of Enlargement Method

The method involves drawing numbered squares over materials to be copied and similar sized squares on a blank sheet or cardboard paper on which the materials will be copied. Make the grids on the paper bigger or smaller if you want to enlarge or reduce the materials. The picture is then transferred using the grids in the exact positions of the original picture or diagram.

2.5 Making Transparencies

The procedures are the same as graphics since making transparencies involves transferring graphic materials from paper to a transparency. The process starts with an idea but it helps if you can find similar graphic materials. However, remember that the dimension of transparencies is 4 x 5, that is four measures vertically and 5 horizontally. Remember also to leave space for transparency to be mounted on a frame to keep it in good form for use.

Transparencies can be made directly on acetate or from illustrations from prepared diagrams or even from printed illustrations from books. However, apart from the direct method by yourself in which you will require blank sheets of transparency, felt pens of different sizes and ink, the other methods require special equipment. Difficulties in getting the materials and in actually producing and using transparencies do no make them very viable for you as an individual teacher. Pay more attention to graphic.

2.6 Summary

This unit has dealt with the production of graphic and transparency materials, which are basic instructional materials and emanate from the same source. It has concentrated on graphics because they are relevant to your work and are simple to produce. Construction of graphics is an area in which you can act on your own especially in small/medium group instruction such as at the primary/nursery and secondary levels you as a teacher has dependence on graphics. Examples have been given of some of the graphics with the hope that you can make an effort to construct them for your use.

2.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

7.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 7.1 graphics, charts, diagrams, cartoons, signs, maps, globes

Answer Kit: 7.2 Visual information. concise, save time, comparison, special, scale.

Answer Kit: 7.3 Kind of chart, information, process, flow chart. Start, end not kind of chart, device, use of charts, sequence

UNIT 3 PHOTOGRAPHIC MATERIALS PRODUCTIONS

Unit Structure

1.1 Introduction

Photographic prints are useful with small/medium group instruction in the teaching mode. Photograph capture scenes, structures, designs and could be brought into the classroom to provide more effective teaching-learning process. This unit is not intended to turn you into a photographer but to give you basic information about photography that way you would be able to identify the elements which make photography useful in your classroom. Photographic materials include still photographs which could be black and white or colour. They include slides which are a stage in the production of' photographs. Modern advances have created immense opportunities in photography in the use of computer technology.

1.2 Learning Outcomes

By the end of this unit, you will be able to:

- Describe the different camera formats
- Discuss the process involved in photography.

1.3 Photographic Equipment and Materials

The camera is the basic photographic equipment with a variety of camera lenses. Cameras have five essentials parts which include:

a. Lens
b. Light-tight enclosure

c. Lens diaphragm and shutter
d. Film support channel
e. Viewfinder.

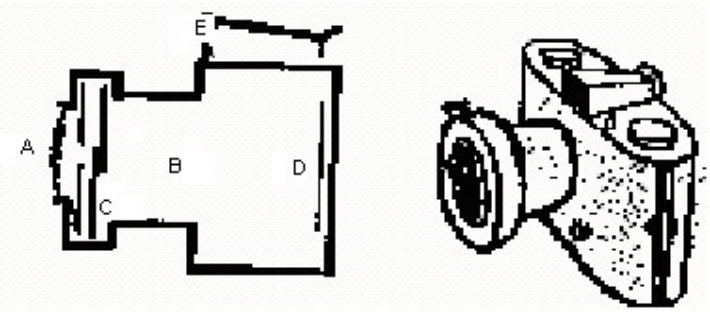


Figure 8.1 Parts of a Camera

Cameras include controls for choosing diaphragm settings and the speed of the shutter but cameras have automatic capabilities to control these functions. They have in-built light reaching the lens measure the intensity of the light reaching the lens from the subject toward which the camera is aimed.

Cameras are categorized into three formats; the small format cameras which use 35mm film, the medium format which uses 120 film and the large cameras which uses cut sheet rather than rolls of film. The small format cameras are the most versatile. They have different lenses and shutters which can he adjusted over a wide range of settings, allowing pictures to be taken under varying conditions.

Three types of lenses are used. They include the normal lens, the wide angle lens and the telephoto lens. The wide angle lens has wide exposure even at close up distance and the telephoto lens allows the photographing of objects from long distance. Different format of films that are used with cameras include 1 10 and 126, 35mm. 120 as rolls and sheet of film.

A copy stand is a device used for reducing or enlarging photographs. With light provided for good illumination, a copy stand is adjustable to hold the camera at the required height. Light are also used in studio photography.

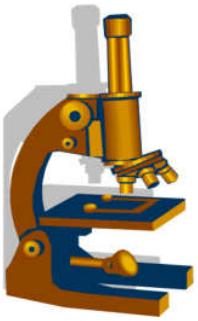


Figure 8.2 Copy Stand

3.4 How a Camera Works

With the view finder, you view the object to be photographed exactly as you want to capture it. This could be a Long Short (LS) to include its background, a Medium Shot (MS) to view the object completely leaving out its background or a close-up shot to concentrate on only part of the object. The happy person who has just bought a house is photographed with the house forming the background, or just a full picture of the person or capture the expression of happiness on hid face respectively.

The lens diaphragm settings or the f/stops allow you given the light conditions to choose how much light you will allow in the shutter speed, this determines how fast the shutter closes after the light has been allowed in. Your camera manual would have given you instructions on how to make these adjustments. The opening of the diaphragm allows the lens to `see'. A third operation is to focus so that the image is sharp and this is done in many cameras by using the rangefinder which will set the lens for the correct distance from the subject. The distance of focus is the distance nearest to the subject from the lens. The depth of filed refers to a shot where the nearest person to the lens and those behind him remain in sharp focus through the use of f/number. In a classroom situation, both the nearest and farthest students will be in sharp focus.

Pressing the snap button.all these functions take place and the image is recorded on the film. The film is then processed and printed into black and white or colour photographs. On the other hand, the negative is mounted and becomes a slide.

Self-Assessment Exercise 1

What lenses would you use to photograph a large group at close range and a large group at long range.

3.4.1 Processing Film

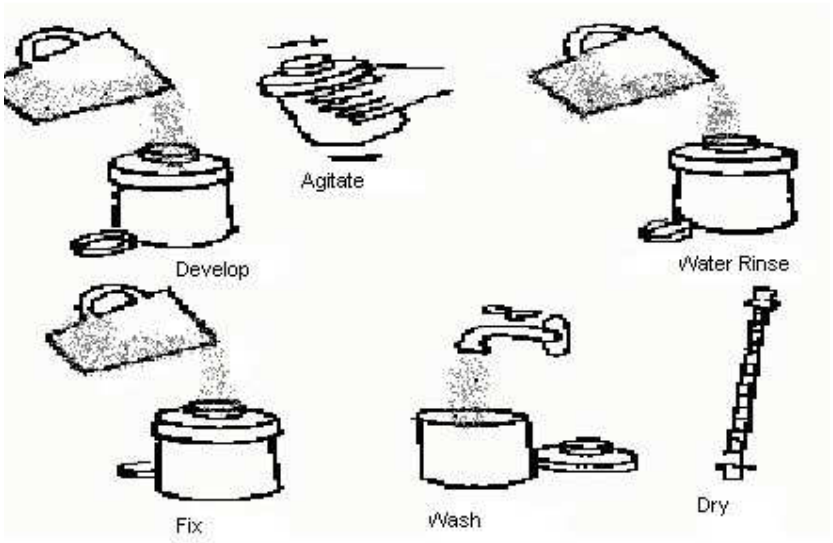
Even when you take photographs by yourself for instructional purposes, it is advisable to have your roll of film processed and the photographs printed by a professional photographer. However, the equipment and facilities involved in film processing include;

a) Light-tight room or a light0force closet
b) Sink with running water and a counter-top working area
c) Clean ventilated area or film drying
d) Roll film developing tank with one or more empty reels for the films size being processed or one or more tanks and films holders for cut/sheet film
e) Prepare chemicals for processing film
f) Graduated or other calibrated measuring container and a funnel
g) Thermometer.
h) Time piece or watch with second hand
i) Three to six stopper bottles, preferably of brown tinted glass.

Just as the loading of the film into the camera is done in the dark, you should also load the film to be processed, into the developing tank in the dark. In either case, the film is destroyed when exposed to light and in the latercase, you would have lost all your photographs.

3.4.2 Processing Activities (Black and White)

a) Developing - the developer, the chemical into which the film is deposited, works on the film to create form/image.
b) Rising - water is used to remove excess developer from the film.
c) Fixing - the chemical, fixer, sets the image changing the remaining undeveloped silver chemical (black and white) so that it may be removed.
d) Washing - water is used to remove all chemicals from the negative
e) Drying - the film is hung for drying



3.5 The Darkroom

The darkroom is the standard facility for processing films, printing photographs or making slides. Standard equipment for a darkroom which is actually made dark to prevent film loss include,

a) darkroom 6 x 8 feet or larger equipped with running water, Counter-top workspace, storage and electrical outlets
b) contact printer or printing frame
c) enlarger with easel or timer
d) print washer with or tray siphon
e) Print dryer.
f) One or more sets tray (three to a set) in varying sizes (8 x 10 inches. 11 x 14 inches etc)
g) clogs, tongs and miscellaneous small items
h) one or more safelight (with colour filter based on printing paper to be used)
i) photographic contact and enlarging paper
j) Prepared chemical for developer, stop bath and fixer.

The procedures show you what is involved in photography and in the processing of films and leading to the printing of photographs. With the different kinds of lenses and types of shots; you have some ability to select the kinds of photographs that would suit your purpose. This basic introduction may even encourage you to take up photography as a hobby.

Self-Assessment Exercise

Match the facilities of a darkroom with the activities of printing.

3.5.1 Slides Production

Unit 3 has shown you the different dimensions or formats of slides. There is however a lot more that goes into the production of slides than just the framing of negatives. In planning a slide series, you should:

a) clearly express the idea and topic you want to treat
b) state the objectives which the slide series will serve
c) consider your audience and its characteristics
d) Write a statement or how the materials will be arranged and sketch a storyboard or the content, picture, drawing etc that each slide will contain in a series.
e) decide if the slide series is the appropriate medium
f) prepare a scene-by-scene or the words that will go with each slide
g) Decide on the slide format to use
h) Decide on who you need to assist you (e.g., photographer, graphic artist). Slides are not presented single but in series or number of slides that provide a complete story or picture. They are made complete with titles or captions as explanation or identification.

Slide series are presented on a slide projector which uses a projection tray where the slides are arranged in the advanced manually or by mechanical means. As a teacher you could use your voice in the presentation directly or this could be recorded on an audio cassette tape and timed to accompany each slide.

3.5.2 Digital Photography

Digital cameras are now available for computer photography, a technology that has eliminated the use of traditional photographic films and its processing. Images which can be viewed from the view finder after recording are stored on a computer diskette. This presents immense storage capacity.

The photographs can be printed in colour by a colour computer printer and can be projected on to a screen using a computer projector. As with all other computer applications, captions can be added and other modifications can be made.

Self-Assessment Exercise

What has digital photography eliminated from traditional photography?

3.6 Summary

This unit has discussed photographic materials production in support of instruction. Photography has provided one of the means for producing instructional media in the form of photographs and slides. This has involved the use of special equipment materials and facilities. There are different capacities provided with the ability to decide. The effort has however been to expose you to the processes and the equipment involved and especially to current development in that field.

3.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

3.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 8.1 Wide angle lens and telephoto lens?

Answer Kit: 8.2 Developing chemical, rinsing-water, fixing-chemicals, washing-water, drying miscellaneous item.

Answer Kit: 8.3 Setting devices, film, film processing, chemicals, special laboratory and accessories slide production.

UNIT 4 AUDIO MATERIALS PRODUCTION

Units Structure

4.1 Introduction

The principal means of teaching is through the use of the teacher's voice. The human ear is therefore a very important organ for collecting information. The use of audio material is to take advantage of this medium to assist students to learn.

Audio materials are verbal materials recorded on audio tape either to be used on their own or to accompany another medium such as a movie film or slide series. They could include a recorded body of information which a student would listen to or a sound track. Audio materials could assist the student to distinguish sounds and are therefore very useful in language acquisition in the area of phonology.

As a teacher, you can record audio materials for your own use with the relatively cheap equipment now available. It is therefore useful that you become familiar with audio materials production and the equipment used.

4.2 Learning Outcomes

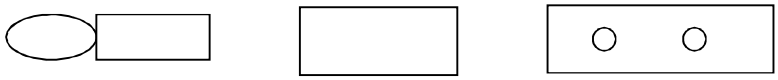
By the end of this unit, you will be able to:

- Describe the equipment and materials used in audio production
- Evaluate procedures for conducting and recording a discussion or an interview.

4.3 Audio Recording Process

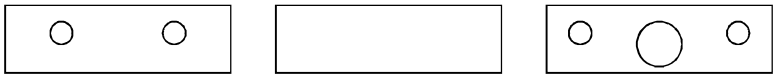
As you have found in unit 5 there are different formats of audio equipment. However, the basic principles upon which recording and playback are done are the same, regardless of level of sophistication.

Recording



Microphone Record Head Recorded sound

Playback



Head Recorded sound Playback Sound

A microphone captures the sound and translates it into electrical impulses which are recorded by a record head on to an audio tape in the recording process. In the playback head process, the audio is played through a playback head which turns the electrical impulse back into sound which is heard through a loud speaker. The playback includes some amount of amplifications for the sound to be heard.

These apparently simple processes have great variation, which have to do with level of sophistication which also indicates the quality of recording and of playback. Both recording and playback equipment influence the quality of sound including the quality of audio tapes used. Reel-to-reel format has better quality although there are good quality audio cassettes. To play pre-recorded materials only requires that you have playback facilities.

4.3.1 Audio Recording Equipment

The following are some basic audio recording and playback equipment.

a) microphone
b) equalizer
c) mixer
d) recorder/player
e) amplifier
f) speakers
g) headphones
h) audio tapes
i) editing facility/equipment

The microphone, as you have seen, captures the sound. The equalizer allows a choice of frequencies between high frequency and low frequency sounds for faithful recording. The mixer brings together sound from different sources while the record/player records sound or plays it back as discussed. The amplifier amplifies it to be heard through the audio speakers. Headphones are used to monitor sound from different sources or to listen to sound without disturbing others. Editing can be done separately using cheap portable equipment. It involves usually two separate tape holders. Sound is recorded and played back in monocular and stereo formats. In monocular, the range of frequencies is not separated but in stereo format, they are divided into left and right channels and the full range of frequencies can be clearly heard.

An additional piece of equipment used in audio recording and playback in language laboratories is the audio console. It allows the teacher to monitor individual students or group of students and to intervene when necessary.

Audio recording, except when very high quality reproduction is required has been made cheap and easy. Audio cassette player/recorders now have all the functions inclusive of built-in microphone.

Self-Assessment Exercise

Explain the functions of any three (3) of the recording equipment.

4.3.2 Audio Recording Procedure

Audio recording has to be carefully planned if it is to be useful for instructional purposes. Even if you were to record the sound made by a particular bird to be used in your class, this must involve finding out the movement of the bird and determining where and when to make the recording. You will therefore need to:

a) clearly express the idea or topic you want to record
b) state the objectives to be achieved by the materials
c) consider the audience in terms of language level
d) prepare content outline
e) write a recording script or assign role or parts
f) decide on the equipment to use
g) choose a suitable recording location or treat the location or
h) take measurements to reduce external noise and interference
i) record in-takes or sections
j) edit the sections into required materials

Special audio recording studios for good quality recording are treated for good sound quality. This could include the use of acoustic tiles and the isolation of the recording area or studio. The guidance covers informational, drama, skill acquisition and similar recordings.

4.4 Environmental Factors

Close your eyes and listen carefully. You will identify many sounds that occur in your environment; people taking the sound of bird, the sound of vehicles, footsteps and so on. This should mean that being able to capture the only sound you want, if the recording is not in a special studio could be difficult.

Some accessories and recording procedures help to reduce the negative in fact from the environment. For instance, headphone helps you to monitor the sounds being `heard' by your microphone and therefore which ones you need to reduce or eradicate. You could find the need to switch off a ceiling fan or an air-conditioner. Wind shields are used on environment or the person being recorded. For speech, a microphone should be held about six inches from the mouth and the person should talk, not shout into the microphone. A microphone boom is used to bring it as close to the subject as possible especially where there is physical blockage. A pole or long stick will serve as well and this helps improve the quality of recording.

4.4.1 Audio Materials for Self-Instruction

Audio materials are excellent for self-instruction. They allow your student to listen to a tape at his own convenience. In using the tape, he could rewind to a section he wants to listen to or move forward to another section. Repetition would help him to learn the material. Self-instruction especially where others could be disturbed, requires the use of headphones. Practically all audio playing equipment makes this provision.

4.4.2 Special Recordings

Recordings of special events such as discussions and interviews have their own requirements. They are a good means for bringing out opinion, for building confidence, for articulation and for selection of relevant fact. Students can learn a lot in participating in the events and even in recording them.

4.5 Discussion

In organizing discussion:

a) The topic must be suitable and must be clearly defined and limited in scope to provide focus.
b) Use a suitable environment. Avoid human or vehicular noise environments.
c) Everyone in the group must participate so that it is not dominated by one person or a few people, so that or lot depends on the person leading the discussion.
d) It should be organized to move from point to even when agreement is not reached, having sufficiently examined each point.
e) Participants should be encouraged to use facts, but opinions should reveal any biases.
f) Discussion should be logically raised, if there is no agreement, summarized.

Good control of a discussion requires ground rules which discussants should observe. These include talking in turn after obtaining permission, not interrupting other discussants and making points as clearly and quickly as possible. Discussants must agree to be courteous such that no insulting language is used. As a teacher, you would use discussion to discover character traits such as those with good control, those who tend to ramble or to be argumentative and those who show leadership traits. Recording and listening to such a discussion should help your students.

4.5.1 Interview

In organizing and recording an interview:

a) Inform the person to be interviewed in advance and the type of questions or areas to be covered.
b) Conduct the interview in a suitable environment. Avoid an area where there is disturbing noise or where there is human or vehicle traffic.
c) Make the interview a friendly, relaxed and organized event. This would include personal questions or linking the person to the topic in terms of personal expression.
d) Do not dominate the interview such as by talking too much when conducting it since the person being interviewed forms the point of focus. As with the discussion, the interview can form a training occasion for your students since they can both conduct an interview or be interviewed.

Exercise 9.2

What are similar concerns in discussions and interviews?

4.5.2 Courtesy and Ethics in Special Recording

There are ethical issues involved when you are conducting and recording discussions and interviews especially when what you are doing is public events.

a) Obtain permission before recording any speaker or discussion.
b) Be as inconspicuous as possible and set up your equipment in advance
c) Monitor the recoding as the event proceeds
d) When editing a tape, be ethical in preserving the integrity of the original. For instance do not include any information not made by any of the discussants or the person interviewed.

4.6 Summary

As one of the areas of production, the unit has dealt with the production of audio materials. Audio materials production is an area in which both you and your students can participate. It is also an area in which the equipment and materials are easily available. Cheap and compact equipment now include all the entire functions requested for audio production. You should however watch out that recording procedures are followed and especially the ethical issues involved.

It has therefore provided you with the basic guidance which should help you experiment on your own and especially involve your student.

4.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition). Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

4.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 9.1 any three of the microphone, equalizer, speakers, headphones, mixer, recorder/player, and amplifier.

Answer Kit: 9.2 Preparation, environment, quality, organization. control

MODULE 3

UNIT 1 MOVIE FILM PRODUCTION

Units Structure

1.1 Introduction

Motion pictures or films have been grouped with projected media in Unit 5. It is pertinent to note here that pictures anywhere are still. The motion in the motion films is simply an illusion. The rapid succession of screens is perceived as a moving image because of an optical phenomenon called persistence of vision (the eye and brain retain an image cast on the retina of the eye for a fraction of seconds, and if images is presented before the trace of the previous image fades, the images blend together, creating te illusion of continuous motion).

Motion films involve motion, describe processes and show relationships. They are best used when situations need to be shown live. Films therefore bring into the scene, events, situations and scenario that the student could perhaps not have been able to see in real life. They can bring ideas, show feelings and attitudes and teach practical learning.

Film-making is handled by commercial producers because of the technical problems involved in the whole process and therefore involves high cost of production. It is part of the reason why television is replacing film in instruction and films have been converted into video recordings.

In the unit however, attempts to introduce to you to the basic information on film making and through this provide you with an understanding of those attributes of film that assist you in instruction. There are special techniques that are used along with the basic shots which can provide you guidance even in the selection of film or video recordings for instruction.

1.2 Learning Outcomes

By the end of this unit, you will be able to:

- Analyze the formats of film and their difference
- Discuss the special techniques used in film-making.

1.3 Formats of Motion Film

Films are produced in two formats; 8mm and l6mm, while the 16mm format is used in commercial productions; 8mm is used for home production such as in a hobby. Thus virtually all the films that you are likely to see and use are l6mm. This also includes all the projectors, perhaps only of different makes, are also 16mm projectors. The 16mm film is of better technical quality, sharpness of pictures, colour, sound, etc.

The 16mm films are available for instruction as documentaries in a variety of subjects and in different aspects. Films catalogues from organizations which hold films usually have identification codes for films with brief summaries to indicate contents, length and whether it is black and white or colour. This makes it easier to identify the film you need for a particular purpose.

1.3.1 Basic Shots and Special Techniques

1.3.2 Basic Shots

The basic shots in film are the same as in photography and television production.

They include:

a) The long shot (LS) which provides a general view or setting of the subject. It provides orientation for the viewer by establishing all the elements in the scene.
b) The medium shot (MS) which provides a closer view, of the subject by eliminating unnecessary background and other details.
c) The close-up (CU) which concentrates on the subject to show some details including feeling by facial expression. These shots are intended to provide specific messages. They help you as a teacher since there are specific types of information you would want to convey to your students. In previewing the films you should be able to

decide, how these shots are used to help you convey the message for your students.

1.3.3 Special Techniques

There are special techniques used that complement nature, along with special equipment for special effects.

a) Direct photography

The technique enables events to be recorded in real life as they occur (live) or in a recreation of the particular environment in which they occurred. This technique allows the preservation or recreation historical events or the presentation of life as it was lived in a place far removed from the student. The technique for the viewer has the sensation of transporting him to the event and therefore makes him a participant. A Macbeth film takes the student to the Shakespearean periods and brings the story alive, making him a participant.

b) Changed-speed Photography

The technique changes the speed of events making it possible for the human eye to see action that is too fast to be seen or too slow to be see can be slowed down or speed up. In discussing nature, the speed of snake venom spit at an enemy is slow down sufficiently to be followed by the human eye. Similarly, the opening of a flower or the growth of a plant can be speed up. The techniques make nature more easier to study.

c) Photomicrography

This technique, using powerful microscopes, enlarges microorganisms so that they can be seen and filmed. The technique has made it possible to see organisms that the human eye cannot ordinarily see.

d) Animation

The technique makes lifeless things or inaccessible and theoretical materials to come alive. Using cartoons arrange for instance in the position which the arms and legs take when running. These cartoons are filmed and speeded up to show the subject running. Animation is used in animal stories with human voices by accompanying the action with an audio channel. The use of the computer in animation has made it possible to bring virtually all fields to life. Most areas of human through and experience can be taught thought animation. With children especially, animation films are very popular.

e) Case Studies

The technique makes representation to show what would have happened by studying the subject. Under controlled situations, experiments can show changes that take place in a child's body because of malnutrition. The situation is controlled to prevent damage but at the same time not having to look for a live case since the live case would have shown the outcomes without showing the different stages.

f) Split Screen

This technique enables two or more different actions or situations to be seen at the same time in the same perspective or from different angles. The technique makes it possible for actions that occur simultaneously such as where the leg is as compared t the hand in given situations or how the claw of different animals grip prey etc.

This technique provides opportunities for learning and therefore assists you in the choice of films. Depending on what you want your students to see, you would choose a film that uses the right technique.

Self-Assessment Exercise

Explain two special techniques showing where you could use them.

1.4 Choice and Use of Film

The basic shots and techniques already form some of the considerations for choosing films. However, there are other considerations of which the shots and techniques form illustrations only. Considerations cover many area/issues such as:

a) The objectives of the lesson
b) The contents that you will use in the lesson
c) The main points, ideas and skills you want to teach
d) The extent to which the film meets these needs (shots, techniques)
e) The length of film or portion you will use and the extent to which you can integrate it into your lesson.
f) The technical quality of the film including picture quality, quality of' sound and again the techniques uses.

This necessarily means that you must preview films to be able to make your choice based on these considerations.

Having chosen the film, you should preview it in more detail and be able to:

a) Identify what you expect the student to see for learning outcome
b) Decide on their participatory activities
i) Preparatory to watching the film
ii) During presentation of the film
iii) Follow-up activities
c) Get immediate feedback

You are showing the film for a specific purpose or learning outcome and you want to be sure that this is achieved. Apart from the contents, they should participate towards achieving the goal. This could include making sure they all have the right entry behaviour which could mean giving them an assignment before they watch the film. Within the film, you could ask them to watch out for or note certain things that happen and perhaps at the end give follow-up activities related to what they saw. Getting outcome means asking questions to confirm that they did get what you expected them to get from the film.

1.5 Showing a Film

The basic shots and special techniques used as well as the technical quality of film production are at level of production. Production is for the purposes of use where all these techniques would make a film come alive and be appealing and where its information would be successfully be conveyed. This does not always happen because there are conditions under which films should be shown to be able to attain their purpose. If your students cannot see the film properly or hear the narration, then these technical qualities of production become of limited value.

In showing a film therefore:

a) Make sure that the room is suitable for showing a film
b) Make sure that you have a suitable projection screen
c) Darken the room by switching off lights or using dark curtains, dimmer switch which are best for showing films are usually not used in lighting instructional spaces.
d) Set up the equipment well in advance
e) Place external speakers directly below the projection screen
f) Introduce the film by placing it within your teaching effort
g) Inform your students of the objectives of the lessons
h) Inform them of any specific things they should watch out for or note
i) Show the film or portion of it without interruption

This procedure helps to bring out the quality in the film and the techniques and the message it contains.

Self-Assessment Exercise

1. In what ways does the guidance on choice and use of film guide your lesson preparation?
2. Explain the three participatory activities of using film in instruction

1.6 Summary

The unit has examined production processes of film. The aim is not to make a filmmaker but to show you some of the techniques used that will assist you in making use of film in your teaching. The techniques used in the production of instructional films are intended to complement learning efforts. Film-making is however technically so challenging that only professional film-makers make films. These difficulties and the expenses involved have seen a shift to the video medium. The techniques are the same in video and as a teacher you need understand them as a means of selecting films to ensure that your learning outcomes are achieved.

1.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

1.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit: 1.1 Direct Photography - Live, recreation, historical
Participant Changed Speed - sciences, study of nature, the science disciplines details, paths, relationships

Answer Kit: 1.2 Knowing objectives, content, ideas or skills. what students should learn from the film etc. in advance?

Answer Kit: 10.3 prior to watching film, entry behaviour
During watching, to spot specific information - follow-up
To sum up or apply things learnt

UNIT 2 TELEVISION PRODUCTION

Unit Structure

2.1 Introduction

Television has become the more widely used medium in instruction and has replaced those hey-days of film documentaries. Television does not require the elaborate and expensive production processes of film. Television, in video recordings is much easier to use since it does not require projector, although that had limited viewer number. However, projector facilities are now available for video although they are still relatively expensive.

Developments in technology have brought about more profound changes in television production. Before, television production required heavy television cameras and elaborate lighting, thus requiring a large retinue of specialists, this has now changed. The development of Electronic New Gatherers (ENGs) incorporating most functions in a highly portable recording set, has brought television production virtually to everybody. This is why television cameras cover every occasion and ceremony nowadays.

The unit is intended to introduce you to the basic procedures of television production and to its wide potentials. Just as in Unit 10, this information should help you to better appreciate the use of television in instruction.

2.2 Learning Outcomes

By the end of this unit, you will be able to:

- Differentiate between studio and portable production
- Discuss the elements of recording guide
- Describe the difference in story-board and production script

2.3 Production Formats

Production formats are the different forms in which television programmes are produced using all the television equipment starting from the camera. A television camera is made up of a camera head, has lens and viewfinder with accessories such as microphones, headphones and for portable cameras a battery pack, battery charger and AC adaptor.

2.3.1 Studio Production

A television studio is a specialized facility that is provided for the production of television programmes to be transmitted live or to be recorded on video tape. Studio production therefore refers to production at such a facility. A standard television studio is usually divided into at least two sections. The recording section and the control section. The recording section or studio is where the cameras actually record actions, events, interviews etc.

a) Recording area

Special curtains are used to enhance lighting which is provided by three main groups of lights, flood, fill and spot lights. They are used for different purposes as suggested by their names. Flood lights are used for general orientation lighting, spot lightings or lighting what the camera will record while fill lighting is used to remove shadows and similar blemishes. These lights are usually fixed on grids for easy movement and to be directed as required. Different types of microphones are used, some pinned to the subjects clothing, others hidden in flower pots while others are hung on microphone booms so that they do not interfere with the recording.

Three cameras are considered in the studio so that two cameras are directed at the subject or event being recorded while the third is used for graphics, illustrations or to bring in scenes such as of accidents, fire etc as recorded by portable cameras outside the studio. Headphones are used to provide a link between the production area and the recording area to direct cameras on the shots to make. The floor manager is there to coordinate the recording physically.

b) Production Area

The area houses the audio and video mixers and has equipment for doing so. Audio sound can be mixed from different sources and the video mixer allows the director to select shots from the different camera sources for broadcast or video recording. The shots are shown on different television monitors, each connected to a particular camera. The job of the director is a very tasking one since he is to pay attention to many things and that is why he has different people assisting him.

c) Personnel

Many people are involved in television production. Some are involved in the preparation stage such as those to build the stage and place things where they should be, those to take care of costumes and make-up. There are lighting specialists who design lighting before recording and fix the different lighting sources in advance. The camera men work the different cameras with a floor manager to coordinate all activities at the recording area. The production area has video and audio specialists to assist in putting everything together. Both video and audio specialists have to make sure that the shots are clear and that the microphones give clear sound respectively.

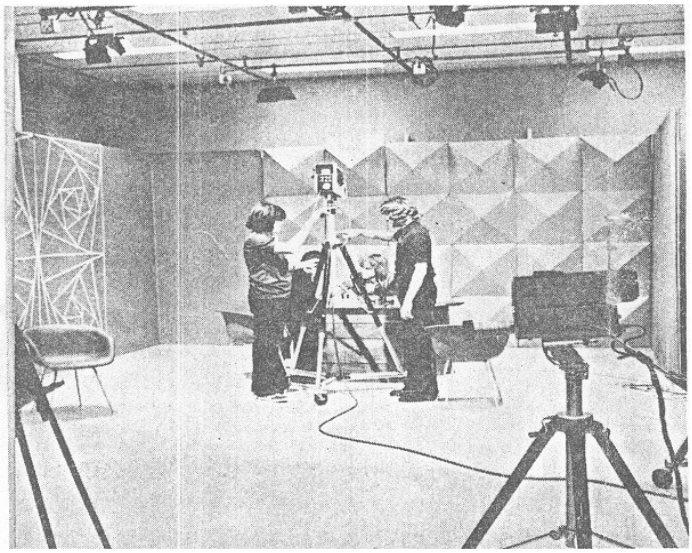


Fig. 11.1

Studio production is a very elaborate affair. The action of choosing shots is also direct editing, but much preparation goes to studio production behind the scenes. Indeed, it is much different from the serene picture that is presented to viewers.

Self-Assessment Exercise

What are the different equipment in studio production?

2.3.2 Portapak Production

This refers to the use of portable television equipment to produce programmes such as documentaries, training packages and similar productions. The differences in functions as shown by parts of a television camera is that portable camera also has a control panel which can be used in a normal and in a zoom setting.

Computer technology has made portable television equipment to be versatile and affordable including portable studios. Adaptors allow the use of minicassettes and cables allow viewing from standard television equipment.

Editing facilities which are computer operated allow the individual nowadays to produce good quality video materials.

2.4 Basic Shots and Special Techniques

Basic Shots

The basic shots in film are the same as in photography and television production.

They include:

a) The long shot (LS) which provides a general view or setting of the subject. It provides orientation for the viewer by establishing all the elements in the scene.
b) The medium shot (MS) which provides a closer view of the subject by eliminating unnecessary background and other details.
c) The close-up (CU) which concentrates on the subject to show some details including feeling by facial expression. These shots are intended to provide specific messages. They help you as a teacher since there are specific types of information you would want to convey to your students. In previewing the films you might want to use, how will these shots be used to help you convey the message to your students to form one of the considerations for selection.

Special Techniques

There are special techniques used that complement nature, along with special equipment for special effects.

a) Direct photography

The technique enables events to be recorded in real life as they occur (live) or in a recreation of the particular environment in which they occurred. This technique allows the preservation or recreation historical events or the presentation of life as it was lived in a place far removed from the student. The technique for the viewer has the sensation of transporting him to the event and therefore makes him a participant. A Macbeth film takes the student to the Shakespearean periods and brings the story alive, making him a participant.

b) Changed-speed Photography

The technique changes the speed of events making it possible for the human eye to see action that is too fast to be seen or too slow to be see can be slowed down or speed up. In discussing nature, the speed of snake venom spit at an enemy is slow down sufficiently to be followed by the human eye. Similarly, the opening of a flower or the growth of a plant can be speed up. The techniques make nature more easier to study.

c) Photomicrography

This technique, using powerful microscopes, enlarges microorganisms so that they can be seen and filmed. The technique has made it possible to see organisms that the human eye cannot ordinarily see.

d) Animation

The technique makes lifeless things or inaccessible and theoretical materials to come alive. Using cartoons arrange for instance in the position which the arms and legs take when running. These cartoons are filmed and speeded up to show the subject running. Animation is used in animal stories with human voices by accompanying the action with an audio channel. The use of the computer in animation has made it possible to bring virtually all fields to life. Most areas of human through and experience can be taught thought animation. With children especially, animation films are very popular.

e) Case Studies

The technique makes representation to show what would have happened by studying the subject. Under controlled situations, experiments can show changes that take place in a child's body because of malnutrition. The situation is controlled to prevent damage but at the same time not having to look for a live case since the live case would have shown the outcomes without showing the different stages.

f) Split Screen

This technique enables two or more different actions or situations to be seen at the same time in the same perspective or from different angles. The technique makes it possible for actions that occur simultaneously such as where the leg is as compared t the hand in given situations or how the claw of different animals grip prey etc.

This technique provides opportunities for learning and therefore assist you in the choice of films. Depending on what you want your students to see, you would choose a film that uses the right technique.

2.4.1 Instructional Television

Instructional television is programming that is prepared to serve educational purposes. It is not a matter of just pointing a television camera and shooting. Rather, instructional television should serve special instructional needs. This means that recording has to be planned even if you are recording natural subjects of which you have no control. However, recording goes a long way to assist solving some of the problems with nature. There are basic requirements for good results.

a) Have a clear idea or topic and put it down in writing
b) State the objectives you want to achieve
c) Organize your material, including background research
d) Prepare a content outline
e) Prepare a storyboard showing the kinds of shots to take
f) Prepare a recording script by putting down the words or narrative that will accompany each shot
g) Select a musical track to match subject matter
h) Take steps to minimize extraneous noise
i) Edit the materials possible intakes or sections
k) Add voice to match the visual components as in the recording script.

As you can see, there is a lot involved in television production but all these steps and procedures assist you to produce good instructional material.

2.5 Recording Guide

Production in instructional television as you have seen is not a half-hazard affair, particularly in portapak production of documentaries. An understanding of the construction of two devices, that is, the storyboard and the recording script as recording guide can be of immense value.

2.5.1 The Storyboard

As you have already seen, there are three shots; Long Shot (LS), Medium Shot (MS) and Close-up (CU). A storyboard is a recording plan in advance to show the video shots that you will include as well as the kinds of shots you will use in each case. In effect, it represents what you will expect NOUN students or viewer to see. This visual component could include pictures, events, animals, illustrations or anything that will convey your message. Based on the shots, you will use a close-up (CU)) if you want them to see details or Long Shot (LS) if you want background. A storyboard shows the different visuals that will appear and how they will be shot.

2.5.2 Recording Scripts

The recording script which includes your storyboard helps you to synchronize the visuals and shots with the narration and also helps you to determining the length of the recording. The audio component is put down in writing and this is what will constitute to voice component or voice-over to complete the recording.

The recording script used could have four sections which include a numbering of the shots, the audio component or narration, the video component which when actually developed shows the items and kinds of shots in the storyboard and timing.

Self-Assessment Exercise

Take up a story line or subject topic and develop the recording script
How much time would have elapsed by shot, recording and presentation?

2.6 Summary

This unit has introduced you to television production in both studio and portapak formats. Television production can be very exciting but it requires paying careful attention to planning. You will be more interested in portapak production because studio production occurs mainly in television studio in Nigeria. It has shown what is involved but has concentrated for your benefit, on partapak production or the use of portapak equipment. . You can see that using portable equipment; you can indeed, with some guidance, produce documentaries.

2.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

2.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit 11.1 Curtain, cameras, lights, grid, microphones, headphones
sound and video mixers, monitors, cables**.**

Answer Kit -11.2 Add up the seconds on the last column.

UNIT 3 GAMES AND SIMULATIONS

Units Structure

3.1 Introduction

Activity is stressed in instruction because it provides experienced from which student learn. Instructional games and simulations are activities designed to help students learn. Students achieve specific goals or objectives in an active rather than a passive manner. They become active participants in the process of learning while at same time enjoying the excitement of a game.

Games and simulations assist in developing cognitive skills such as in language and in numerical skills quite apart from manipulative skills. They help students to develop positive attitudes and feelings such as of fairness and self-control. The benefits to be derived from games and simulations are such that you should incorporate them into the activities of your students.

The unit introduces you to games and simulations showing you what they are and how you can use them in instruction.

3.2 Learning Outcomes

By the end of this unit, you will be able to:

- Describe the difference between games and simulations
- Discuss the steps to take in creating games and simulations

3.3 Definition of Games and Simulations

3.3.1 Games

Games are structures activities with set rules for play in which two or more students interact to reach a clearly stated instructional objective. There is usually a winner by competition and element of chance is a factor that occurs in the interaction. For instance, games in which a student picks letter or titles or throws dice includes chance because the student cannot pre-determine what letters he would pick or what dice he would throw.

3.3.2 Simulations

Simulations on the other hand are usually models of situations in real life. In simulations, participants are assigned specific roles which are recognized in society, make decisions and solve problems according to specified conditions. Simulations are used for instance to provide experience on what occurs in a police station or in a court of law.

Simulation is used in computer games on driving as another example where the player has the role of a driver. He makes decisions on how to take a round-about or T-junction based on the specified condition that he must give to traffic on the left at a roundabout or wait for traffic on the main road at a T-junction. The rules are specified by the Highway Code.

The interaction in a simulation is between the student and the situation rather with other student although the situation could be represented or simulated by a student who plays a role. Simulations build confidence in the student to be able to perform in real life conditions since he would have met most of the conditions in what is simulated that he is liable to meet.

3.3.3 Simulation Games

There is a distinction between simulations and simulation games. In simulation, there is a correct action which means that simulations can be scored. For instance the policeman is required to go through a specific process in effecting arrest and the correctness of that action in a simulation is what is scored. Also in using computer simulation in driving, driver can be scored. The total scores would determine who has won, being the student with the highest scores.

Simulation games are usually associated with the social sciences. The concern in simulation games is with the same decision-making.

However, in simulation games there probably could not be a single correct action it could result in a sense of satisfaction. In a game involving an investor or consumer, there cannot be uniform or correct levels of satisfaction with the outcome. In either- case, as a simulation game, the outcome would be what either student feels about it; has it got the best possible deal as an investor or consumer?

Self-Assessment Exercise

State differences between games and simulations

3.4 Games and Simulation in Instruction

There are game that are already available that can be used in the classroom. Scrabble also helps the student to build vocabulary and thereby acquired language. Ludo, as a game of dice, is useful for basic innumeracy apart from calculated risk-taking. Card games such as WHOT teach shapes as well as innumeracy and ordinary card games add the element of colour and complexity in decision-making. Unfortunately - perhaps because these games are linked with gambling, they are not used in instruction. Simulation and simulation games can be organized by you as a teacher.

There are suggested planning and use of games and simulations:

a) Assess the readiness of your students to participate. This will include whether the game or simulation will suit your purposes and benefit your students. Prepare your students adequately to be able to play and assist them to acquire the skills by actually participating.
b) Games and simulations have general applications in design. Modify the game or simulation to fit your environment or players or by modifying the rules.
c) Decide on how to structure participation to ensure that the whole class gets involved. You could split the class into groups and interchanged activities, swapping the game with other games or activities or spread into another lesson.
d) Introduce the game or simulation with similar but interesting activities and follow these instructions on how to play the game or participate. These involve practical activity, such that if they are complex, approach them as a number of different skills, which they can learn.
e) Once the game or simulation has started leave them to play unless they request for assistance. Act only as a guide, coordinator, or moderator and avoid interfering or playing any dominant role. In

simulations and simulation games, a student would play the role such as headmaster or even the teacher.

3.5 Creating Games and Simulation

There are games already available and more are being created especially for instruction. However, you should make efforts to create your own games and simulations or to modify existing ones. Most creations actually draw inspirations from what others have done.

In trying to create your own games and simulations, learn from what is already available. There are steps to provide you guidance.

a) Define learning activities or what the students will be able to do after playing the game or participating in the simulation which they were unable to do before.
b) Set the parameters of the game by deciding the time scheme and how long the students will be involved in playing it. For instance, there will be a time limit within which the student must act to give consideration to how long the game will last.
c) Identify the players and their goals and decide on the role each participant should play. Decide on what each player will attempt to achieve.
d) Identify and specify the resources to be used. Will each player for instance use pebbles, cards, dice or what?
e) Identify principle rules of play and determine how players will interact. How does the game start, who does what in what direction does play progress. Will there be any obstacles or earned advantages? Will there be incentives for wining each game such as earning two pebbles, cards etc.? These are the questions you will answer.
f) Establish how and when the game is to be won. Will it be won on one run or out of a number of plays? Will it be won on a number of points or on a simple majority of counted numbers for instance?
g) List and describe the materials and arrangements require for play. This is to assist you find out if the materials for the game are readily available and the cost implication. For instance, could you design and produce the board yourself or will you purchase it? Can it be made out of cardboard or do you have to use wood or even metal? Could it be marked and played on sound outside the classroom?
h) Undertake one or more trial runs. Having finished designing and producing the game or simulation, try it out with a similar group for which you designed it. You would then find out for instance if

the instructions are clear enough, if your time duration will work and if the rules actually work. You could then make corrections.

i) Develop suggestions for Post-games Evaluation. This could be part of trial for students to tell you how the game could be improved. But, there must by means for students to assess what they have learnt from the game or simulation. Is this in conformity with what you intended?

Self-Assessment Exercise

In what ways will the suggestions on how to design games and simulations help you?
Develop a game in your teaching subject area in secondary school level.

3.5.1 Simulation Games

As you have found, a simulation games would have rules of performance without a win/lose outcome. The game can be carried out in informal dramatizations that help to enlighten participants about an issue. Participants play specific roles representing the distinguishing roles as examination malpractice. A simulation game using the different personnel involved takes an issue as with students playing roles of different activities that constitute examination malpractice can help enlighten students.

In preparing for such simulation games, the class must have sufficient background information about the issue to understand the roles they are to play. Participants must take their roles seriously knowing that this is only simulation. In some situations, the whole class are participants when the Pros and Cons of an issue are discussed.

3.6 Summary

In continuation with the discussion of production of different media for instruction, this unit has dealt with games, simulations and simulation games. These are activities that have not found ready application in our schools where games or simulations are seen mainly as entertainment. Experiment with games, stimulations and simulation game and you will give both yourself and your student's enjoyable moments while at the same time helping them to learn. Games, simulations and simulation games are different activities used in instruction. They provide pleasure and the spirit of competition along with the learning. As activities, they form a vital ingredient to effective learning. As a teacher, you can use existing ones, modify existing ones or design new games and

simulations. However, you must get your students to take their roles seriously even while enjoying playing them.

3.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

Pacansky-Brock, M. (2013). Best Practices for Teaching with Emerging Technologies. New York & London: Routledge.

3.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit 12.1 Structured, winner, competition models of real life situations, roles, decision making, and winner, applicable on real life.

Answer Kit 12.2 a. Decide on outcomes, set parameters, identify player roles; and b. Identity resources, design rules, decide on ending of games/winning, decide on materials and cost implications, trials run to correct lapses.

UNIT 4 IMPROVISATION AND FREE/INEXPENSIVE MATERIALS

Unit Structure

4.1 Introduction

Improvisation and free inexpensive materials complement each other in the fact that free and inexpensive materials are sources for improvisation. The materials are free or inexpensive in the fact that you can source for them from their existing forms as scraps and they may require minor modifications. These could include discard past issues of journals, other periodical and old calendars as examples. They can also be bought at second hand value for negligible cost.

The unit is to make you aware of this potential through which you could introduce innovative materials to your teaching. The unit should also help you to realize that there could be value for education in things that people discard as having no value. Also your particular environment could provide a rich source of materials. But you must be ready to search and to read widely.

4.2 Learning Outcomes

By the end of this unit, you will be able to:

- Analyze the need for improvise
- Discuss sources of free and inexpensive materials

4.3 Why Improvise?

The use of instructional equipment and materials in education in Nigeria was introduced in the 1950s. Agencies that are donors such as UNESCO, UNICEF, Carnegie Corporation, Ford Foundation, Rockefeller Foundation, and British Council among many others made donations of equipment to educational institutions in Nigeria. They included projection equipment for films, slides and filmstrips and audio equipment such as reel-to-reel recorders.

The equipment and the materials had been in use in their countries and were being introduced into our system. Some of the materials were not suited to our system and for many other reasons instructional equipment did not get to be integrated as had been the case in their countries.

Perhaps it was also this situation which discouraged the setting up of industries for manufacturing these equipment and materials. There are thus no commercial producers of these instructional materials. There is therefore a dearth of instructional materials especially because of the cost of importing, even those that could have been modified for use.

As a teacher concerned to use instructional materials, you have to improvise by using whatever is available. Also, even the costs involved means that you have to look I6r use free and inexpensive materials, the concern being to assist your students to learn. In effect, as a teacher you do not have the support in terms of instructional materials that teachers in other educational systems take for granted.

4.4 The Environment in Improvisation

The saying that necessity is the mother of invention applies in your case as a teacher, thus necessitating improvisation. However, improvisation depends to a very large extent on the physical environment on what is readily available. For instance, as a teacher in an urban environment, you are more likely to have more access to discarded journals and calendars than your counterparts in the rural schools. However, the teacher in the rural school with initiative could still do better.

The physical environment is one thing but the deciding factor on how well you do is you as a concerned teacher. Your creativity will help you discover valuable materials where none seems to exist. You must know what you want is based on what your students need to be able to learn a concept, a procedure or hard facts.

Self-Assessment Exercise

Explain two reasons why there is the need to improvise.

4.4.1 Sources of Materials

You have seen that your environment in a general sense is a source for free and inexpensive materials. The environment as in the example already given could mean the community where you live or work. But this does not seen as being so restrictive since on a journey, you could still look out for materials or source for them from friends.

Sources of materials can be more specific than the general environment. Usually in a community and even in a school people have different interests, vocations and hobbies. Such people are important sources of materials or at least for information on where to get what. Sources include students themselves, parents/guardians and professionals and social organizations. especially when they hold fairs or conventions and professionals meetings, left-over materials can be valuable sources of materials. Examples are the local and international Trade Fairs when manufacturers, vendors and other business meet with participation from all over the world.

Motor mechanic and electrical shops are valuable sources of materials which you could get with permission. You could get free or with small sums of money, discarded car batteries, electric motors and similar parts from different professional groups. Donor agencies or embassies could provide information about their countries or you could request specific information and materials which they could give you, especially when they know that you are sourcing for them for instruction.

Improvisation in the form of use of free and inexpensive materials will require self-sacrifice, persistence and even the willingness to 'dirty' you hands. On the other hand this would give you a sense of achievement that is highly motivating and rewarding.

4.5 Contributions to Teaching and Learning

Free and inexpensive materials that can be used for improvisation make significant contributions to teaching and learning in a number of ways:

a) As supplementary resources where they provide up-to-date information that may not be found in textbooks. Pictures taken in current

space missions as cuttings provide supplementary information to what is already known about space.

b) Furnish materials that can be used as they are audited and used as displays on bulletin boards or other displays. They therefore act as reference material or as reminders or reinforce learning.
c) Provide items for students to use in illustrating their own written or oral report.
d) Become resources which you can use for improvisation.
e) Become resources of ideas for students and from which they can design and produce things in projects.
f) Provide motivation for both you and your students to explore our community to discover materials that you could use for improvisation.

Self-Assessment Exercise

Name three sources of free and inexpensive materials and three contributions that such materials make to teaching and learning etc.

4.6 Summary

The unit has shown the need for improvisation, the sources for free and inexpensive materials and how they contribute to teaching and learning. Non-availability of instructional materials in view of their proven usefulness and teaching has formed a basic problem to education in Nigeria. These materials had not been integrated into the system and there have been no commercial producers. The situation therefore calls for the use of free and inexpensive materials for improvisation. These materials contribute to teaching and learning and there are recognized sources for acquiring them. As a teacher concerned to help your students to learn, you are encouraged to take steps to improvise since you do not have the backing that is usually provided through manufactures instructional materials.nThe concern has been to encourage you to improvise as much as you can.

4.7 References/Further Readings/Web Resources

Achuonye, K. A. (2019). Contemporary Educational Technology (3rd Edition).Port Harcourt, Pearl Publishers.

Achuonye, K. A. (2007). Microteaching: A Practice on Teaching Skills. (2nd Edition).Port Harcourt, Pearl Publishers.

Ntuk, Edem A. (2015). Educational Technology for Colleges and Universities – Theory and Practice (3rdedt.) Uyo, Abasiodiong International.

4.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit 13.1 Instructional aids and learning, not integrated in Nigeria.
No commercial or institutional producers, differences in systems,
need to be effective.

Answer Kit 13.2 General community, professional/social groups, students, guardians, shops, donors, agencies, embassies.

UNIT 5 MULTI-IMAGE, MULTI-MEDIA, AND POWERPOINT

Unit Structure

5.1 Introduction

The unit is not dealing with different sets or groups of media. Rather, it is concerned about the combined use of the media or their capabilities. Most involved are the electronic media including projection media in their different formats along with audio materials.

Multi-image and multimedia presentations have the capabilities of greatly enhancing the quality of presentations since they are cooperative. Although as a teacher you may not have the opportunity for such presentations but you need to have awareness of the development in the field. The computer has greatly enhanced the capabilities of these presentations through **PowerPoint** techniques.

5.2 Learning Outcomes

By the end of this unit, you will be able to:

- Describe four purposes served through multi-media presentations
- Discuss the steps for developing multi-image and multi-media presentations
- Develop a **PowerPoint** presentation on any topic of your choice.

5.3 Definitions

5.3.1 Multi-Image

This refers to presentations in which an image is presented from different perspectives or an aspect seen at different locations. The image or images are projected simultaneously either from different media sources or television. The emphasis in this presentation is the image to provide means of comparison or perspective. Since the concern is with an image, the electronic media have given multi-image presentations a unique place in instruction.

5.3.2 Multi-Media

This refers to the use of different media, each presenting something to the total presentation. It refers therefore to the sequential use of media to take advantage of their different properties. For instance, in the same presentation, you could use a video recording to show movement perhaps in a split screen format, use film to bring out historical elements, use an overhead transparency to scribble something as you proceed and use slides to allow some close-up details. In this case, you have used a sixth medium, a tape recorder, to playback a short speech in support of the historical elements. Each medium would have presented something based on its own features that would have added up to create the total effect required. The danger is that the media should not be used for show but that they do add something without overloading the presentation. This also means that all these facilities are possible and that the environment has been prepared for their effective use.

5.3.3 Multimedia

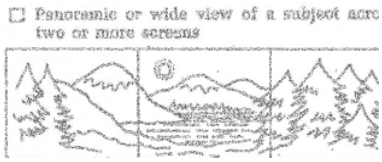
This is different from multi-media which depicts use of different media, each presenting something to the total presentation. Multimedia is a computer-controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally. It is content that uses a combination of different

content forms such as text, audio, images, animations, video and interactive content. The content is usually projected using a multimedia projector.

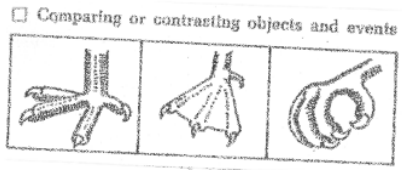
5.3.4 Multi-image Presentations

These presentations deal with visual information although they are usually supported by an audio track in the form of your voice as a teacher or an audio track that had been recorded. Examples of multi-image presentations include:

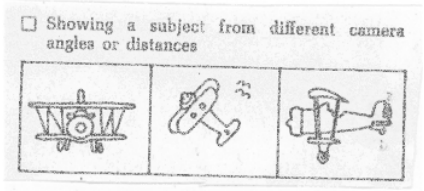
a) Give a panoramic or wide view of a subject across two or more screens



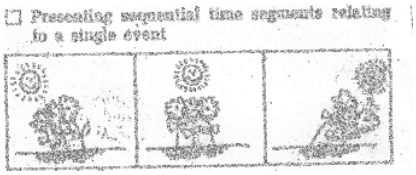
b) Compare and contrast objects and events



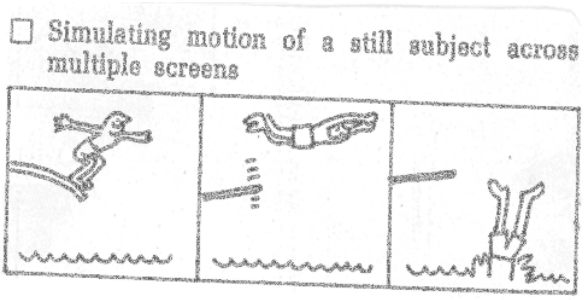
c) Show a subject from different angles



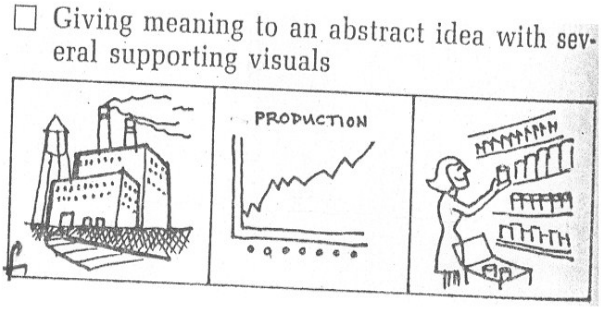
d) Present sequential time segments to a single event



e) Simulate the movement of still subject across multiple screens



f) Give meaning to an abstract idea



5.4.1 Planning and Developing Multi-image Presentations

a) Express the idea of the presentation but limit it to a topic
b) State the object the presentation is to serve
c) Consider the audience in terms for instance on learning levels
d) Prepare a content outline of the presentation
e) Write out how you will organize the content
f) Prepare a storyboard and recording script (See Unit 10)
g) Select other people that could assist you.

According to Perrin (in Kemp: 275), the immediacy of this kind of presentation allows the viewer to process large amounts of information in a very short time. Information density is increased and certain kinds of information are more efficiently learnt. As in the examples, the presentation could give a panoramic view of the same object or show it from different angles or show- it at different time sequences; say the sunflower in its relations wit the sun.

Self-Assessment Exercise

Explain four examples of multi-image presentations

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5.4.2 Multi-Image Presentation

5.4.3 Planning

Planning steps for multi-media presentations are the same as those of multi-image presentations. Again, a main concern is with the storyboard and the recording script to ensure a smooth flow from one medium to the next.

5.4.4 Presentations

a) Allow each medium to treat a concept within a topic as in the earlier example.
b) Allow the objectives to be more focused
c) Presentations are particularly useful for individual learning
d) Keep each medium short and for a specific segment
e) Promote active student participation since each segment would have its own activities that prepare students for the next segment
f) Allow a better integration of the media
g) Provide students with a variety of materials
h) In individual learning, allow each student to learn at his/her own pace

These guidelines are to give you and your students the best benefits from multi-media presentations.

5.5 Computer Assisted Instruction (CAI)

Computer technology is used very effectively in instruction and has opened up vast opportunities. CAI can guarantee instructions being packaged as drill and practice, simulation games and tutorials. The functions described in the different sections are possible because of computer technology. Nowadays, the various media can now be produced by computer such as graphics, slides, still photographs, transparencies and especially animation. Computer technology allows accurate synchronization of different media and images in multi-image and multi-media presentations through PowerPoint technique.

5.5.1 PowerPoint Technology

5.5.1 Concept and Theoretical framework of PowerPoint

A well-developed instructional package can be marred by poor delivery. This is the essence of PowerPoint presentation technique. Though created by Thomas Rudkin and Dennis Austin in 1987 as Presenter, it

was later improved on by Microsoft as technological innovative technique - a presentation software application of the Microsoft office suit using graphical and animation capabilities.
Amidst several learning theories, the three outstanding theories behind PowerPoint technology are -

- *Multimedia Learning theory* which focuses on the principles that determine the effective use of multimedia in learning, with emphasis on using both the visual and auditory channels for information processing. The auditory channel deals with information that is heard, and the visual channel processes information that is seen. If both the visual and auditory channels are presented with information, more knowledge is retained.
- *Learning style theories* propose that individuals learn in different ways, that there are distinct learning styles and that knowledge of a learner's preferred learning style will lead to faster and more satisfactory improvement.
- *Elaboration theory* stresses that instruction should be organized in increasing order of complexity for optimal learning. A key idea of elaboration theory is that the learner needs to develop a meaningful context into which subsequent ideas and skills can be assimilated.

A quality PowerPoint package possesses well-organized content, clear design, and suitable delivery modes for wider coverage of individual differences. Powerpoint software allows presenter to create anything from basic slide shows to complex presentation to highlights on important points, arouses and sustains leaners' interest.

5.5.2 Designing PowerPoint Presentation

Basic resources – human skill, computer (desktop, laptop, palmtop, etc.), projector (multimedia, overhead, etc.), content/subject matter/texts, images, audio clips, movies, drawing, graphs, charts, maps, highlight etc. on a large screen through slides ---- from basic slide shows to complex

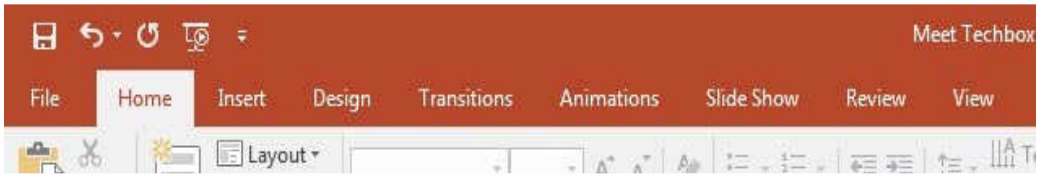
Basic steps - Plan – Write – Design – Deliver
Plan – select an appropriate instructional topic, identify the audience, objectives, basic resource and time duration.
Write the instructional content following the stated objectives indicating the time duration and positions for each of the resource materials.
Design - Convert instructional package to software or document in your PC including every content/text, object, images/graphics (drawing, chart, graph, poster, comic, map, etc.), audio, movies, etc.

- **Locate and click** to open the PowerPoint Microsoft suit
- **add slides,** the individual pages in the presentation.

- **add content to the slides**, such as text boxes, images, charts and graphs.
- **Change themes and styles** to make your presentation look professional and fit the occasion at hand.
  Prepare presentation aids like **Speaker Notes** and **Presenter View** to help you feel comfortable with presenting

5.5.3 Using PowerPoint's Ribbon

The ribbon menu is found across many of Microsoft's apps, such as Word, Excel, and PowerPoint. It lives above the main area of the application.



The PowerPoint ribbon lets you switch between various tabs.
The ribbon contains a series of tabs that you can switch between. Each of these have a unique set of tools to work with your presentation differently. When you switch tabs on the ribbon, you'll see new buttons and options to modify your presentation:

- **File**. Save, share, and export your presentation.
- **Home**. A general purpose collection of the most common tools that you'll use in PowerPoint.
- **Insert**. An all-in-one tool to add every imagine-able type of content, such as tables, pictures, charts, video, and more.
- **Design**. Controls the overall look and feel of your presentation with theme and style settings.
- **Transitions**. Add animations when you switch slides.
- **Animations**. Controls the order and style that objects will enter or exit your slide with.
- **Slide Show**. Control settings related to the way your presentation appears when sharing it with an audience.

Now that you understand the layout, you have a better idea of how you can jump to the feature you need. Nevertheless, it is advisable for beginners to stick more to the Home tab because it has practically every tool you need.

Self-Assessment Exercise

Watch an episode of Sesame Street and list some of the techniques used.

5.6 Summary

The unit has summarized the different media, especially the electronic media and the advantages they bring to instruction. The presentation of the different media and their different formats would not have been complete without showing you that apart from their use individually and how they can be effectively used in combination as in PowerPoint. This unit has not dealt with any new media; rather, it has shown the different media and their capabilities that can be used with great advantage to learning. In using the media consecutively for instance, advantage is taking of the advantages of each medium. The unit was intended to show you the opportunities opened up by multi-image and multimedia use especially with the assistance of computer technology. The unit has provided some guidance on how they are planned and implemented.

5.7 References/Further Readings/Web Resources

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5.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit- 14.1 Panoramic view, compare/contrast, different angles, sequence of movement of still objects, abstract idea

Answer Kit – 14.2 Split screen, multi-image, wipes, animation etc.

UNIT 6 INSTRUCTIONAL RESOURCE CENTRES AND PRODUCTION IN NIGERIA

Unit Structure

6.1 Introduction

Unit 13 provides a historical view of the problem of or absence of instructional materials for which reason there is need to improvise. This unit deals with the situation as it exists today including consideration of the organizations that should take the initiative of production. The unit shows that not much is being done and that service organization which should provide teacher support has actually deteriorated. The unit helps to emphasize the point that as a teacher, you are on your own and must therefore try to fend for yourself. This involves interest and commitment on your part.

6.2 Learning Outcomes

By the end of this unit, you should be able to:

- explain the concept and functions of ERC
- discuss the different service organizations in Nigeria.
- Mention production sections for instructional materials and itemize their contents

6.3 Educational Resource Centre

6.3.1 Concept Clarification

An Educational Resource Centre (ERC) is not a mere storage unit for instructional material, rather, any place – corner, room, house or complex compound where equipped with materials, tools, equipment and facilities for designing, developing, producing, storing, indexing, weeding, retrieval of instructional materials. It also provides advice, services and loan systems, for teachers and student teachers on teaching practice programmes. Depending on availability of fund, human and non-human resources and general objective (being restricted or extended), an educational resource centre can be centralized, decentralized or coordinated. A centralized resource centre is one that functions as a sole facility within a state or local government responsible for acquiring, cataloguing and storing instructional materials, while a decentralized resource centre functions independently within a given school. Such a resource centre is available for use by students as well as teachers and so designed to serve the single school in which it is located.

The Federal Government has established the National Educational Technology Centre at Kaduna to render consultancy services to both the government and Educational Institutions in matters relating to educational resource production and utilization.

6.3.2 Some Institution-Based Resource Centres and Functions

Some state governments and some institutions of higher learning have also set up their own centres which include:

- The Curriculum Development and Evaluation Centre (formerly Modern Aids to Education Centre), Enugu which is now owned by the Enugu State Ministry of Education.
- The Teachers Resources Centre Jos was established by the Plateau State Ministry of Education.
- In 1973 the library Department of the University of Ibadan opened up a Pilot Resource Centre Known as the Abadina Media Resource Centre.
- The faculty of Education, University of Nigeria Nsukka has her Curriculum Development and Instructional Materials Centre (CUDIMAC).
- The faculty of Education University of Benin has her Instructional Resources Centre.
- The institute of Education, Ahmadu Bellow University Zaria has her Cntre for Educational Technology.

- The Anambra State College of Education, Nsugbe formally inherited a formidable and well equipped centre for Educational Technology (CEDUTEK) from the defunct Anambra State College of Education Awka as a result of the merger of the two institutions (Akude, 1999).

These Educational Resource Centre performs the following functions:

- Provides professional assistance to teachers and students or pupils in the design, production and utilization of instructional materials.
- Provides educational media, including learning kits for individual or group instruction by teachers, students or pupils.
- Classifies and indexes all resources available to the school and even those outside the school.
- Liaises with outside bodies so as to serve as a coordinating centre for outside borrowing and cooperation.
- Maintains and repairs all audio-visual hard waves owned by parent institutions.
- Becomes an agency for curriculum innovation and teacher development.
- Provides opportunities for in-service training courses for serving teachers.
- Makes effective evaluation and selection of appropriate instructional materials which the state government procures and sends to the respective primary and Post-Primary schools.
- Planning and organizing educational broadcasting.
- Carrying out research, evaluation and training programmes in educational technology.
- Provides opportunities for groups of teachers who may collaborate in producing series of items for specific courses.
- Acts as a supportive service for dealing with full ability range of pupils and for the provision of good learning situations which enable pupils work at their own pace and be actively involved in learning.

6.4 Objectives of Organization

The National Policy on Education (FRN, 2013) has prescribed Educational Services as support services for the Nigerian educational system. This means that they should try to spread to cover the educational system. The objectives include:

a. to develop, assess and improve educational services
b. to enhance teaching and improve the competence of teachers
c. to make learning more meaningful for children
d. to reduce educational costs

e. to promote in-service education

1. to develop and promote an effective use of innovative materials in schools.

In effect, educational services are to specifically enhance teaching and improve the competence of teachers and this is to be done through in-service training and the effective use of innovative materials. This supports that these innovative materials which would also form the basis for in-service training would be provided to teachers. Ultimately, these services are to make learning more meaningful for children and cut educational costs. Cutting educational costs suggest in-house production of the innovative instructional materials. In other words, educational services are to provide support to teachers for them to be effective.

6.4.1 Organizations and Networking

The Federal Government set up the National Educational Technology Centre (NETC) for the purposes of providing these services nation-wide. States were encouraged to set up their own organizations as were educational institutions. The creation of states saw the continued expending of service organization as each state set up its own.

By 1982, there was an effort to build a network to link them up since they were at different stages of development and were performing different functions. It was found at that time that some of them were producing teaching aids while others were only capable of running workshops.

The Network was conceived as a means of sharing information to help the new ones or those without developed services to develop them. This came about as a collaborative effort between the Nigeria Educational Research Council (NERC), the National Educational Technology Centre (NETC) and the Network of Educational Innovation for Development in Africa (NEIDA). Thus, the Network of Educational Services Centres in Nigeria (NESCN) or the Network was born.

Self-Assessment Exercise

What circumstances gave rise to NESCN?

6.4.2 Objectives of NESCN

The objectives of the Network of Educational Services Centres in Nigeria (NESCN) include:

1. To improve the quality of instruction being given Nigerian school children by encouraging invention, design, production and utilization of instructional materials at all levels of the teaching-learning process.
2. To promote a spirit of useful cooperation among Educational Resource Centres and other resource organizations in Nigeria and to encourage and assist in the development of Educational Resource Centres in all state.
3. To provide a forum for the exchange of ideas, information, experiences, services, materials/facilities etc.
4. To assist cooperating centres to keep in touch with innovations in education developed both inside and outside Nigeria and the application of innovations to the solution of the diversified problems of the Nigerian educational system.
5. To cooperate with and affiliate to other organizations and bodies with related interest.
6. To facilitate national unity through cooperation among member states.

There was to be a Network Secretariat that would coordinate this flow in information and expertise to link up all services organizations. A Network member, UNICEF was to provide additional funding, equipment and an expert consultant.

6.4.3 Standardizing Nomenclature

The early 1980s along with the Network saw genuine efforts to get resource centres in states and at educational institutions to develop and to provide support services. The effort to standardize nomenclature as a means of standardizing services was one such effort. They were to be organized and named with the services they were to provide defined for them.

a) National Educational Technology Centre (NETC); the apex and national service organization whose services would cover the whole country. It was to operate separate educational radio and television channels. NETC did make great strides as at that time including encouraging states to set up their own services. NETC was to represent the highest level of sophistication in the provision of educational services.
b) Centre for Educational Technology - the name to be used for institutional institutions services in higher education particularly at the university level. Each University was to set up a centre and one of their key responsibilities was in the area of research. Some Universities established there services and some had strong production capabilities.

c) Educational Resource Centre (ERC) - the name for the service to be provided at the state where there had been wide variation in names. The change name was to encourage them to expand their services to include curriculum development, production, training and circulation of materials among others. Some of the services have grown in some of the states.

d) Learning Centre - to be established in individual school or jointly to serve groups of schools. Within the whole educational system, these service organizations have usually been the first target when there has been shortage of resources. Thus these efforts have not been marked with any success. The Network did not really take off. The universities experience one case of complete closure and while more states have set up organizations, services have deteriorated.

Self-Assessment Exercise

How would you as a teacher argue for setting up a service organization in your school?

6.5 Production Facilities

The contents of this unit is to show you the different areas in production of instructional materials. These include:

a) Printing

The facilities provided include those for preparing manuscripts for printing, principally computer facilities in typesetting, included are facilities for photography and plate-making, actual printing or making impressions, binding and trimming.

b) Graphics/Transparencies

Will require a graphics studio with:

1. Drawing table
2. Pens and markers
3. Drawing and lettering inks
4. Pencils and crayons
5. Illustrating devices
6. Cutting devices
7. Acetate materials for transparencies
8. Lettering machine
9. Diazo machine
10. Laminating machine

c) Still photographs and Slides

Requires the setting up of a darkroom photographic laboratory (see unit 8, item 3.4)

d) Video Recording

Requires a facility or studio

i) Recording system(s) (cameras and accessories)
ii) Editing facility
iii) Monitors
iv) Audio speakers
v) Lighting
vi) Accessories (assorted microphones, headphones, cables, plugs etc.)

e) Audio Recording

i) Special recording area or studio
ii) Audio recorders (reel-to-reel, cassette, CD, turn-table)
iii) Amplifiers
iv) Audio speakers
v) Audio mixers
vi) Accessories (microphones, earphones, cables, plugs etc)

6.5.1 Prospects for the Future

The new democratic dispensation has helped to focus attention on education. With contending demands in view of the general deterioration in services, it does not look like government would be able to provide all that are expected thus, as a teacher, you will have to continue to do your best in the circumstances.

6.6 Summary

This unit has examined the efforts that were made in the past to set up viable educational services to support instruction. The efforts did not succeed and generally at all levels, these support services have deteriorated badly. The National Educational Technology Centre (NETC) which had been at the centre of these efforts has become dormant; in fact it has been taken over by the National Open University of Nigeria (NOUN). The question of whether NETC would be able to provide the expected services now depends on what roles NOUN ascribes to it.

6.7 References/Further Readings/Web Resources

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15.8 Possible Answers to Self-Assessment Exercise(s) within the content

Answer Kit-15.1 National policy, new states, differences in services, efforts of NETC, NERDC. NEIDA, exchange of information, provide services.

Answer Kit-15.2 The benefits, the needs of teachers and students, the services that could be provided and expected effect on the school