



**COURSE
GUIDE**

**PED 430
DESIGN AND PRODUCTION OF LEARNING MATERIALS
FOR PRIMARY SCHOOLS**

Course Team Henrietta Ibijumoke Johnson (Mrs.) & Dr. (Mrs.)
M. V. Adegbija (Course Developer/Writer) –
NOUN
Prof. N.C. Nwaboku (Course Editor) - Lagos State
University, Lagos
Dr. (Mrs.) M. V. Adegbija (Programme Leader) –
NOUN
Mrs. Henrietta Ibijumoke Johnson (Course
Coordinator) - NOUN



NATIONAL OPEN UNIVERSITY OF NIGERIA

National Open University of Nigeria
Headquarters
14/16 Ahmadu Bello Way
Victoria Island
Lagos

Abuja Office
No. 5 Dar es Salaam Street
Off Aminu Kano Crescent
Wuse II, Abuja

e-mail: centralinfo@nou.edu.ng

URL: www.nou.edu.ng

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INTRODUCTION

Good teaching produces effective learning. However, there is hardly any teaching method which does not call for the use of an appropriately selected, carefully designed, creatively produced and effectively applied learning materials. Just imagine, even the often criticised “talk-n-chalk” method needs an organised and structured use of the chalkboard. As a result you should regard this course PED 430-Design and Production of Learning Materials in Primary School, as very important in your B.A. (Ed.) Primary Education degree programme.

PED 430 has been developed to sharpen your focus on the main purpose of your teaching profession, which is causing learners to learn. The course is a two credit course and consists of 15 units of four modules. The course will effectively direct you on how to meet the learning needs of primary school children. In addition, as you diligently pursue the course, you will be equipping yourself with the valuable skills to design and produce learning materials and be able to make selections of useful materials based on sound criteria.

The Design and Production of Learning Materials in Primary Schools is a special course. It is also very relevant to you both now and in the future as a professional in the field of education. PED 430 carries two credits and has been developed in four modules of 15 units.

By reflecting on your previous knowledge gained when you studied EDU 203: General Teaching Methods, you observed that every teaching method requires some form of learning and teaching material to enable its effectiveness.

If you work in a primary school or you are able to pay a visit to one, particularly a local government primary school, you will observe the acute shortage of learning materials in the schools, why is this so? With this course you could soon be in the position to design learning materials that will be widely distributed.

Reflect on your learning in Educational Technology in Teaching and Learning. You shall be referring to it when discussing the variety of learning materials and their application in the classroom.

Remember, every course in your programme of study is relevant and inter-related to each other for effective learning.

PED 430: Design and Production of Learning Materials will focus on the learning needs of children in primary schools and you know you can satisfy them. More importantly, the course will equip you with skills

necessary to thoughtfully design and produce or select relevant and appropriate learning materials for primary classes.

WHAT YOU WILL LEARN IN THIS COURSE

The design and production of learning materials is interesting, creative and active, but it can be costly and time consuming. The action involves series of decisions that must be taken as follows.

a	The design	<ul style="list-style-type: none"> • Why am I designing learning materials? • What is the need for the design?
b	The production	<ul style="list-style-type: none"> • Which types of materials do I need to produce? • Who am I producing them for? • Can they use the materials? • Do I have the skills?
c	The application	<ul style="list-style-type: none"> • Are the products appropriate and relevant to achieve the objectives?
d	The cost effectiveness	<ul style="list-style-type: none"> • Is the exercise (i.e. the design, etc.) • Cost effective in terms of time and money?

In order to highlight the points appropriately, you will be guided, using a systematic approach to instructional design and production.

Learning materials can only be considered effective through their application and appropriateness to specific learning objectives at the classroom level. You will come to this understanding by the use of examples to illustrate the steps. The course will conclude on some ideas which had been successful to inspire you.

COURSE AIM

The general aim of the course is to guide you through the system approach of design and production so that you can:

- a apply the principles guiding the design and production of relevant learning materials to the design and production of instructional materials
- b critically select materials for learning
- c creatively apply the selected or produced learning materials for effective learning in primary school classroom
- d design and produce instructional materials for primary school.

COURSE OBJECTIVES

At the end of the course, you will be able to:

- discuss the need for learning materials in the primary school
- discuss learning as the main benefit of education
- list and explain the different classification/characteristics of learning materials available
- follow the principles/models of product design and development to design simple learning materials
- describe the production guidelines for learning materials
- outline and illustrate, by describing the planning procedure for applying learning materials effectively in the classroom
- list the essential skills required by the teacher to design and produce effective learning materials
- explain the various learning styles and theories of learning and their application at the classroom level.

WORKING THROUGH THIS COURSE

To complete this course, you are required to study each unit very well, read the suggested books/study units in related courses and pass your examination. Each unit contains self-assessment exercises at different intervals in the course.

You are required to submit the Tutor-Marked Assessment (TMA) for evaluation. At the end of the course, there is a final examination. The course should take you about 15 weeks to complete. Listed below are the components of the course, what you have to do and suggestions on how you should schedule your time for each unit. These suggestions are to help you complete your course successfully and on time.

COURSE MATERIALS

The major components of this course are as follows:

1. the course guide which you are reading now
2. the study units
3. references and further reading and
4. the assignment file

STUDY UNITS

The 15 study units in this course are in four modules as follows.

Module 1 The Need for Learning Materials in Primary School

- Unit 1 Primary Education within the Context of the National Policy of Education
- Unit 2 The Characteristics of Primary School Children
- Unit 3 The Primary School Curriculum
- Unit 4 Teaching and Learning in Primary Schools
- Unit 5 Learning Styles of Primary School Children

Module 2 Principles of Designing Instructional Materials

- Unit 1 Designing Instructional Materials
- Unit 2 Concept and Characteristics of Learning Materials
- Unit 3 Producing Instructional Materials
- Unit 4 Theories Relevant to the Design and Production of Learning Materials

Module 3 Development and Production of Learning Materials

- Unit 1 Analysis Phase
- Unit 2 Design Phase: Educational Objectives Relevant to the Design of Learning Materials
- Unit 3 Evaluating Learning Materials
- Unit 4 The Learning Package

Module 4 Application and Utilisation of Learning Materials in the Classroom

- Unit 1 Planning and Preparation of Lesson Notes
- Unit 2 Effective Use of Neighbourhood and Environmental Resources

THE ASSIGNMENT FILE

You should be able to collect your assignment file along with your other course materials. In this file, you will find all the details of the work you must submit to your tutor for marking. The marks you obtain from these assignments will count towards the final marks you obtain for the course. Further information on assignments will be found in the assignment file and as you continue reading this course guide in the sections that follow.

ASSESSMENT

There are two aspects of the assessment of the course.

1. Tutor-Marked Assignment
2. Examination

In order to answer the questions in the assignment, use the knowledge you have gathered during the course. The assignment must be submitted to your tutor at the due date for assessment. The assignments you submit to your tutor constitute 30% of your total course mark.

At the end of the course, you will be required to write a three-hour examination. This examination will count for 70% of your total course mark.

TUTOR-MARKED ASSIGNMENT

There are tutor-marked assignments in this course. These assignments must be submitted and marked before you can sit for the examination. The three assignments with the highest marks will be counted towards the final marks. Each assignment carries 10% of your total course mark.

The assignment questions are in the assignment file. Send the completed assignment to your tutor with the file for formal assessment. This should be done on or before the indicated deadline.

FINAL EXAMINATION AND GRADING

The final examination constitutes 70% of the total assessment of the whole course. You will be informed of the time for the examination.

S/n	Assessment Items	Marks
1	Assignment (TMA)	All assignments from which the best three marks will be selected and used. Each assignment carries 10% i.e. $10 \times 3 = 30\%$
2.	Final examination	70% of overall course marks
3,	Total	100% of course marks

SELF-ASSESSMENT EXERCISE

There are some self assessment exercises in this course. Every unit has at least three and not more than five self-assessment exercises. These assignments are designed to give you practice and to help you get a good understanding of the concepts or knowledge in the relevant unit. They will sharpen your focus.

THE PRESENTATION SCHEDULE

The presentation schedule is included in your course material. It gives you important dates in the year, for the completion of your Tutor-Marked Assignment. Please remember you are to submit all your TMAs by the due dates. It is very important that you guard against lagging behind in your work.

COURSE OVERVIEW

The table below brings together the units, the number of weeks you should take to complete them with the assignments that go with them. Organise yourself by using it.

Units	Title of work to be done	Time frame	Assessment No. of TMA
1.	Primary Education within the Context of the New National Policy on Education	1 week	1
2.	Characteristics of Primary School Children	1 week	1
3.	The Primary School Curriculum	1 week	1
4.	Teaching and Learning	1 week	1
5.	Learning Styles of Primary School Children	1 week	1
6.	Designing Instructional Materials	1 week	1
7.	Concept and Characteristics of Learning Materials	1 week	1
8.	Producing Instructional Materials	1 week	1
9.	Theories Relevant to the Design & Production of Learning materials	1 week	1
10.	Analysis Phase	1 week	1
11.	Design Phase: Taxonomies of Educational Objectives Relevant to Designing Learning Materials	1 week	1
12.	Evaluating Learning Materials	1 week	1
13.	The Learning Package	1 week	1
14.	Planning and Preparation of Lesson Notes for Classroom Use	1 week	1
15.	Effective Use of Neighbourhood and Environmental Resources	1 week	1
	Total	15 weeks	15

HOW TO GET THE MOST FROM THIS COURSE

Remember always that you are a learner at a distance. You have the great advantage of studying your course materials at your own pace, and at a time and place that suit you best. Manage your time wisely.

1. Read the Course Guide
2. Organise a study schedule. Refer to the course overview for more details. Note the time you are expected to spend on each unit and how the assignments relate to the units. Make yourself a wall planner calendar or get a diary. Enter all the important information for easy reference and reminder. Decide on and write in your own dates for working on each unit.
3. Once you have created a schedule for yourself, do everything you can to stick to it. The major reason that students fail is that they get behind with their course work. If you get into difficulties with your schedule, please let your tutor know before it is too late for help.

TUTORS AND TUTORIALS

This is designed to bridge the gap that might have arisen due to the distance in the learning situation. Make the most of it.

You will be notified of your assigned tutor, his/her name, telephone number or e-mail will be given to you as soon as possible.

Your tutor will mark your TMAs and comment on them. He/she will also keep close watch on your progress and on any difficulty you might encounter in this course. He/she is there to provide you with necessary assistance during the course. Your Tutor-Marked Assignments (TMAs) must get to your tutor well before the due date. They will be marked and returned to you as soon as possible. Make sure you send your TMA in a file to make retrieval easier and faster.

Your tutor is there to help you. Contact him/her if you need help.

Try your very best to attend the tutorials. This is the only chance to have a face-to-face contact with your tutor and to ask questions which are answered instantly. These will help you to succeed in this course. You will learn a lot by actively participating in discussions during the tutorials.

SUMMARY

PED 430: Design and Production of Learning Materials for Primary Schools provides you with the rationale establishing the need for the design and production of learning materials in primary schools within the context of the new National Policy on Education and the demands of the Primary School Curriculum.

1. It discusses the need for learning materials in the primary school.
2. It lists and explains the main sources of different categories of learning materials available.
3. It follows the steps of the principles and theories of instructional design to explain the production of learning materials in some subject areas.
4. It describes the evaluation guidelines for learning materials production.

Good luck.

**MAIN
COURSE**

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MODULE 1 THE NEED FOR LEARNING MATERIALS IN PRIMARY SCHOOLS

- Unit 1 Primary Education within the Context of the National Policy of Education
- Unit 2 The Characteristics of Primary School Children
- Unit 3 The Primary School Curriculum
- Unit 4 Teaching and Learning in Primary Schools
- Unit 5 Learning Styles of Primary School Children

UNIT 1 PRIMARY EDUCATION WITHIN THE CONTEXT OF THE NATIONAL POLICY OF EDUCATION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Reflecting on the Concept and the Purpose of Education
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- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Do you know that this course book is a learning material? It was designed and produced for learners like you, who are adults and are learning at various geographical locations. Many factors were considered in its design and eventual production. One important factor is the contextual environment in which you, the learner and the designer/producer (i.e. NOUN Course Team) are operating. The context in which we are operating is Nigeria and the National Policy on Education provides the guiding principles for the entire education system. You are not learning about the whole education system in the course.

Design and production involve planning in which many decisions must be resolved at each stage of the design and the production cycles. The design process does not exist in a vacuum. There must be a need that the designed product will satisfy the end users. In this introductory unit, you will be reminded of the purpose of education, and set primary education within its contextual environment. This will enable you understand the position of the primary school within the education system. By so doing, it will enable you to appreciate the knowledge you have gained from the educational foundation courses you have studied in the past. This previous knowledge will help you to analyse and see the need for designing learning materials which are appropriate for the primary school level. I am sure you are eager to learn as much as possible in this course. So, let's go!

2.0 OBJECTIVES

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

- explain the purposes and functions of education, reflecting on some known views on education
- discuss the historical development leading to the rights to education for all;
- explain the World Declaration on Education for All (EFA)
- analyse primary education within the context of the National Policy on Education
- deduce the need for learning materials in primary schools.

3.0 MAIN CONTENT

3.1 Reflecting on the Concept and the Purpose of Education

If you go through several books on education, it is possible that you will discover quite a diversity of meanings and purposes of education. Let's review the following examples.

Socrates viewed education as an opportunity given to humans to utilise their God given reasoning power to acquire knowledge for their own good and the good of the society.

To Dewey, education is a process of living and not preparation for the future, therefore education should be relevant and enjoyable. He strongly believes in making learning permanent through active participation of the learner.

In his own perceptions, John Locke considers that education is a process of appropriately developing the individual learner physically, morally

and intellectually. John Locke, in this regard, is recognising the role of the teacher and her/his teaching methods. Education should be holistic.

Professor Babatunde Fafunwa, taking a modern view, is convinced that education, which is directed towards the development of scientific and technological knowledge, is mostly directed towards the development of self, the community and the nation. As a result, there should be a radical departure from primary education curricular that does not promote the development of a scientific mind. (A need for more than lecture / textbook teaching methods).

The Commonwealth Ministers considering “education in a global era” recognise that “education is a liberating force with moral and spiritual dimensions as well as a contributor to social and economic development”. Thus education should produce thinkers rather than implementers; and education should be more holistic, dealing with all levels and with different approaches. (*Commonwealth Secretariat Newsletter* 2000).

The statements above demonstrate the diversity of beliefs of the purpose and functions of education.

However, you will notice that the main consensus in all the views is that:

- education is a powerful agent of change to an individual, community, the nation and even the world
- education is the vital key which unlocks treasures of a successful and fulfilling life
- education is a life - long enterprise for all
- education should be functional and relevant.

What this is suggesting about the purpose and function of education is that it is influenced by the beliefs and values of the individual, the community and the nation.

It follows therefore, that to the extent that those beliefs differ, the experiences of learners in the classrooms could be different. As a teacher, you would need to apply more than the ordinary conventional method of planning and delivering lessons in order to ensure both effectiveness and efficiency to achieve the purpose of education. In particular, teachers would need to ensure that all learners are reached with the learning contents.

SELF-ASSESSMENT EXERCISE 1

What is the main consensus in the views on the definitions?

3.2 The Right of Education for All: a Historical Perspective

Going down the historical lane, there are so many references indicating that teaching and learning (education) had been going on since 400B.C. with definite positive results assuring both individual's and national progress. Consequently, governments examine the moral and social values more seriously as a right for all people. Gradually they began to incorporate the ideas in official document. Here are some examples of such documented statements.

The British Magna Carta (The Great Charter) of 1215A.D. proclaimed the right of people to learning. This began a social revolution that created a landmark in the history of human rights.

In 1772 A.D. the United States of America, following the steps laid down by the Magna Carta, legalised education in their 'Bills of Rights'. It proposed that all who desire education should be given access at least at the elementary level.

The French, also recognising education as an instrument to social change which should be opened to all people made a declaration in 1789 A.D. titled "The Declaration of Rights of Man and all citizens". The revolutionary document stated that 'the right of man to education is inalienable'. This meant that education for all men cannot be compromised.

In 1948, the advocacy for the right of all to education moved to a global status by the Declaration of Human Rights. In Article 26 of the document, the nations, signatories to it affirmed that everyone has the right to education. The section further recommends that education should be at least free, at the elementary (primary) education level.

You can begin to appreciate that from about the eleventh century A.D. primary education has been attracting attention. The trend of education for all even extended to Nigeria during the colonial era. Let us consider the following example.

The national decade plan of 1942 -1953 made provision for the extension of primary education facilities. Primary education was provided even in the villages in that period. Again, in the period 1955 - 1957, the Universal Primary Education (UPE) scheme by the then regional governments was introduced to extend the right to education for

all. Perhaps you have observed that in education, whenever quantity is pursued, the consequence is usually some losses in quality. This was the case with the UPE scheme. There were two main challenges as listed below.

- Acute shortage of teachers.
- Lack of instructional /learning materials.

In spite of these challenges, the UPE was re-introduced in 1976 on a national scale in Nigeria. This greatly increased the enrolment rate; and the teacher –pupil ratio in primary schools deteriorated below standard. The situation also aggravated the acute shortage in the availability of learning /teaching materials. One of the steps taken to improve the education system was the publication of the first National Policy on Education in 1977. The publication of the policy was seen as a clear demonstration of the good intentions of the Federal Government of Nigeria to provide quality education for all in line with the Constitution.

In Nigeria, the legal document instituting education for all is the Constitution of the Federal Republic of Nigeria, schedule 18 of chapter 2; the constitutional objectives for education are stated in the following terms.

- Government shall direct its policy towards ensuring that there are equal and adequate educational opportunities at all levels
- Government shall promote science and technology
- Government shall strive to eradicate illiteracy and to this end, Government shall, as and when practicable provide:
 - a. free, compulsory and universal primary education;
 - b. free university education and
 - c. free adult literacy programme.
 - d. (*Federal Republic of Nigeria Official Gazette no 27. vol. 86. Lagos 5th May, 1999*).

You should know that similar notable effort was also being exerted throughout the world to expand education to all, at least at the primary education level. Again, as UNESCO observed, success recorded seems to be in terms of quantity more than quality. Enrolment rate increases, while facilities and other resources- including instructional / learning materials, qualified teachers and funds continue to decrease. The large number of pupils in the classes to a single teacher brings hardship to effective teaching and the inadequacy of materials such as textbooks and pupils' workbooks reduce the efficiency of the pupils to learn. This situation, according to UNESCO (1990), led to the following global realities.

- That there are still a large number of school age children out of school
- That many adults and children, majority being women and girls are functionally illiterate
- That more than one-third of the world's adult population have no access to new skills and technologies that could improve the quality of their lives and help them shape and adapt to social and cultural changes
- That there are threats of economic stagnation and decline
- That the rate of children who are completing school is still high; and
- That these problems constrained efforts to meet the basic learning needs of primary school children.

SELF-ASSESSMENT EXERCISE 2

What is the Nigerian constitutional stand point on education?

3.2.1 The World Declaration on Education for All: Meeting Basic Learning Needs

The global realities mentioned above motivated the need to find a solution to address the issues on a global basis strategically. So, in March 1990, a world congress on education was convened at Jomtien in Thailand. The congregation consisting of the world's foremost educationists agreed on the World Declaration on Education for All (EFA) with the caption: Meeting Basic Learning Needs. Nigeria participated and she is also a signatory to the Declaration. There are six specific goals for all the signatory nations to achieve. These are to:

- universalise access to education
- promote equity
- focus on learning
- broaden the means and scope of basic education
- enhance the environment for learning
- strengthen partnerships.
- (*UNESCO 1995*).

Many observers commented that 'for the first time in the history of education, many countries are committing themselves to making the goals of basic education attainable'. This is because the Education for All goals are strategically formulated having a framework for action to meet basic learning needs of all by all nations.

3.3 Primary Education within the Context of the National Policy on Education

This current National Policy on Education is the fourth edition published in 2004. The 1977 edition was reprinted in 1981, and revised in 1998. It was further revised to allow for some of the changes suggested by The World Declaration on Education. It features contemporary innovative ideas in basic education. It maintains that the national philosophy of education believes in education as an instrument for national development. Thus education at all levels shall be geared towards the following.

- Self realisation
- Better human relationship
- Individual and national efficiency
- Effective citizenship
- National consciousness
- National unity
- Scientific and technological progress
- The inculcation of the right type of attitudes and values for the survival of individual and the society
- The training of the mind in the understanding of the world around
- The acquisition of appropriate skills
- The development of mental, physical and social abilities which will equip the individual with competencies to live effectively and contribute to the development of the society.
- The development of the skills for lifelong learning
- The policy also re-affirms the formal structure of 6-3-3-4 system

According to this structure, the formal base for schooling is the primary education, although the Basic Education Act (2004) extends basic education to consist of 9 years – that is, 6 years primary and 3 years junior secondary schooling. In 2006, Government included linkage classes to public primary schools to cater for the 4 – 5 year old children.

Pupils enter the primary school at the age of 6 years in Nigeria and spend 6 years before transiting to junior secondary school when they are about 12 years. In those six years, the children are to be prepared for the formal education system. The primary education is the key to the success or failure of the whole education system. Can you now see why the focus is always on primary education? It is important that children leaving primary school should have confidence to demonstrate the following abilities.

Learn: that is, learning new things with the ability to relate them to their previous knowledge and experiences. Learning to learn.

- **Think creatively:** that means the ability to initiate an idea, develop it and present it logically to others to understand and appreciate.
- **Solve problem:** that means the ability to apply past knowledge, skills and experiences to novel or difficult situations and circumstances.
- **Reason abstractly:** that means attaining the higher form of learning capability. This is the ability to read and write, to analyse, synthesise, evaluate and appreciate acquired information from a variety of sources. (EFA)

According to the UBE report, children finishing primary school should possess basic literacy and numeric skills. They should demonstrate a level of technical organisation skills. They should show by their behaviours and attitudes that they have acquired a measure of educational values which are expressed in the national goals of education.

The Need for Learning Materials in Primary Schools

Considering the expectations of the National Policy on Education you can see that there will be need for new approaches to the various elements in the process. There is an old saying which is often quoted in media context that – “you cannot solve today’s challenges with yesterday’s tools”. This is very true, as the usual teacher’s “talk and chalk” method of the past can no longer meet the following challenges.

- Students’ population explosion
- The need to satisfy the information thirst of a variety of learners

Haggis (1995) aptly captures the points when she writes that “the information explosions through the use of computers, internet and a host of other media and technologies have made the knowledge of an unprepared teacher to become obsolete. You need different learning materials to meet the needs of the various individual children in your classroom. You need to think of the materials, where to get them or how to make them if the need arises. Most importantly, you need to know how to utilise modern technologies appropriately. You also need, as a teacher to continually upgrade your knowledge.

4.0 CONCLUSION

In this unit, you have been exposed to the concept of education through a reflection of some notable views on the definition of education. You also learnt that the purpose and function of education are influenced by the beliefs, values and custom of a people. You should be able to understand the background to the World Declaration on Education for All (EFA). This analysis has given you an insight to the fact that often, the pursuit of quantity leads to a loss in quality. Thus, there is a need for intervention to improve the situation.

5.0 SUMMARY

What you must have learned in this unit concerns primary education within the context of the National Policy of Education as the framework in the design and production of learning materials, activities or experiences. Design involves stages of planning and planning requires analyses of identified elements or factors in the process. The primary education environment is the education sector that we have focused on. In the next unit you will learn about the nature of primary school children and their learning needs.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Analyse the National Policy on Education with particular focus on Primary Education
- ii. Referring to the learning needs of primary school children, justify the need for learning materials in schools
- iii. Discuss the historical perspective of education that leads to the World Declaration on Education for All.

7.0 REFERENCES/FURTHER READING

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UNIT 2 THE CHARACTERISTICS OF PRIMARY SCHOOL CHILDREN

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- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
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1.0 INTRODUCTION

Do you remember what we said in unit one about design? Very good student! I know you are following the course. Yes indeed! Design involves planning and planning requires series of decision making. Your decisions are based on reports from analysis of elements and factors involved in the process of teaching and learning which could affect the outcome of the product(s) you design. The key element in the design of any teaching–learning activity is “the learners” with all the dimensions of their characteristics. So, in this unit we shall be examining some of these dimensions of children’s characteristics.

2.0 OBJECTIVES

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

- describe the heterogeneous nature of primary school children, mentioning two groups of factors responsible for the differences
- explain the importance of considering cultural bias in effective classroom communication
- identify two points when explaining the relevance of the language dimension in children’s characteristics
- recognise the two areas of need that affect the characteristics of young children

- justify the importance of analysing the characteristics of learners in planning teaching–learning activities by stating at least six advantages to the teacher.

3.0 MAIN CONTENT

3.1 General Description of Primary School Children

The word heterogeneous describes a situation consisting of many different types of people or things. It is the opposite of homogeneous which means one type. Primary school children are heterogeneous in nature. You cannot boast that you know all there is to know about them. The differences that exist among them (their heterogeneous nature) make it very important that you, as a teacher should learn more about their nature and the developmental differences that exist among them. According to the National Policy on Education (2004), primary school children are the young children who are between the ages of 6 -12 years.

Most of them have been registered into an organised educational environment called “the primary school”. Unfortunately, some within the same age bracket are not in school but are out there on the streets. Primary school children have come from various locations. Some are from the villages in the rural environment, while some others are from the big towns in the urban environment. Still others are in areas that cannot definitely be described as rural or urban- examples are the nomadic children and those of the migrant fishermen. Some are gifted and talented (the exceptional children), while some others are physically challenged in one form or the other and would require special educational attention. These children are expected to be taught inclusively in the classroom. Why are there such great differences among human beings generally?

Psychologists explain that these are due to individual differences. These differences can be noticed on the play ground as well as inside the classroom; some of the differences have been influenced by factors that are innate to the individual, while others are influenced by experiences within the environment.

For example, some differences that can be due to innate factors are as follows.

- The physical appearance of an individual
- The gender, whether boy or girl
- The display of strength and courage
- Temperaments and moods
- Intelligence and ability

Those that can be due to environmental factors are all the experiences and knowledge which an individual has acquired through interactions with the human and material resources in the environment. They are as listed below.

- Culture and ethic orientation
- Language spoken
- Parental socio-economic background
- Parental child -rearing practices
- Type of community / neighbourhood
- Type of school and the location where it is situated
- Peer groups influences
- Teacher's inter and intra –relationships
- Available learning materials etc

Both the innate and the environmental factors play important roles in shaping the characteristics of an individual. It is very important that you understand the implications of these factors influencing the pupils, so that you can plan appropriately. So how do all these factors influence your pupils, your lesson, or the design of learning materials? Let us explore five of the dimensions of differences – to see how they can affect the effectiveness of learning materials.

3.2 The Cultural Dimension of Individual Differences

You have learned in some of your education foundation courses that the people's values and aspirations are greatly influenced by their culture. The Oxford Advance Dictionary gives several definitions of culture but one that is most relevant to this discussion states that "culture is the customs, and beliefs, art, way of life and social organisation of a particular country or group". A more relevant definition is given by Munck (2000) in his work titled, "Culture, self and meaning". He looks at culture from the psychological and the anthropological points of view. He thinks that culture can be grouped into two:

- a. the culture that is inside a person – in the private sphere of self
- b. the culture that is outside of a person-located in the public world.

He explains that by "inside" he means that culture refers to the ideas located in the mind and head of an individual, making us to form our own culture. While the cultural dimension he grouped as 'outside', he explains, is the culture that researchers look for in public life and in symbols, structures and processes that shape and constrain our behaviour. In summary, culture refers to the attitudes, values, customs

and behaviour patterns that characterise a social group or an individual (Eggen and Kauchak, 1997).

The culture of your pupils can influence the way they accept the content of the learning material presented to them. For example, using pork to illustrate animal protein when discussing nutrition may sound alright to some people, but to the Moslem children it would be offensive. This cultural bias could interfere with the children's understanding of the concept being taught (Molenda and Heinich 1989).

Heinrich 1989, pointed out that complexities in cultural differences can even express itself in the choice of colour, signs and other visual representations. It is important that learners should be able to see the connections between learning contents and their culture, experiences and previous knowledge. Cultural biases can constitute a barrier to effective communication.

When communication fails, learning becomes ineffective. As a teacher, you need to guard against any barrier that could make your teaching ineffective. You should be aware and understand the cultural backgrounds of your pupils. Culture is an element of the factors that make up the personality of an individual; you cannot completely divorce an individual from his / her culture (Munck 2000). So, do not ignore it in the process of your design analysis.

SELF-ASSESSMENT EXERCISE 1

What is the key point that makes cultural dimension of central importance in the analysis of children's characteristics?

3.3 The Language Dimension of Individual differences

The official language of Nigeria is English, by implication it is also the language for teaching and learning in educational institutions throughout the country. However, in accordance with the National Policy on Education (2004) the stipulated language of instruction shall be the mother-tongue or the language of the immediate environment for children from nursery to primary three classes. During this period (nursery classes to primary three), English Language shall be taught as a subject. From primary four, English shall progressively be used as a medium of instruction; while the language of the immediate environment and French are taught as separate subjects to conform to the National Policy. You and I know that in Nigeria, there are at least 55 different languages and at least 150 dialects. Most often the class teacher speaks a language that is different to nearly 2% of the children in the class. Thus Nigeria can be classed as a multilingual nation, speaking

English as a second language. To add to these complexities, you, the teacher have also learnt English as a second or third language. There is also an unofficial variety of English Language called ‘‘Pidgin English’’ which is gaining popularity among the school children.

Language, in all its formats, is central to communication. Through communication human beings connect to the world around them and learn. Some of the language formats are as follows.

- Words
- Concepts
- Gestures
- Sign and pictures
- (NOUN PED 433, 2009)

When these are used in instruction, they should be made very clear in order to eliminate the possibility of misinterpretation or misunderstanding through differences in perception and experiences. The language dimension of individual differences is an important factor when you are considering the characteristics of primary school children for the purpose of designing and producing educational activities or learning materials. This is so, because your aim is to help children to learn at their own level. You will need to communicate with them through a form of language. Therefore you need to guard against situations in which children could be confused through your use of language that is beyond the level of their understanding.

SELF-ASSESSMENT EXERCISE 2

Imagine a class of heterogeneous children; explain why you should consider the dimension of language in planning for your lesson.

3.4 The Dimension of Individual Needs

All humans have the basic fundamental needs of nutrition, physical and psychological comfort of safety, love, belongingness and self esteem (Ajaoku, 2006). Needs here, are considered to be those necessities required to make an individual happy and continue to survive. For children, these needs are expected to be satisfied in order that they may develop into a well adjusted holistic personality. You are required to be able to identify the various needs which have been grouped into:

1. physiological needs and
2. psychological needs

You are required to understand the influence they have on the developing child and his / her learning capabilities.

1. **Physiological needs.** These are generally required by all human beings and may vary in their prominence and expression according to circumstances, maturity, personality and endowment.

They are as listed below.

- a. The need for food and safe drinking water (a hungry man is an angry man).
- b. The need to be active, and to rest. You should be able to provide an appropriate balance.
- c. The need to be healthy. A healthy child is active and motivated to learn.
- d. The need to eliminate body waste. Provide opportunity to go to toilet for the children. They cannot concentrate if they are under any form of discomfort.
- e. The need to be properly housed and protected. The feeling of security and safety boost children's personality and they are happy. When they are happy their natural tendency to be curious and learn is promoted.

2. **Psychological needs.** These encompass the need for permission to become an individual and be happy. They are as listed below.

- The need for affection
- The need for belonging
- The need to achieve and be recognised
- The need for freedom / independence
- The need for status, self –identity and self esteem
- The need to learn and interact with others in the environment
- The need to communicate and be given the opportunity for self expression.

SELF-ASSESSMENT EXERCISE 3

- i. Enumerate the needs of the child under the two categories of human needs.
- ii. Why is the dimension of differences in individual needs critical in the characteristics traits of primary school children?

3.5 The Dimension of Individual Ability

The dimension of individual ability is a critical aspect of this course. This is because the reason for designing and producing learning materials is basically to bridge the gap in the ability of the learners. More importantly, it is also to ensure that children are able to learn optimally at their own pace and in the way most suitable to them.

However, if you consider a typical primary school class, you will observe that the differences in ability are not adequately promoted. For example, the teacher follows the primary school curriculum strictly, teaching all the children at the same time using the same methodology.

At best the children could be grouped by their abilities (i.e. 'A', 'B', or 'C' streams). The textbooks are the same for every child; the evaluations (examinations) are the same focusing more on verbal academic subjects and are not catering for the gifted /talented in non-verbal subject areas. Although the National Policy on Education prescribes continuous assessment as a measure to address the issues of differences in ability, there is still a big gap in the effective implementation of continuous assessment. The reasons are as follows.

- Teachers are still not trained enough to handle the assessment of the affective and psychomotor domain of children effectively.
- Standardised tests are not available.
- Very high teacher–pupil ratio (1:50) in most cases makes it difficult for the teacher to provide individual attention.
- Some teachers are not familiar with and competent in the different assessment types.

Understanding the characteristics of your pupils is the very first step in planning and implementing an effective teaching–learning process.

SELF-ASSESSMENT EXERCISE 4

- i. The knowledge of individual ability of children in your class is --
----- to -learning activities
- ii. A major reason for designing learning materials is to help -----
the ---- differences in -----.

So far, we've been discussing the various dimensions that can affect or influence the characteristics of children in the primary school. The knowledge you have gained on the characteristics of the children, can only be worthwhile, if you can integrate that knowledge to ensure children learn effectively. That brings us to another influencing factor we need to consider, the school environment.

3.6 The Dimension of the School Environment

The Advanced Learners' Dictionary defines an "environment" as a predetermined surrounding, circumstances and influences. While educational is defined as an adjective of the word education, having connection with the systematic training and instruction in schools, colleges etc. You can describe primary school as predetermined surroundings where young children are being exposed to teaching and learning activities.

The learning process involves interactions. In the school environment, the resources that will influence the child's development and learning are as follows.

1. The curriculum
2. The teacher, who must be properly trained to carry out his/her professional responsibilities, his/her teaching styles and general disposition.
3. A classroom atmosphere that is conducive. This means a classroom where there is genuine love and caring among all members of the class.
4. The class teacher, who shows a thorough awareness of the individual differences in the class. He/she must also be able to demonstrate responsive teaching which will be evidence of accommodating different learning styles. This will promote effective class management.
5. Peer group influences: peer group influences are very common in schools. A peer group is a small group of children usually of same sex in the primary school. It has been observed that every normal child in the school identifies with a small group, often of the same sex, age and social class background. The characteristics of children in the school and sometimes even at home can be greatly influenced by the characteristics of the peer group.

This is because individuals in the group have stronger allegiance to their leader and other members of the group than they would have to non members of constituted authority. (Eggen and Kauchak 1997).

3.7 The Importance of Analysing Pupils' Characteristics

The principle behind education for all is to ensure that all children have equal learning opportunities. The goals of equal learning opportunities may not be realised if children are lumped together and taught without regard to their individual differences. By studying and analysing the

pupils' characteristics you will be able to perform the following competencies.

- Understand each child's nature and needs
- Build a good relationship between you and your pupils. This will enhance effective classroom management. There would be greater mutual respect.
- Select or develop learning materials that are relevant and appropriate. This will increase pupils' motivation and promote learning.
- Involve the children in activities that will promote their individual development. This will give them an opportunity to excel at their own pace and rate.
- Be more creative in your method of teaching
- Build a community of learners where individual's dignity is respected.
- Ensure children are able to identify with content and materials; this will make things easier for pupils to learn.
- Ensure proper analysis of language dimension as this helps to remove (eliminate) the possibilities of confusion and misunderstanding.
- Ensure it is possible to enjoy cost benefit because the designed products will be relevant, appropriate and usable.
- Contribute to the achievement of the EFA goal of equal opportunity for quality education for all (EFA 2007).
- Feel satisfied professionally.

4.0 CONCLUSION

In planning an effective educational activity for children, it is important to study and analyse their characteristics. At the primary school, the heterogeneous nature of these children is more pronounced due to the culture, language, individual needs, individual ability and dimensions that influence their characteristics. Human intellectual capabilities are not limited to verbal academic abilities alone. You must discover the multiple individual strengths and weaknesses so that you can plan and deliver your instructions effectively. More importantly, children's optimal development is the key point you should emphasise.

5.0 SUMMARY

In this unit, you have learnt the characteristics of primary school children from various perspectives. In the process, four dimensions of differences most pertinent to this course were taught. In the next unit

you will be looking at what children learn in school as we look at the National Curriculum for the primary school.

6.0 TUTOR-MARKED ASSIGNMENT

- i. What are the implications of categorising learning under a general intellectual ability such as “A”, “B” or “C” stream learners?
- ii. One of these variables is expressing the prominence in physiological needs.
 - a. Affection
 - b. Circumstances
 - c. Drinking
 - d. Independence
- iii. Why are the differences in human needs critical in the characteristic traits of primary school children?
- iv. What are the principles behind Education for All?

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UNIT 3 THE PRIMARY SCHOOL CURRICULUM

CONTENTS

- 1.0 Introduction
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1.0 INTRODUCTION

In unit one, you examined primary education within the context of the National Policy on Education. In unit two, you explored the characteristics of primary school children. By so doing, you are able to see that all children need to develop, grow and learn at their appropriate stage and at their own pace. You are able to understand that when you plan any learning activity or prepare materials for your learners, your primary aim should be to make the learning appropriate and relevant for your learners to understand. So what do you teach the children? What are they doing in school? What do you want them to learn?

In this unit, you are going to examine the curriculum to answer the questions and to see how it makes it easy for you to select learning contents.

2.0 OBJECTIVES

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

- define curriculum indicating the link to national implementation of educational goals and objectives in three cogent points
- mention at least three types of curriculum describing their features and relevance to teaching and learning
- identify four innovative features of the Universal Basic Education Curriculum

- describe the structure of the national primary school curriculum using one of the core subjects as an example
- explain by stating four main points, the implication of the knowledge of the curriculum in the design and production of learning materials.

3.0 MAIN CONTENT

3.1 Definition of Curriculum

Every definition of the term “curriculum” which has been put forward by nearly all curriculum experts agrees that the idea has its root in the Latin word “Curare” which means “race course” or “to run a course”. The Oxford Advanced Dictionary defines curriculum as the subjects studied in schools. In a wider context, it is defined as a compilation of programme of activities which has been prepared for a group of people or an individual.

According to Kelly (2009) cited by *Wikipedia* (2010), curriculum means two things.

- a. The range of courses from which students choose what subject matters to study and
- b. A specific learning programme.

She suggests that in the latter case, the curriculum collectively describes the teaching, learning and assessment materials available for a given course of study (*Wikipedia* 2010). For example, the NOUN course material is a type of curriculum.

Wilson (2010), citing Olivia (1997), listed a multiple of definitions in her “curriculum index” as follows.

- That which is taught in school
- A set of subjects
- Contents of a book
- A programme of studies
- A set of materials
- A sequence of courses
- A set of performance objectives
- A course of study
- Everything that goes on within the school, including the extra class activities, guidance and interpersonal relationships.
- Everything that is planned by school personnel

- That which an individual experiences as a result of schooling (Olivia pg. 4. 1997)

You can easily deduce that the curriculum is the “blue print” for the implementation of the National Philosophy and Objectives of Education. It is the guideline to achieving the objectives planned for education in a country, in a school or an organisation. It provides a link between the goals and objectives of education and the implementation strategies of the educational processes.

Obanya says (2001); it is one of the vital inputs to the quality dimension of the education provision for citizens of a nation. The curriculum is designed to be responsive to both the individual and societal needs. It is designed to be comprehensive, covering all aspects of the development of the child. A good curriculum is adoptable to changing times, changing needs and changing conditions. The society is not static. Educational programmes should evolve to suit the needs of the society and the individuals. There are always new things to learn.

SELF-ASSESSMENT EXERCISE 1

How relevant is the curriculum to the achievement of the national goals?

3.1.1 Types of Curriculum

In your course, “Curriculum Theory and Practice” you learned that there are different kinds of curriculum. You also learned that curriculum design is influenced by the philosophical, psychological and social orientation of the group, the individual, the nation or the institution for which it is being designed. Some curriculum experts have listed curriculum types as follows.

- The Written Curriculum. This curriculum gives the basic lesson plan to be followed. It includes the objectives, the sequences of the content and suggestions of materials to be used. This is sometimes referred to as the lesson plan. It provides the basis for accountability of the teacher’s effectiveness.
- The Operational Curriculum. It is what is taught by the teacher and how it is communicated. This includes what the teacher teaches in class and the learning outcomes for the students
- The Null Curriculum. It consists of what is not taught. Even though it might be necessary for pupils to learn it.
- The Extra Curriculum. It is the planned experience outside of the specific educational sessions. Sport or clubs – activities are in this category

- The Formal Curriculum. It is what Ehindero (1994), classified as the official curriculum. It represents the government's laid down proposed and planned guidelines to promote the implementation of the national aims and objectives for education. Molan, Oige. (2010), observed that official/formal primary school curricula had similarities throughout the world. They are often not teacher-friendly because they are written in coded official language that would need further analyses for clearer understanding. They are nearly always rooted in the National Policy of a nation. You will find the Nigeria's official curriculum for primary school in the National Policy on Education (NPE 2004) document page 15, section 19.
- The Hidden Curriculum. This type of curriculum is sometimes referred to as the "unofficial" curriculum. Ehindero (1994) explains that this type of curriculum is the unplanned for and rather learning experiences which serve to reinforce or complement the planned or intended experiences. Wilson, (2010) in his own explanation considers that the hidden curriculum embodies the learner's cumulative positive and negative strategies to cope successfully with the huddles imposed by the official or planned actual curriculum. In this regard, the hidden curriculum becomes the learner-invented or structured system of different (i.e. hidden) activities some of which may undermine the intentions of the formal curriculum which they are meant to complement. Examples of the hidden curriculum would include messages and lessons derived from the attitude of the teacher, the organisation and general atmosphere of the school. Other factors included as examples of the hidden curriculum are:
 - the community's indigenous stimulation and discipline practices
 - the norms and values of the surrounding, society
 - the influence and impact of both the print and electronic media are all classed as hidden curriculum in the educational processes.
- The actual curriculum. This is more or less a reality curriculum. It is teacher-friendly. This is because this type of curriculum has been re-planned with substantial input from those who will implement it. These implementers are teachers, parents, instructional material developers, the community etc. They are often referred to as the stakeholders. The actual curriculum reflects realities of available human and material resources needed for effective implementation. The current primary school curriculum modules are examples of actual curriculum in Nigeria. Wilson, (2010) also describes the actual curriculum as the curriculum-in-use. This is the actual curriculum delivered and presented by the teacher.

- The syllabus. This is a plan that states exactly what student at a school or college should learn in a particular subject, within a particular year. For example, “Social Studies syllabus”, “Mathematics syllabus”, etc. The contents of the syllabus are derived from the written or official curriculum. The syllabus is closely related to the goals of the National Policy on Education. The programming of curriculum modules is usually drawn from the syllabus of the particular subject.
- The spiral curriculum. This is a fairly recent word being used when discussing curriculum. Generally, a spiral curriculum is a kind of curriculum in which contents are recurrent and gradually developed with level of difficulty. Most contents of the actual curriculum or the curriculum being used by teachers in the classroom are spirally designed. That means the contents start from basic (simple) and gradually build up to the most difficult (complex) see Table 3.1.

Table 3.1: Sample of Spiral Arrangement: Science Lower Primary Classes 1- 3

Primary One Science and Technology	BASIC ONE Theme 1 You and Environment Exploring your Surrounding Theme 2 Living and Non Living Things Soil Air Water Theme 3 You and Technology Concept of Technology Colour (Identification) Theme 4 You and Energy * Simple Machines (identification)
Primary Two Science and Technology	BASIC TWO: Theme 1 You and Environment The Senses Harmful Substances Theme 2 Living and Non Living Things Plants Animals The Human Body Soil Types Air (Flotation) Water Flotation Theme 3 You and Technology Clay Colour (uses)

	Theme 4 You and Energy * Simple Machines (Uses)
Primary Three Science and Technology	BASIC THREE Theme 1 You and Environment Measurement Theme 2 Living and Non Living Things Plants and Animals Soil Air (in motion) Water Air (Flotation) Water Flotation Theme 3 You and Technology Colour (importance) Drawing Theme 4 You and Energy * Forms of Energy (Light, Sound)
	Source: <i>NERDC (2006) Basic Science and Technology Curriculum Module</i> (pg. x-xii)

One thing we can never really overemphasise is that whatever type the curriculum, the most important point is that a curriculum must be relevant, appropriate and user friendly. Ehindero (2009) stressed that the major characteristics of any curriculum are relevance, appropriateness and functionality. A curriculum is designed to meet the needs and demands of the time for the target. It is designed to accomplish the goals and aspirations of the target.

In this regard, curriculum is often subjected to review, sometimes every five years. The usual process of curriculum development demands extensive consultation of interest groups referred to as stakeholders. The curriculum designer/ developer can base the design on a tested curriculum model that is suitable for the nation and practicable in terms of implementation.

The National Policy on Education (2004) and the Universal Basic Education (UBE) Act of 2004 both provide for 6 years of primary and 3 years of junior secondary schooling. The UBE Act, 2004 (p. 16) stipulates that:

- “Every learner who has gone through nine years of basic
- Education should have acquired appropriate levels of literacy
- Numeracy, manipulative skills, communicative and life –long skills

- as well as ethical, moral and civic values needed for laying a solid foundation for life –long learning as the bases for scientific and reflective thinking “. (UBEC, 2008).

If you critically analyse this broad objective, you will realise that there is need for an enriched curricular content at the pre-school, primary and at secondary levels of education.

3.2 The National Curriculum for Primary School

The National Primary School Curriculum Modules published in 2005 by Evans Brothers (Nigeria Publishers) Limited is the outcome of an extensive revision of the National Curriculum for Primary Schools, which prescribes the minimum content and assessment standards, for primary education in Nigeria. The revision process followed a systematic approach that validates the outcome as standard and innovative for primary education in Nigeria.

The systematic approach which was adopted to review and redesign the new primary school curriculum is considered as most meaningful because in applying this approach to the design of the curriculum, special emphasis is placed upon the need to:

- improve learning in primary school children
- assess and evaluate learning and teaching more effectively in terms of specific objectives
- adapt and adopt effective use of human and non human resources to improve learning.

What is obvious through this emphasis is that teachers require the ability to adapt themselves to new methods of teaching and modes of organisation which are very different from their traditional roles. As a result, there is departure from the previous curriculum practice. Many initiatives, both at the global and national levels, together influence the innovation that is reflected in the current national curriculum for primary school.

3.2.1 Innovation in the National Basic Education Curriculum

As already mentioned above, many global and national policy initiatives have influenced the innovation observed in the current curriculum of primary education. The Table 3.2 below summarises the policy initiatives that have influenced innovation in the primary school curriculum

Table 3.2: Summary of Innovative Influences on the Primary School Curriculum since 1990

Global Influences	National Initiatives	Innovative Curricular Outcome
Education for All (EFA) Jomtien 1990	Universal Basic Education (UBE-1999) Revision of the National Policy on Education	Focus on learners life-long learning Revised policy 2004 9 years continuous basic schooling
Dakar Framework of Action 2000	UBE Act 2006	UBE curriculum reviewed and restructured.
Millennium Development Goals (MDGs)	National Economic Empowerment Development Strategies (NEEDS) State Economic Empowerment Development Strategies (SEEDS) Local Economic Empowerment Development Strategies (LEEDS)	Information and Communication (ICT) introduced Integration of Basic Education in Quaranic schools Feature of both academic and vocational subjects to give comprehensive subject delivery Core compulsory subjects and electives offered Continuous assessment of pupils is the standard Certification on after 9 years (i.e. end of JSS) Adoption of modular structure by subject and level through the 9 years basic schooling

Other distinguishing features of the new curriculum are mentioned below.

The nine years of continuous schooling is divided into three component parts:

- three years of lower basic education curriculum (i.e. primary 1-3 classes)

- three years of middle basic education curriculum (i.e. primary 4-6 classes JSS 1-3classes)
- This is done to allow for proper planning and alignment of curriculum contents in such a way as to make learning sequencing simple, logical and practical.
- Programming of the national syllabus in each subject into module preparatory to efficient and effective teaching and the correct application of continuous assessment practice
- The inclusion of modern teaching techniques and continuous assessment into teacher education curriculum
- Comprehensive in-service training for all primary school teachers on the use of modern teaching methods, the use of the curriculum and the correct application of continuous assessment. The National Teachers' Institute in collaboration with The Teacher Education for Sub-Saharan Africa had commenced on the continuous and comprehensive in-service training of teachers since 2009.
- The core subjects in the syllabi which have been programmed into modules are presented below: Table 3.3.

Table 3.3: Structure and Core Subjects of the New 9 – Year Basic Education Curriculum

BASIC EDUCATION CURRICIULUM LEVELS	CORE / COMPULSORY SUBJECTS	ELECTIVES
Lower Basic Education Curriculum (Primary 1-3)	1. English Studies 2. One major Nigerian Language (Igbo, Yoruba or Hausa) 3. Mathematics 4. Basic Science and Technology 5. Social Studies 6. Civic Education 7. Cultural & Creative Arts (CCA) 8. Religious Studies (CRS or IS) 9. Physics and Health Education (PHE) 10. Computer Studies / ICT	1. Agriculture 2. Home Economics 3. Arabic Note: Must offer 1 elective but not more than 2
Middle Basic Education Curriculum (Primary 4 -6)	1. English Studies 2. One major Nigerian Language (Igbo, Yoruba or Hausa) 3. Mathematics 4. Basic Science and	1. Agriculture 2. Home Economics 3. Arabic Note: Must offer 1 elective but not more

	Technology 5. Social Studies 6. Civic Education 7. Cultural & Creative Arts (CCA) 8. Religious Studies (CRS or IS) 9. Physics and Health Education (PHE) 10. Computer Studies / ICT 11. French Language	than 2
Upper Basic (JSS 1-3)	1. English Studies 2. One Nigerian language (Igbo, Hausa, Yoruba) 3. Mathematics 4. Basic Science 5. Social Studies 6. Civic Education 7. Religious Studies (CRS or IS) 8. Cultural & Creative Arts (CCA) 9. Physical & Health Education (PHE) 10. French Language 11. Basic Technology 12. Computer Studies / ICT	1. Agriculture 2. Home Economics 3. Arabic 4. Business Studies Note: Must offer 1 elective but not more than 3

Source: NERDC (2007) *The 9-Year Basic Education Curriculum at a Glance*. Lagos: NERDC Press.

3.2.2 The Structure of the National Curriculum

By translating the core subjects in the curriculum into modules, the designers have simplified a major aspect of the teacher's duties i.e. that of sequencing and work plan for the session. Some people call this plan "Scheme of Work".

If you have not seen the Primary School Curriculum Modules, ask for a copy from the Head Teacher of the school in which you teach. In fact, as a primary school teacher, you should buy yourself a set (i.e. lower primary classes 1-3 or upper primary classes 4-6). Anyhow, in order to follow clearly the description of the structure of the curriculum module, see Table 3.4.

Table3.4: Summary of Social Studies Curriculum for Primary Five

S/N	THEMES	TOPICS
1.	Family	Other people in the family; Members of the family and how they relate Obligations of other members of the family
2	Culture	Unity in culture diversity Meaning of the words culture, diversity and unity Common customs and traditions Marriage: customs and practices. Steps in selecting marriage partner Roles played by families and others Consequences of unhealthy, marriage practices Responsible parenthood: Characteristic of responsible parenthood regarding marriages Problems of parenthood Traditional and modern marriages: Features of traditional marriages Traditional marriages: advantages and disadvantages Feature of modern marriages Christian marriage Muslim marriages Marriage by ordinance Religion Types of religious practices Meaning of religious intolerance Problems of religious intolerance Controlling religious intolerance in development: Ways of controlling religious intolerance vii. Roles of religious bodies in development; * Contribution of each of the major religious in development

Source: *National Curriculum Module Social Studies (NERDC 2006, page xi)*

Notice the spiral nature as pointed out in the table. Now, for the example of the full structure, let us select theme 2 Culture; under this theme let's select lesson one which is the introductory lesson to the theme. The topic is unity in culture diversity. There are two sub topics.

- a. Meaning of the words ‘culture’, ‘diversity’ and ‘unity’.
- b. Common customs and traditions

Now let's move on to see how we can follow the development of the topic referring to the structural presentation of the topic in Table 3.5. Table 3.5 is a sample of the curriculum. Notice that the page is divided into nine columns, marked (a) to (i). The following explains the significance of the columns for your understanding. You should continually refer to Table 3.5 for guidance.

Table 3.5 Primary 5 Social Studies: First Term

Module	Objectives (Stated in terms of what every pupil should be able to do at the end of the module)	Contents (Breakdown of content into separate units)	Teacher's Activities (that will lead to the achievement of the objectives)	Pupils' Activities (that will lead to the achievement of objectives)	Teaching / Learning Aids	Evaluation Guide (stated in terms of what the teacher will assess the pupils on at the of the module)	Suggested Assessment Techniques	Suggested Period
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Immunity in cultural diversity 1. Diversity in language	List languages spoken in the area. Suggest how we should treat those who speak languages different from ours State the official language used in Nigeria and say why it is the official language	Languages spoken in the area – different Nigerian languages: <u>Hausa, Igbo, Yoruba, Efik, Nupe, Ebir, Izon</u> etc . How to treat those who speak languages different from ours –accept them: try to understand them; help them communicate with others; protect them from unfriendly attitude of those who do not understand their language; try to learn their language.	Guide the pupils to list the languages spoken in the area. Guide pupils to suggest how to treat those who speak languages different from theirs. State and discuss with pupils the official language of Nigeria Provide books, magazines and other materials for pupils to read on the topic.	1. Find out and list the languages spoken in the locality Discuss how we should treat those who speak languages different from ours 3. Find out facts about the three main Nigerian languages and hold a debate using one of the languages (Hausa/Igbo/Yoruba)	Pictures Resource Reference books Textbooks Magazines	Mention the language spoken in their area State two ways of treating those who speak languages different from their own 3. Name the official language of Nigeria	in / re, ww cd, sug. in/re, gd	1 week

Column (a) – The topic from the module for example, under the theme culture, a topic: “Unity in Diversity” has been selected. This is a rather wide topic for one week's lesson. So it has been subdivided into “Unity in Diversity part I”- i.e. diversity in language and “Unity in Diversity

part II'' -i.e. diversity in customs and traditions. We will be focusing on diversity in language which is one unit or a lesson.

Column (b) – This contains the objectives. The objectives describe the knowledge the pupils will gain, or the skills they will acquire after the teaching and learning experiences of the unit in the module. The objectives are stated in behavioural terms, indicating the changes in behaviour that are expected in the pupils or what we expect the pupils to be able to do at the end of the teaching /learning session of the unit /lesson of the module.

Column (c) – This is the content. In this column the content has been broken down into separate units. This is sequencing the topic further to make lesson planning steps easy. More importantly, by sequencing the topic, the learning steps are made manageable for pupils to remember and apply in their daily living. The teacher is also able to source for appropriate learning materials which are specifically relevant to the topic. The content is important to the achievement of the objectives.

Column (d) – This column describes the teacher's activities. This suggests what the teacher should do to lead the pupils to achieve the objectives. You need to apply great thought to this column because that is where you can demonstrate creativity.

Column (e) indicates ‘‘Pupils’ Activities’’. Here, there are set of suggestions to motivate and lead the pupils to achieve the objectives. You may need to design a game or other materials for effective learning. On the other hand, you may wish to plan group activities that will engage the pupils in self learning.

Column (f) –Teaching Learning Aids. Here you are given ideas of materials and objects you, as the teacher, can integrate into your lesson to help the pupils learn effectively. How you arrange, organise, integrate and utilise them is critical to their usefulness.

Column (g) – Evaluation Guide. You should note that the assessments are stated in line with the objectives that are set at the beginning of the lesson. These are the specific tasks or behaviour the pupils should be able to perform at the conclusion of the lesson.

Column (h) – Suggested Assessment Techniques. These are the suggested instruments to be used for assessment. That means the method by which you intend to observe or detect and measure the extent of success. The figure stands for the number of activities to be assessed (see Appendix 13 for the abbreviations and their meaning).

Column (i) indicates the ‘Period’. This is suggesting the time frame for completing the topic during the term.

SELF-ASSESSMENT EXERCISE 2

By using a topic from your subject area, describe the nine components of the National Curriculum Module.

3.3 Implications for the Design and Production of Learning Materials

Learning materials are designed and produced with a purpose and often with multiple of objectives. A ready example of the purpose for designing and producing a particular learning material could be to broaden and extend the field of experiences of the learner/learners. In this particular case, the designer will be expected to select the curricular content and structure it into meaningful sequence in order to achieve the objectives. The National Primary Education Curriculum and the structural presentation of the subject themes and topics is a good starting point. In order that it may be easy for you to reference, we have presented some of the benefits of the curriculum to learning materials development in the following list.

- Curricular implications to learning materials
- It provides easy selection of content.
- It provides general overview of range of pupils’ previous experiences and knowledge.
- It summarises the context in which the designed product will be used.
- It provides a map for curricular integration.
- It provides a common ground for the producer and the stakeholders (i.e. teachers, pupils and the government) to interact.
- It widens the creative scope of the learning materials designer.

The relationship between the planning and development of curriculum is similar to designing and producing a learning package /learning materials. They are both gradual and sequential process of actualising or implementing the nations or school’s goal and objectives into effective learning experiences for the pupils. The main rationale is to help learners to learn effectively. In subsequent units, the practicality of this rationale will become clearer.

4.0 CONCLUSION

The primary school curriculum is a resource material for teachers and instructional material developers / designers alike. It is a summary of the context of the educational environment which provides learning experiences for pupils.

It is the content from which you can select relevant, appropriate and useful topics that you can transform into knowledge, skills, experiences and attitudes. The systematic and sequential structure provide a useful resource while you are planning a lesson or designing learning materials.

5.0 SUMMARY

In this unit, you have been able to define the term curriculum. You are able to recall the link between national goals and objectives with the formal curriculum. You can now identify some innovative features of the Universal Basic Education Curriculum. More importantly, you can deduce that the design and production of learning materials follow similar systematic process to achieve success.

6.0 TUTOR-MARKED ASSIGNMENT

- i. In what ways are the designs of learning materials affected / influenced by the curriculum?
- ii. Why will you consider the curriculum as teachers' resource material?
- iii. Mention the components of the actual curriculum used by teachers for classroom lesson planning.

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UNIT 4 TEACHING AND LEARNING IN PRIMARY SCHOOLS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
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 - 3.1.1 Teaching Effectiveness
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 - 3.2 Achieving Effective Teaching-Learning in the Primary School
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1.0 INTRODUCTION

In unit 3, the primary school curriculum was examined. You observed some innovative ideas which have been integrated into the curriculum to enrich it. You were also exposed to the structural components and how they relate to your practical work in the planning of your scheme, lessons and assessment techniques. You were also taught that curriculum design and the design of learning materials share similar process. In this unit, you are going to consider teaching and learning in the classroom which will lead you to the designing of learning materials.

2.0 OBJECTIVES

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

- identify five critical elements of good teaching
- suggest five ways to achieve effective teaching
- explain the pre-requisites to the decision to improve learning.

3.0 MAIN CONTENT

3.1 Definition of Teaching Effectiveness

A simplistic definition of teaching could be ‘the profession of those who teach’. You can also define teaching as the art of passing on one’s knowledge to another or to a group of people. However, when you consider the extent that each national government goes in planning and organising an effective educational system, you will begin to see that teaching is more than just passing on your knowledge to another.

Epstein (2007) says ‘Teaching is the knowledge, beliefs, attitudes and especially the behaviours and skills teachers employ in their work with learners’. However for this course, we can synthesise most meanings of teaching that come to mind and say that: teaching is an intentionally designed plan to integrate knowledge, content, strategies, activities, teaching–learning styles to make learning occur in the learner.

3.1.1 Teaching Effectiveness

Good teaching is considered the key to learning and ‘learning’ is the ultimate goal of all teaching episodes. All the same, learning is not an activity that anyone can undertake for another. It is a personal and private desire and effort of the individual; it requires self motivation and readiness on the part of the learner and creativity on the part of the teacher. What then can the teacher do to ensure teaching effectiveness and make the pupils to continue to enjoy learning? Indeed, how do children learn?

In the next unit, answers to these questions will be provided more to you. Perhaps, a quick reminder of the multiple responsibilities of a teacher will help in clarifying the issues surrounding teachers’ effort towards achieving effectiveness both in teaching and in their pupils learning.

3.1.2 The Multiple Responsibilities of an Effective Primary School Teacher

Primary School teachers are considered as generalists. This means they are expected to teach all subjects in the primary school curriculum. This immediately raises the issues of knowledge and competence in handling some of the subjects. Therefore, first and foremost primary school teachers should:

- have a good foundational knowledge of both the core and elective subjects in the curriculum
- be able to develop schemes of work and lesson plans in line with the recommended curriculum objectives
- possess a good knowledge of the characteristics of the pupils in order to facilitate learning through relationship and understanding in the classroom and within the school environments
- be able to organise, arrange and integrate experiences and resources so that learning can take place most conveniently and successfully
- be able to develop and foster social abilities with appropriate skills to enable the optimum development of children
- be able to assess and evaluate the pupils, the content, and their own teaching method to confirm teaching–learning effectiveness.
- be able to prepare pupils to have confidence in participating in the various selection/competitive tests in the system
- be able to link pupils’ knowledge and experiences to previous learning and seek ways to encourage further learning
- be able to intentionally challenge and inspire pupils in order to deepen their knowledge and understanding; and finally and by no mean the least
- be able to apply creativity to select, improvise, or fabricate appropriate materials to stimulate, motivate, improve, enhance or enrich his/her pupils’ learning

These responsibilities can be summarised in UNESCO (1995), quoting a student teacher, that a good teacher is one who helps to build the pupils’ character and not destroy it. He/she is someone who takes time to find out challenges facing students, which interfere with their performance. In addition, a good teacher, having discovered pupils’ challenges or weaknesses will deliberately and intentionally design strategies or materials to ensure that pupils attain the ultimate goal of learning. That is, self reliance/self long learning.

SELF -ASSESSMENT EXERCISE 1

By reflecting on the responsibilities of the primary school teacher describe teaching effectiveness. Select the one that is not appropriate.

- i. Building pupils’ character to attain their ultimate goal
- ii. Conducting readiness counseling session to help children learn
- iii. Organising, arranging, integrating experiences to help children
- iv. Coaching pupils to pass competitive examination

3.2 Achieving Effective Teaching-Learning in the Primary School

One of the objectives of this course is to gradually lead you to apply the principles and practice of instructional design to achieve an effective teaching learning episode. You will learn more about principles of instructional design in Module 2.

At the classroom level, instructional design is synonymous with the selection arrangement and use of learning resource materials in the promotion of effective learning. The emphasis is not just on learning but on effective and permanent learning. For this reason, you shall be examining three essential concepts. These are:

- learning for understanding
 - learning to remember and recall
 - learning for application (use) or transfer
1. **Learning for understanding:** to learn by understanding children need and to be clear of the points you are exposing them to. The points need to relate to past experiences of a contrived experience. Contrived experience means that you have used methods close to reality to encourage the children relate to the point. The need is to see that they are applicable to real life. Children, particularly at the nursery and primary schools understand more through concrete experiences.
 2. **Learning to remember:** to remember and recall what is learnt, children need to see the importance of what they are learning in relation to reality and what they already know. Learning must be meaningful to be remembered. Therefore, it is important that you structure the learning experiences in a manner that will enhance understanding. What this means is that in planning your lessons, you should be able to answer the following questions adequately.
 - a. Why are the children having the learning experience?
 - b. What is it they are supposed to be able to do at the end of the lesson?
 - c. How can I link the new experience to their previous knowledge and experience?
 - d. How will I ascertain that the children have successfully learned?

When you have answered the questions successfully for any learning activity you planned, the chances of remembering are

very high. The more meaningful the learning experience, the greater the chances of remembering.

3. **Learning for application (use / transfer):** the ultimate learning goal is application. We teach so that the children will learn, change/modify their behaviour. But above all, so that they will be able to apply the experience they have gained, and that will help them to cope effectively with novel situations at a later time. This then is the true benefit of learning.

Some learning can be described as mere memorisation. This form of learning can be observed in the public primary schools across the country. Being able to memorise a new word and reproduce it correctly during a dictation lesson, does not mean that the child knows the real interpretation and usage of the word. If the child cannot apply the word in his/her everyday communication correctly and appropriately then the child has not yet learnt the full concept of the word. There should be a link between learning and the reality of everyday living; otherwise that learning has no value to the learner. Memorisation without understanding is partial learning. Learning theorists such as Gagne (1965) considered this form of learning as signal learning and he placed it at the lowest of his hierarchy of types of learning. (See Table 4.1)

Table 4.1: Gagne’s Hierarchy of Pre-requisites in Learning

Robert Gagne’s types of learning	Implications to classroom learning or instructional design
Level 7: Problem solving ↑	The ultimate goal of learning. involves understanding and ability to combine principle that can be applied to variety of situations.
Level 6: Principles ↑	Chains of concepts learnt. Information that leads to knowledge. Encourage individual and group activities that require , critical thinking and creativity
Level 5: Concepts ↑	It involves being able to identify objects, persons, events and experience from which to select. You should give variety of examples. Give learners opportunities of exposure through their senses.
Level 4: Multiple discrimination ↑	It involves giving several examples or illustrations to broaden learner’s perception and gives wider base to make appropriate choices.
Level 3: Verbal association or chain ↑	It involves the establishment of verbal links. Remove every possible confusion or misconception. Known to unknown
Level 2: S-R Connection ↑	It involves reinforcement to voluntary responses. Plan for stimulation, reinforce to encourage continuity to desired goal
Level 1 Signal learning ↑	The lowest but foundational provide materials that will help to build /further the learning episode.

Adopted from (Ngwoke 2004): School Learning: Theories and Application pg. 11 based on Gagne (1965) Statements of Pre-requisites in Learning.

Reflecting on Gagne's hierarchy of learning, it means that until information is processed to the point where the learner can use the ideas or principles in a problem-solving situation, that learning can be considered incomplete, inappropriate and therefore ineffective.

As you have studied in unit 3, the current primary school curriculum is quite innovative and its demand is that teaching and learning should prepare children for lifelong learning. Therefore, it is imperative that you are able to:

- develop appropriate objectives
- select relevant contents and activities to achieve the objectives
- select appropriate and available learning resource materials which will facilitate the achievement of the objectives by the learners;
- apply appropriate assessment methods, to ascertain the achievement of the objectives and
- maintain a balanced structure and organisation in every teaching-learning encounter

You will remember that in unit 2, the characteristics of children were considered. In that unit, it was established that children are different both physiologically and psychologically. Therefore they need specific intervention strategies to improve their learning.

3.3 Essential Decision Making to Improve Learning

Decision-making to improve learning begins with assessment, which is appropriately implemented and interpreted. Such assessment provides valuable information to teachers, policy makers and researchers, as well as families. The prevailing assessment in Nigeria is continuous assessment. Effective teaching requires that you, as a teacher, acquire the skills to construct and implement assessment instruments on your learners.

The followings are different types of assessments.

- Continuous assessment is a designed instrument to check learning at each stage.
- Baseline assessment is sometimes called pre-test. This is an assessment carried out at the start to check whether everyone can do the task so that you can move quickly on to the next stage.
- Performance enhancing feedback is applied to collect feedback on a particular stage of learning to discover those who are ready to move on to the next stage while those who are not ready may try again.

- Flexible learning programme is based on assessment. The assessment gives the flexibility for the whole class to repeat learning stage if the whole class is having problems with a particular learning topic.
- Diagnostic assessment is applied to see whether anyone has peculiar / particular problem with any area of learning and might need special attention
- Formative assessment is applied to assess some small part of a learning programme which will lead on to a bigger task in the programme. This gives the opportunity to learners to learn from the attempt while you monitor to plan further progress. You can administer this type of assessment to all the learners or to small group or individuals
- Summative assessment is the final test to see whether the learning objectives of the lesson have been achieved.

Your assessment data should be interpreted properly so you can use the result to plan for individual learner or the group of learners as a whole.

Valid assessment gives you clear and accurate picture of what the learners know and can do. This will help you decide an appropriate intervention to improve on or change your teaching strategy or methods on curriculum contents or personal interaction.

3.3.1 The Benefits of Assessment to Design and Production of Learning Materials

It will help to decide, based on valid information, the type of learning materials that will be most suitable to adopt, adapt or create to improve learning.

The result of a valid assessment can also point to the areas where you need professional development.

Some help to assist teachers in appropriate assessment in the content area of the curriculum as provided in the appendix of the New Primary School Curriculum. Evans, (2006).

4.0 CONCLUSION

In this unit you have learnt the followings.

- i. Teaching effectiveness is the key to learning and learning is the ultimate goal of all teaching–learning episodes.
- ii. In order to achieve effective teaching–learning in primary school you will need to apply the systematic approach of instructional

design principles which will involve the use of various learning materials to accomplish the tasks of:

- learning for understanding
 - learning to remember and recall and
 - learning for application or transfer
- iii. You also learnt that essential decision making to improve learning should be based on the interpretation of useful and valid assessment data.

5.0 SUMMARY

You have been exposed to the essence of teaching and learning in the classroom with special direction towards taking a decision to plan and design intervention to improve learning. In the next unit you shall be considering the learning styles of children. The issue of learning is eclectic (i.e. various and many). You need to be able to see the link of the learners' psychological needs to achieve and be recognised with the principles of instructional/learning materials design.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Discuss Gagne's hierarchy of pre-requisites in learning.
- ii. What are the important steps to take in the decision to improve learning?
- iii. What is pre-test?
- iv. What are the basic concepts of life long learning in this course?

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UNIT 5 LEARNING STYLES OF PRIMARY SCHOOL CHILDREN

CONTENTS

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- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Way we Learn
 - 3.2 The Way Children Learn
 - 3.2.1 Piaget's Categorisation
 - 3.3 Learning Styles
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1.0 INTRODUCTION

In the last unit, you learnt about teaching and learning. The emphasis was more on teaching and the teachers' responsibilities. This is alright in itself, but it should be emphasised here that learners are the central focus in all efforts regarding education in school and human development. For this reason, you looked at the characteristics of primary school children in unit 2. You were able to learn just four out of the many factors that influence children's characteristics.

In the design, development, and implementation of instruction at every stage and at all levels, a constantly recurring step is the analysis of the learners' characteristics.

It is so important in the instructional design process that you are going to look at another aspect of the topic so that you will have adequate reference points when you decide to design instructional materials or plan lessons.

Therefore, in this unit, you will be examining "learning styles" as an aspect of individual differences. You will need to consider learning styles when you are designing, producing and utilising learning materials.

2.0 OBJECTIVES

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

- list at least eight ways in which children learn
- explain the concept of learning styles
- describe at least four categories of children and their learning styles
- identify the application of learning styles theory to the design of instruction.

3.0 MAIN CONTENT

3.1 The Way we Learn

Except we are impaired in one form or another, all humans learn through the five senses. We use the sense of sight, through our eyes seeing and observing things around us. The aural sense operates through the ears. We gather information by listening to sounds in different forms. We learn by doing something personally, through the sense of touch and feeling. We also learn by employing all the senses. We use a combination of all the senses: sight, smell, touch, sound and taste.

It is a well established fact that we learn more effectively when we employ at least a combination of three of our senses. Both media and psychology scholars have found out that our ability to learn and remember the points longer can be enhanced by methods appealing to all our senses.

3.2 The Way Children Learn

Holt (1990), says children are born learners. He believes this because there is a natural curiosity in all children that begins at birth when they are put in school. We also know now, through the new brain technology, that children's brains are always absorbing at an alarming rate, as they make sense of the world around them. Hepper (2005), found children's brains have grown to their full adult size. Therefore, Holt says that children can think and that they do like to think. Although their thoughts are somewhat limited by their experiences we must provide answers to their questions in order to clarify their thoughts and extend their experiences.

Holt further says that self esteem and self-confidence are important in the learning of a child. For this reason, overbearing parents and teachers, rote learning and certain methods of testing serve to crush their

curiosity, creating a sense of anxiety in them. What do all these translate into for all children?

- Children learn when they are free.
- Children learn by actively participating in the learning.
- Children learn concepts where relations between ideas are demonstrated.
- Children learn in a supportive environment where their thinking abilities can find expression.
- Children learn by playing, experimenting at their own pace.
- Children learn when their needs are met.
- Children learn when they can see, hear, touch, smell and taste.
- Children learn by asking questions.
- Children learn by remembering.

According to Dunn (1978), memory is not only situated in the head. There is body memory. As a result, human beings would not only learn in a particular way, unless information is presented in their preferred modality, some people cannot learn.

How do we consider this when designing instruction, learning materials, or planning lessons? Every individual is uniquely different, and this difference is a central determinant to human behaviour (Alhassan 2006).

In unit two, we explored individual differences in their abilities but we did not say much on learning styles. However, it is our business in this course to:

- design instruction materials that will ensure learning.
- produce learning materials that will be appropriate and relevant.
- apply/use instructional materials that make learning more effective.

So it is important to investigate as many aspects of the learners' behaviour as possible.

3.2.1 Piaget's Categorisation

We have said that meeting the pupils' learning need is an interpersonal process, which also requires the teacher's ability to identify the different types of learners in his/her classroom, in order to help them. It also follows that the teacher needs to study and learn the characteristics associated with the different learners as individuals. As a result, some people generally group learners into three or more categories:

- the talented or gifted learners
- the average or normal learners
- the slow or backward learners
- the special needs learners

It was mentioned in unit two that this generalisation is applied to children throughout all the age brackets in primary school. However, researchers, such as those listed below have disagreed with that generalisation.

- Piaget (1970): stage theory
- Gardner (1989): multiple intelligences theory; David Kolb (1984); Greenberg (1987); Flemings (2009), – learning styles.
- The application of cognitive theory
- Brain researches etc.

Table 5.1: Piaget’s Classification of Children.

Age/Stage	Common Description	Piaget’s Categorisation
0-2 years	Infant/toddler	<u>Sensory-motor stage.</u> Can learn best through what they hear, see, touch, feel or taste.
2-5years	Early childhood/nursery school.	<u>Pre-operational stage 2-7 years</u> Can learn best through play and intentionally planned support from responsible adults around them. i.e. They are still egocentric (selfish); they cannot classify things without help; they cannot conserve most operation; they have adequate communication vocabulary but cannot understand idioms/proverbs. They are becoming highly sociable and can play in a group (especially the 4-5 years old). <u>7-11 years concrete operational</u> Children at this stage will understand concepts when they are clearly and concretely presented. They are quite sociable and will form groups. They are agile and enjoy sports and games. They are creative and most can express their thoughts fairly fluently. They can work or study independently or in groups. Most can also read and write

		well. Intellectual ability is becoming definite. Adulthood features are obvious.
6 – 8 years	Junior primary school; middle childhood	
9 – 12 years Upper primary	Late childhood Pre-teens/pre – adolescent	
13 – 15 years	Adolescents; junior secondary school	<u>Formal operational</u> The children in this category can perform most formal tasks and manipulations. They are anxious to demonstrate their abilities and expertise. They like privacy and get easily upset when embarrassed. They will co-operate if properly approached/motivated.

The table is an attempt to make you see the relationship of the common classification of children with the developmental stage theory of Piaget. The point you should note is that the children most concerned with in this course transcend through three stages i.e. pre-operational, concrete and formal stages.

Apart from the categorisation of Piaget as illustrated in the table above, other researchers have also found that intellectual beings possess multiple intelligences that they even display a particular learning style.

3.3 Learning Styles

Learning styles are various approaches or ways of learning. They involve methods which are particular to an individual. Fleming, (2009), explains that students learn in many different ways. That a simple way to understand learning styles is to remember that some students remember best the materials they have seen or heard or personally experienced. She identified these various learners and classed them into three listed below.

- **Visual learners**
Students who learn by observation, watching, viewing and using mostly their sense of sight are referred to as visual learners. These groups of learners are skilled in tasks that require the use of their sight.

- **Auditory learners**
Some learn by listening, talking, thinking and being told. The learning material can be both in oral and written forms. Students who are disposed to this style of learning are referred to as Auditory or Verbal Learners.
- **Kinaesthetic/tactile learners**
Some can learn best when they personally experience things first hand, experimenting, exploring and practically doing things. These learners are classified as the kinesthetic or tactile learners
Table 8 provides a comparative overview of the characteristics of Howard Gardner’s Multiple Intelligences (M.I.) and learning styles.

Table 5.2: Overview of M.I. and Learning Styles

	Learner Category	Howard Gardner’s M.I. Characteristics	Grace Fleming’s Learning Styles Characteristics
1	Visual/spatial learners	<ul style="list-style-type: none"> • ability to perceive the visual • think in pictures to create vivid mental images to retain information. • skilled in puzzle building, designing practical objects. • enjoy looking at maps, charts, videos and movies. 	<ul style="list-style-type: none"> • good at observation, watching using mostly the sense of sight. • forget verbal information quickly. • good at spelling. • prefer quiet study time. • learning best through map reading, tables, charts, technical drawing and illustrations.
2	Auditory/verbal linguistics	<ul style="list-style-type: none"> • learners who have ability to use words and language. • highly developed auditory skills • (listening/writing etc). • high capacity for remembering information (verbal or written) • good speaker. 	<ul style="list-style-type: none"> • high thinker, listener, speaker, can be talk active • enjoy reading to self aloud. • good at explaining things to others. • high at remembering names, information easily. • good at grammar and foreign languages.
3	Bodily/kinaesthetic intelligence and learning style	<ul style="list-style-type: none"> • can control body movements • good eye-hand coordination. • good dancer. • ability to balance well e.g. playing ball or walking on beam. • athletic and acting ability. 	<ul style="list-style-type: none"> • learn best by personal contact. • prefer experiencing by doing (exploration and experimentation) • athletic and enjoy sports. • cannot sit down for long. • able to study with background music.

			<ul style="list-style-type: none"> • love adventures books, action movies and films. • like role – playing.
4	Musical/rhythmic intelligence.	<ul style="list-style-type: none"> • ability to produce and appreciate music. • sensitive to environmental sounds. • learn and remember information in music easily. • skilful in singing, whistling and playing musical instruments. • can compose and remember musical melodies. 	
5	Logical/mathematical intelligence.	<ul style="list-style-type: none"> • ability to use reasoning, logic and numbers well. • can think conceptually,. • can make connections between information easily. • curious and ask lots of questions and do experiments. • skilled in Categorising and classifying information. • can handle abstract concept fairly easily. 	
6	Interpersonal intelligence.	<ul style="list-style-type: none"> • can relate well with people • able to see other people's point of view. • can communicate well both verbally and non-verbally. • can often sense the feelings, intentions and motivations of others. • great organiser/facilitator. 	
7	Interpersonal intelligence.	<ul style="list-style-type: none"> • have ability to self reflects • ability to identify personal and weaknesses. • sense of responsibility of their role in relationship to others. 	

3.3.1 Other Learning Styles and Preferred Learning Activities

1. **The competitive style** – shown by students who learn material in order to perform better than others in the class – to get rewards and the teachers' attention.

Characteristics

- a. Want to lead in discussion or project
- b. Ask questions
- c. Want to be singled out for doing a particularly good job on a class related activity
- d. No real preference for classroom methods (lectures, seminars etc.) as long as the method has more of teacher centred focus than student centred focus

2. **The collaborative style** – shown by students who feel they can learn the most by sharing ideas and talents. They co-operate with teachers and peers and like to work with others. They see the classroom as a place for social interaction as well as content learning.

Characteristics

- a. Like lectures with class discussion in small groups – small seminars
- b. Student designed and taught courses
- c. Peer determined grades
- d. Instructor group interaction

3. **Avoidance style** – this is typical of students who are not interested in learning course content in the traditional classroom. No participation with student or teachers. Uninterested or overwhelmed by what goes on in the classroom.

Characteristics

- a. Generally turned off by classroom activities
- b. Do not want grading tests, instead prefer self evaluation
- c. Like blanket grades, everyone having a passing grade
- d. Do not like well organised lectures and instruction or individual interaction

4. **Participant style:** Characteristic of students who want to learn course content and want to go to class. They take responsibility for getting the most out of class and participate with others when told to do so. They feel that they should take part in as much as class related activity as possible and little that is not part of the course outline.

Characteristics

- a. Like lectures with discussion
- b. Like opportunities to discuss materials

- c. Like both objective and essay type tests
 - d. Prefer teachers who can analyse and synthesise material well
 - e. Like reading assignments
5. **Dependent style-** shown by students with little intellectual curiosity and who learn only what is required. They see teachers and peers as sources of structure and support. They look to authority figures for guidelines and want to be told what to do.

Characteristics

- a. Like teachers' outlines or notes on the board
 - b. Clear deadlines for assignments
 - c. Like teacher centred classroom method
6. **Independent style-** shown by students who like to think for themselves. They prefer to work on their own, will listen to the ideas of others in the classroom. They learn the content they feel is important and are confident in their learning abilities.

Characteristics

- a. Like independent study
- b. Like self-paced instruction
- c. Like problems which give the student an opportunity to think for himself
- d. Like projects which the student can design
- e. Prefer student-centred classroom setting over a leader centred one

3.4 Implication and Application to Design and Production of Learning Materials

Theoretically, learning styles can be used to predict what kind of instructional strategies or methods would be most effective for a given individual learning task. Romiszowski (2010), however, says that rather than label students with a particular leaning style, it seems most appropriate that we should systematically plan to accommodate varying learning styles, multiple intelligences and cognitive styles. What we need to do as teachers or instructional designers, is to be flexible in our teaching approaches to adopt and integrate multimedia approach to our lesson plans and presentations.

To sum up this section, Table 5.3 shows utilisation of your knowledge about multiple intelligences and learning styles.

Table 5.3: Benefits of M.I. and Learning Styles on Instructional Design

S/N	Impact/Benefits of Knowledge	Application to Instructional Design
1.	You are able to view ability more broadly using the advantages of the multiple talents in your class.	Involve children more actively using their talents and ability to create visuals, stories musical interludes etc. Plan relevant activities and assessment.
2.	You will appreciate the contribution of each child more positively in class and create good rapport with the pupil.	Both the writer of a book and the illustrator will be given credit. A motivation for more materials creation. Children learn academic responsibility.
3.	There would be an increase in parents and community involvement.	Children explore the community resources and relate them to their experience. A definite opportunity for improvisation and adaptation.
4.	Provides opportunity for cooperation among children. They share their strengths and become confident to take responsibility for tasks.	When children share their strengths through creativity they become experts. You will be helping them to develop self esteem.
5.	Children have deeper understanding when you appeal to their various ability and intelligence	Learning materials must be relevant and appropriate. Use multiple approaches to achieve the objectives. An opening to multi – media production.
6.	Children will be able to identify their style of study and remember information more easily.	Motivation for individualised learning. Children gain confidence as self esteem is promoted.
7.	Children are happy, free and are able to develop to the peak of their ability level.	Satisfaction for contributing to children's development.

4.0 CONCLUSION

In this unit, you have seen how having profound knowledge of the learning styles of your pupils is important. Apart from giving you adequate information about the pupils, it will give you a wider view of possible approaches/method you may adopt in your lesson plans. You will also be able to involve pupils more in various instructional activities which will serve as motivation for learning. The design and production of learning materials of every type will become more relevant and

appropriate. The unit concludes by presenting contextual situations establishing the need for learning materials in primary schools. A recall of the points from the beginning of Module 1 to this stage will help you to see the dire need for more than just text books as learning materials.

5.0 SUMMARY

In this unit, you have learnt about the learning styles of primary school children. You are now conversant with the knowledge that multiple intelligences and learning styles theories help us to predict the kind of instructional strategies or materials that would be most effective for a given individual or learning task.

In the next unit, which is the beginning of Module Two you will be examining the principles of instructional or learning materials design.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Do you think young children can learn effectively if the followings are done?
 - a. Reward them well
 - b. Meet their needs
 - c. Remove anxiety
 - d. Let them develop
- ii. Discuss Piaget's categories of development.
- iii. How can the teacher accommodate the varieties of individuals' learning abilities and styles?

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MODULE 2 PRINCIPLES OF DESIGNING INSTRUCTIONAL MATERIALS

Unit 1	Designing Instructional Materials
Unit 2	Concept and Characteristics of Learning Materials
Unit 3	Producing Instructional Materials
Unit 4	Theories Relevant to the Design and Production of Learning

UNIT 1 DESIGNING INSTRUCTIONAL MATERIALS

CONTENTS

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Functions of Instructional Materials
3.2	Advantages and Limitations of Selected Instructional Materials
3.3	Gerlach/Ely Model of Instructional Design
3.4	Communication Process /Model: The Importance of Effective Communication in Instruction
3.4.1	Components of the Communication Model and their Application in Instruction
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

1.0 INTRODUCTION

This unit introduces you to some aspects of the design of instructional materials. You need to know the functions of instructional materials and advantages and limitations of selected instructional materials. The Gerlach/Ely Instructional Design Model is to introduce you to the basic ideas and components involved in the instructional design process. The example of the communication process and model presented here will help you to know the importance of effective communication in the instructional process and how the media assist classroom communication.

2.0 OBJECTIVES

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

- list the functions of instructional materials
- outline the advantages and limitations of selected instructional materials
- explain the Gerlach / Ely instructional design model in relation to the design of instructional materials
- explain the importance of the communication process and model in the instructional process.

3.0 MAIN CONTENT

3.1 Functions of Instructional Materials

Instructional materials are necessary in the learning process. They assist both the teacher and the learner to have meaningful and effective teaching and learning. At the primary school level in particular, pupils need to be able to relate what they are taught to their environment and nature. The following are the functions of instructional materials in the primary school.

1. They allow the pupils to relate what is taught to their environment, experiences and nature as young learners.
2. Instructional materials help to gain and sustain the attention and interest of the pupils.
3. They emphasise areas of interest and importance in the learning process.
4. They facilitate the understanding of abstract concepts.
5. They help pupils to be active and ensure active participation.
6. They provide equal opportunity or a common framework of learning experiences to a large number of learners.
7. They stimulate reality.
8. They provide opportunity for pupils to manipulate objects in their environment, thereby making learning more concrete.
9. Instructional materials create lasting impact in learners.
10. They employ all the senses of the pupils in the learning process thereby promoting mental activity.
11. They increase the vocabulary level of the pupils.
12. Instructional materials simplify and condense difficult and large quality of instructional information into understandable format.

3.2 Advantages and Limitations of Selected Instructional Materials

1. Pictures (still pictures)

Advantages:

- a. good representative of the real thing (realia).
- b. easy to prepare.
- c. easy to store.
- d. easy to use.
- e. able to stimulate interest and create correct impressions; they can be locally produced

Limitations:

- a. may require artistic skills.
- b. pictures may fade or tear with time.
- c. pictures traced, lifted or copied can be distorted.
- d. details of the object represented are often omitted.

2. Charts (flip charts, diagrams, flash cards, cartoons, graphs, posters, etc)

Advantages:

- a. they are visual summaries.
- b. they can pinpoint events in story form.
- c. they are good in showing condensed information e.g. graph or quantity symbols.

Limitations:

- a. they require a lot of money.
- b. they can be very complicated if details are necessary.
- c. they present storage problems especially with large charts.

3. Flannel graphs – (felt boards, magnetic boards)

Advantages:

- a. they can present a story in sequential order as the pictures used are mounted one after the other and as desired.
- b. the pictures used can easily be removed or stored as the need arises.
- c. attention and interest of students can easily be aroused.
- d. they can be locally produced.
- e. the materials are cheap and easily accessible.

Limitations:

- a. the pictures are not permanent and thus can easily fall off, especially in the case of flat boards or magnetic board.
- b. they may be bulky and may pose storage problems.

4. Maps/atlasses/globes

Advantages:

- a. they are excellent in showing condensed information.
- b. they can show a very large area (even the whole world) at a glance.
- c. details are not normally confusing or boring.
- d. the instructor can face the class when using it, thus allowing direct eye contact with the learners.
- e. they are very useful and adequate for large groups or classes.
- f. they do not require any special skills in production.
- g. little or no planning or preparation is required.
- h. they do not require a completely dark room.

Limitations:

- a. they require special and professional skills.
- b. all maps or globes tell lies as most information is exaggerated.
- c. inaccuracies in directions, distances, shapes etc. can occur if care is not taken.
- d. they are highly conventionalised and capable of creating misconceptions.

5. Modules, modes and specimens

Advantages:

- a. they have a distinct appeal to young learners and attract them better than pictures, maps, etc.
- b. their 3–dimensional character gives a better conception of reality than pictures.
- c. specimens can represent the real things themselves.
- d. learners learn by the collection, modeling and care of materials.
- e. they can be produced by the learners with local materials.

Limitations:

- a. a lot of time may be wasted in collecting specimens.
- b. modeling is messy.
- c. they require storage space.

6. Blackboards or chalkboards as a unique medium

Each type of educational medium should be chosen for what it can do best or for what it can do that no other medium can. As you begin to accumulate ideas for teaching with media, consider the important characteristics of the chalkboard, such as the following.

- Materials can be big, bold and colourful.
- Unplanned information can be listed as needed during the class.

- “Down time” is no worry. It requires little maintenance, no electricity or operating instructions, and cost for materials is very low.
- Availability is nearly universal; you can count on always having one in a classroom (portable boards are also available for use in unusual locations. You can even make your own chalkboard by using special paint on Masonite hardboard or plywood).

Long term notices and an announcement can be recorded on the board and kept there, since the board is permanently located in the classroom. There is no doubt that the use of the chalkboard creates a much richer instructional setting than does a presentation that is strictly verbal. You might be tempted to place the chalkboard in the category of “instructional aid” because of its necessary role in teaching.

Because of the high esteem that live teaching enjoys, it is natural to assume that machines or devices are merely aids. However, when any device is used, even a simple one such as the chalkboard, a new form of teaching results. The chalkboard can be regarded as a visual aid because of the already mentioned advantages generally and the following specific advantages and limitations.

Advantages:

- a. they are the most accessible aid.
- b. they are the easiest form of teaching aid.
- c. they do not require any elaborate preparation.
- d. they are excellent for summary notes and illustrations.
- e. they can be used for practice by learners themselves.

Limitations:

- a. writing may be poor and illegible for those who are not properly oriented
- b. partially blind or blind learners may not benefit from them.
- c. they are large and immovable.

7. Textbooks

Advantages:

- a. they contain more permanent sources of information.
- b. they can be used over and over again.
- c. they may provide self study guide for individualised learning especially a where workbook is included.
- d. they are hidden treasures for the serious learner.

- e. they can be an effective guide for the trainers and teachers.

Limitations:

- a. storage facilities may not be adequate.
- b. they may be expensive to purchase.
- c. they may be outdated and circumstances may hinder their use.
- d. they can pose the danger of being copied by both the learners and the teachers.

8. Realia

Advantages:

- a. It shows the real situation of events, experiences or true and life-like presentations and sometimes the real object itself is used.
- b. It may be easy to get.
- c. It is cheap as you don't have to spend to get most realia objects.
- d. It does not distort or exaggerate facts.

Limitations:

- a. It can be dangerous and unrealistic to show or go through real events or things e.g. snakes, war situations, seas, hills or mountains.
- b. It may be too far, too big, or too small to be taken to the learning environment, classroom or venue.

SELF-ASSESSMENT EXERCISE 1

- i. What is instructional design?
- ii. State four advantages and disadvantages of six selected instructional materials.

3.3 The Gerlach –Ely Model of Instructional Design

The Instructional Design Model (ISD) is necessary for the teacher who designs instructional materials because it helps in the application and integration of the instructional materials into the instruction or classroom use. There are many instructional design models but we will only use the Gerlach-Ely model for our illustration here. There are ten items in this model which will be itemised in a diagrammatic form as follows.

Instructional Design Model

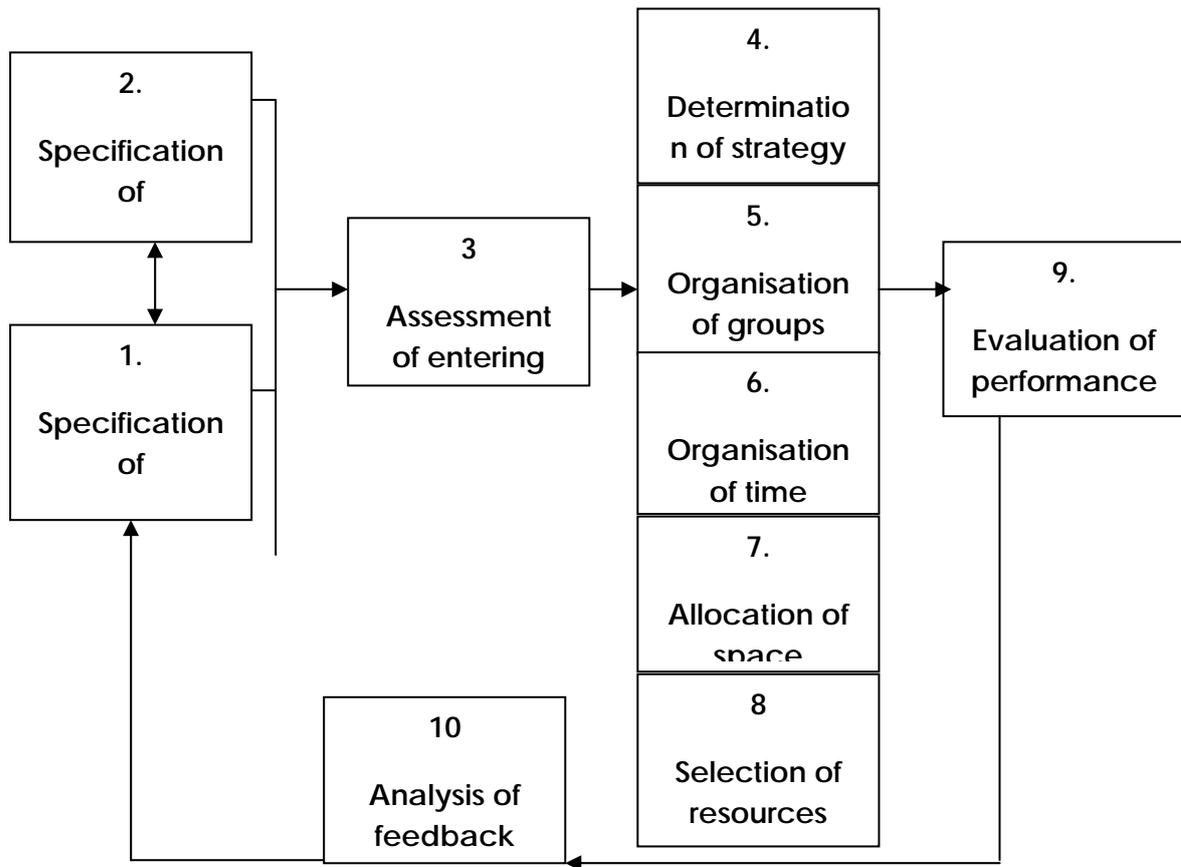


Figure 1.1

Source: Gerlach, V. S. & Ely, D.P. (1971, pp.8-11)

Instructional Design Model

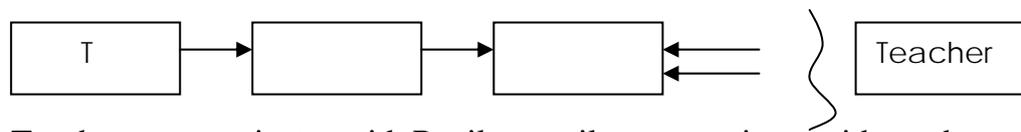
The instructional design model was developed by Gerlach and Ely (1971) which presents the procedure for instructional system design graphically as shown in the diagram. It is appropriate as a guideline for instructional design. It contains ten guidelines or principles or elements which are closely related to other models on instructional systems design. The components of the Gerlach/Ely (1971), instructional systems design are as follows.

- Element 1. Specification of Objectives- the teacher is expected to state in measurable terms the outcome of the lesson after the learners have been taught; the attainment of the specified objectives depends largely on the proper implementation of the other elements.
- Element 2. Specification of content- this will depend on the objective, the curriculum or societal / community needs and the needs of the learners.

- Element 3. Assessment of learners' entry behaviour- this relates to the previous knowledge or the pupils previous knowledge or experience he has gathered which is relevant to the topic. The teacher is expected to build on the previous knowledge of the pupils to make learning process effective.
- Element 4. Determination of Strategy –this is when the teacher determines what strategy or method will help him and the learners achieve the specified objectives. The strategy should be learner centred, participatory, interactive, provocative, collaborative and fun based especially for primary school pupils.
- Element 5. Organisation of learners into groups- collaborative work will require the pupils to work in groups. Also if the instructional materials needed are not adequate, the pupils can be grouped into a number of pupils reasonable for such materials. The number of pupils for discussions or verbal activities that require only activities such as listing, explaining, discussing etc may have more pupils in a group.
- Element 6. Allocation of time- this will depend on the strategy, subject matter, objectives, availability of space (e.g. the laboratory or library), school administration etc. The teacher should utilise whatever time he allocates to each subject meaningfully and responsibly.
- Element 7. Allocation of learning space- this can be for the laboratories, library, small or large group work, individual study carrels, etc. The use of large classrooms, auditorium, halls, lecture theatres, collapsible classrooms etc can be reserved for general courses or special programmes.
- Element 8. Selection of appropriate instructional materials- this is a very significant aspect of the model. The teacher can select relevant / appropriate instructional materials from existing ones from the school library, media / material stores etc. You can also adopt some materials if the existing ones do not suit your objectives by adding or subtracting from the details of the available ones. You also decide to design new instructional materials if the available ones are not suitable.
- Element 9. Evaluation of performance- this is an appropriate or assessment of the learners' achievement, the teacher's strategy, the instructional material used, the environment where the learning is done and the objective- whether it has been achieved or not.
- Element 10. Analysis of feedback –if the feedback is to be useful/ effective, objectives must be clearly stated and must include the conditions under which the behaviour should occur and a criterion level of acceptable performance. Immediate Knowledge of Result (IKR) is good and motivating especially for the primary school pupils.

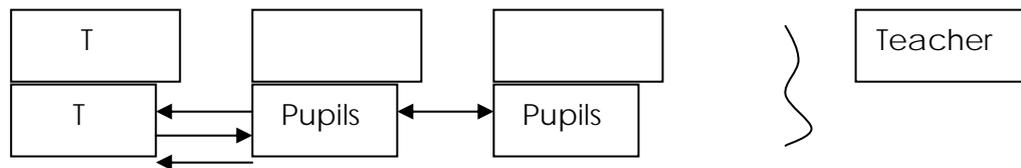
3.4 The Communication Process and Models: the Importance of Effective Communication in Instruction

You may want to know what communication is. All disciplines define communication based on its use or in relation to their peculiar practice and needs. Communication in education is simply the interactions among members in the education system. Specifically, communication in the classroom is the transfer of a message from the teacher (sender) to the learner (receiver) and vice versa. Effective classroom communication is not a one-way affair, all the elements in the teaching – learning process, i.e. the teacher, learner, media etc interact or communicate for the system to work as illustrated below.



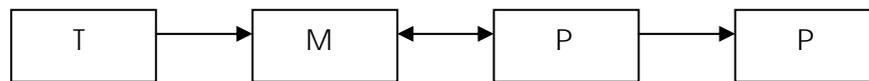
Teacher communicates with Pupils, pupils communicate with teacher.

Figure 1 (a) Classroom Communication Process



Pupils communicate with each other and the teacher.

Figure 1.1: (b) Classroom Communication Process



Teacher with media communicates with pupils who interact with media and teacher. In order to achieve the interaction media or instructional materials and the content, there should be a free flow of transfer of information between the teacher, pupils and media.

David Berlo’s Model (1960).

This is one of the most popular models known as the S-M-C-R model. It was developed by a psychologist known as David Berlo in the 1960s. The model is popularly used by psychologists and educators.

ways such as physical, emotional, psychological, linguistic etc. This should be prevented by the teacher as much as possible.

4.0 CONCLUSION

This unit has presented the functions of instructional materials. It is hoped that this will prompt the teacher to use instructional materials in the teaching process. You further learnt about the advantages and limitations of selected instructional materials which can assist the teacher when taking decisions on what materials to produce or select from. The Gerlach/Ely instructional model is presented here to enable you know the basic components involved in the instructional design which will help in the application and integration of instructional materials in teaching. Also, the communication process and model show the importance of effective communication in instruction and the role media play in effective communication in the teaching and learning procedures.

5.0 SUMMARY

In this unit, you have learnt the following:

- Functions of instructional materials
- Advantages and limitations of selected instructional materials
- The instructional design model of Gerlach /Ely as an example of the design of instructional materials
- Communication model and its importance in the instructional process.

6.0 TUTOR-MARKED ASSIGNMENT

- i. List and explain ten functions of instructional materials.
- ii. Mention the advantages and limitations of five instructional materials.
- iii. Draw and label the Gerlach/Ely instructional systems design model.
- iv. What is the importance of the communication process in instruction?

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UNIT 2 CONCEPT AND CHARACTERISTICS OF LEARNING MATERIALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Definition of Learning Materials
 - 3.2 Rationale for the Use of Learning Materials
 - 3.3 Classification and Characteristics of Learning Materials
 - 3.4 Sourcing for Instructional Materials for Teaching Basic Technology
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In this unit, you will be exposed more to learning materials, the rationale for the use of learning materials, variety/sources of learning materials and the classification and characteristics of learning materials. Learning materials can be regarded as the teacher's companion because they assist him to provide all that is needed to make his lesson concrete, productive, effective and individualised. Learning about the various instructional materials and their characteristics will help the teacher to produce the appropriate materials that will help him achieve the stated objectives for the lesson.

2.0 OBJECTIVES

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

- define learning materials
- explain the rationale for using learning materials
- list the sources of learning materials
- classify the various learning materials.

3.0 MAIN CONTENT

3.1 The Definition of Learning Materials

What are learning materials? Most teachers often think of only complex materials whenever this question is asked. But learning materials refer to anything the teacher employs to make the instructional process more active, interesting, interactive and scientifically based. Learning materials should be based on the objective of the content and should appeal to more than one sense (seeing, hearing, touching, smelling, tasting) employed in the teaching – learning process. Learning materials can be audio, visual (projected and non- projected) or audio–visual (to be discussed in detail later). They range from the simplest material to the most complex materials at the teacher’s disposal. Learning materials are those resources that help learners gain knowledge through participation and reinforcement.

3.2 Rationale for the Use of Learning Materials

Now that we have defined what learning materials are, what is the rationale for employing materials in learning? According to Onasanya and Adegbija (2006), learners, especially primary school children, are acutely aware of their senses which they use continuously to acquire new skills and ideas. Learning materials or instructional media sharpen the senses for this purpose. Other reasons for learning materials /media include the followings.

- They develop a continuity of thought in learning through the use of pictures, slides, films, and especially motion pictures.
- They supply a concrete basis for conceptual thinking and hence reduce meaningless word responses of students.
- They supply the necessary basis for developmental learning and hence make learning more permanent.
- They offer a reality of experience that simulates self-activity on the part of the learners.
- They contribute to the growth of meaning and hence, to vocabulary development.
- They arouse and maintain the interest and attention of learners.
- Learning materials contribute to the efficiency, depth and variety of learning.
- They are unbiased in dealing with and effecting desirable change in learners.
- They are accepted by and appealing to all categories of learners.
- Learning materials provide experiences not easily secured from other sources.

- They make learning participatory and scientifically based.
- They provide equal access to education and contribute to the individualisation of instruction.

SELF-ASSESSMENT EXERCISE 1

- In simple and clear terms, define learning materials using your own experiences and words.
- Explain at least five reasons/ rationale for learning materials.

3.3 Classification and Characteristics of Learning Materials

This unit gives a break down of the different learning materials and their characteristics in a tabular form. There are various ways of categorising media but we will just focus on the following.

Table 2.1

S/N	Type of learning Materials	Sources/Examples	Characteristics
1	Audio Media	Radio, tapes, cassettes, amplifiers, ear phones, telephones, gramophones, loud speakers, microphones, records, language laboratories	Appeal to the sense of hearing only; very cheap and easily accessible
2	Visual (Projected)	Televisions, films, film-strips, videos, slides, computers, opaque, over head projector, power point	Electronic materials that need to be projected / need projectors and electricity
3.	Visual (non-projected)	Educational boards- magnetic, flannel, felt boards, chalkboards, adhesives, bulletin boards, pictorial 2 -D objects – flip charts, posters, sketches, still pictures, wall charts, 3-D objects-demonstrations, exhibits, field trips, modules, simulators/games, printed texts-books, charts, brochures. Course materials, handouts, leaflets	Most easily accessible, cheap, commonest, appeal to the sense of seeing only
4	Audio –visual	Drama, demonstrations, films (88mm, 16mm, 32mm) television, videos, slides with sound, computers	Appeal to all the senses in learning
5	Realia	Real objects, tools, animals, artifact, demonstrations, mock-ups, dramas, exhibits, field trips.	All real objects used for teaching are cheap, and available in the community
6	Human and non - human resources /resource persons	Professionals / specialists e.g. doctor, lawyers, teachers, community resource persons	These are persons with adequate knowledge in their various fields and ready to

		e.g. chiefs /obas, community leaders, police, politicians, industrialists, military	enrich the learners' knowledge.
7.	Community resources	Airports, art galleries, banks, historical monuments, parks, industries, markets, palaces, museums, police station, post office, rivers, dams, zoological gardens	Our community is endowed with various resources
8.	Resource centers	Libraries, workshops, educational resource centers	Centers where learning materials are provided en masse / stored and distributed for teaching and learning
9.	Educational games	Puzzles, mock ups, plays /costumes, games (ludo, ayo , chess.)	Provide fun as students learn. They stimulate participation and reinforcement

SELF-ASSESSMENT EXERCISE 2

Classify learning materials and their characteristics.

3.4 Sourcing for Instructional Materials for Teaching Basic Technology

Table 2.2

Topic	Instructional Materials	Where to Source for Materials
Workshop safety	Fire extinguishers, improvised sand bucket, pictures and chart showing safe work habits	Fire extinguishers should be sourced commercially, while others should be improvised by the teacher utilising simple production techniques learnt in module 1
Properties of materials	Specimen of wood, metals, various types of ceramic and glass products plastics and rubbers	Outdoor laboratory, ceramic /glass industries or wood and metal workshops
Drawing instruments and materials	HB pencils, T-square, set squares, part of compasses, French curve	Commercially bought .some could be improvised with the help of a computer like the French curve and the pair of compasses
Energy and power	Fan, battery, regulators. Electric bulb, bicycles	These could be sourced from a roadside mechanic workshop
Building and materials	Charts, posters on various buildings, models and various types of houses, building plans, cement, sand, gravel, ceramics, wood, plastics, metals, grass etc	Students could improvise models of houses and building. Charts and posters of various buildings could be improvised by the teacher while others could be sourced from the community.
First aid and first aid materials	First aid box and materials, cartons could be used to improvise first aid box after which colour is added	First aid box could be sourced from the carpenter's shop or improvised by the teachers and learner. Materials are to be bought from pharmaceutical stores.
Geometrical	Constructs of various types of	Constructions could be provided by

construction	angles, triangles, circle and plane figures. Models of quadrilaterals and polygons. Flip charts display geometrical constructions of various types. Drawing instruments.	carpenters. Students could use locally sourced materials to produce some of these materials in the basic technology.
Metalwork hand tools	Measuring tools like protractors, steel rules, driving tools like pinches, screw driver, spanner. Marking out tools like surface plate, scribes, odd-leg clippers, cutting tools, like chisels, files etc. Posters charts on various methods of steel production, furnace, limestone, coke tungsten	Sourced commercially or from the introductory technology workshop.
Mechanical energy transmission system		Outdoor laboratory i.e. road
Frictions	Lubricants, different metal or wood surfaces students palms, rugs etc	Side mechanic workshop or teacher / learners home and school based introductory technology workshop
Belt drivers	Motor driven pepper grinder, motor fan belt, sewing machine etc. bicycle / motor cycle chain drivers. Pictures displaying chain and belts drivers machine	Outdoor laboratory
Gear	Cardboard wood, improvised clock, driving systems of machines in school workshops, e.g. gear box	
Linear motion	Scrap engines, levers, linkages slides and slots, charts displaying these materials films containing use of levers, linkages slides and slots in the production of their motion	Teacher production educational resource centres
Rotary motion	Old shafts of cars, brake pads and clutches. Flip charts, pictures and films displaying crank shafts, connecting rods and pistons and sleeves of cars, kites, farm plate, paper scissors, pins	Pick materials among junks from the mechanic's workshop- teacher production. Improvised kits made by learners. Commercially bought and teacher made
Airflow	Models of hydraulic and pneumatic devices hydraulic jack, charts displaying pneumatics films containing demonstrations using real components of pneumatics	Commercially bought and teacher made
Pneumatics	Pressing iron, electric kettle, generators cooker and water	Home economics laboratory improvisation by the teacher from an

	heater, gas lamps, gas and kerosene cookers, charcoal pressing iron, boiling ring, refrigerator, improvised auto generator, alcohol methylated spirit	artisan.
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Source: National Teachers' Institute (2010, p.47)

4.0 CONCLUSION

In this unit, you have learnt about the concept of learning materials. You can now define and give the rationale for learning materials. You also considered the sources, the classification and characteristics of learning materials. Examples, suggesting different areas on how to source for instructional materials for teaching basic technology, were also given.

5.0 SUMMARY

In summary, learning materials/media have been simply defined as instructional materials, from the simplest counting sticks to the most complex machines, that the teacher employs in the instructional process to enrich, aid and ensure effective, efficient, interactive and participatory learning.

The reasons for learning materials include making learning concrete and permanent, There is also the continuity of thought, especially through motion films, providing reality of experience that stimulates self-activity, equal access to education and the ability to secure and maintain the interest and attention of learners, etc. The unit also presented to you, the classification of learning materials, the examples of materials for each category and their characteristics – audio, visual (projected and non-projected), audio-visual, realia, resource persons, community resources, resource centers, simulators and games.

6.0 TUTOR-MARKED ASSIGNMENT

- i. What are learning materials?
- ii. Explain ten reasons /rationale for using learning materials.
- iii. List the different categories of learning materials, giving examples and characteristics of each.

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UNIT 3 PRODUCING INSTRUCTIONAL MATERIALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Role of Learning Materials in Relation to other Elements of the Instructional Process
 - 3.2 Designing New Instructional Materials
 - 3.3 Sources of Instructional Materials
 - 3.4 Producing your own Instructional Materials
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will cover two main sub-topics, that is, the role of learning materials in relation to other elements and the selection criteria. In the previous unit, you have considered the specific reasons/ rationale for learning materials. In this unit, you are going to learn the over-all role of learning materials based on Dale's cone of experience. You will also learn about designing new instructional materials and how to produce your own instructional materials.

2.0 OBJECTIVES

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

- explain the role of learning materials as itemised in Dale's cone of experience
- list sources of instructional materials
- describe how to produce your own instructional materials.

3.0 MAIN CONTENT

3.1 Role of Learning Materials in Relation to other Elements of the Instructional Process

Dale's cone of experience cited in Heinich (2002), presents options of instructional materials in terms of their concreteness and learners' readiness to profit from more and less concrete experiences. At the bottom of the cone are direct, participative activities, involving Brunner's concept of enactive learning. Learning materials/audio-visual

materials are regarded as iconic. Verbal symbols are shown on the cone to be the most abstract.

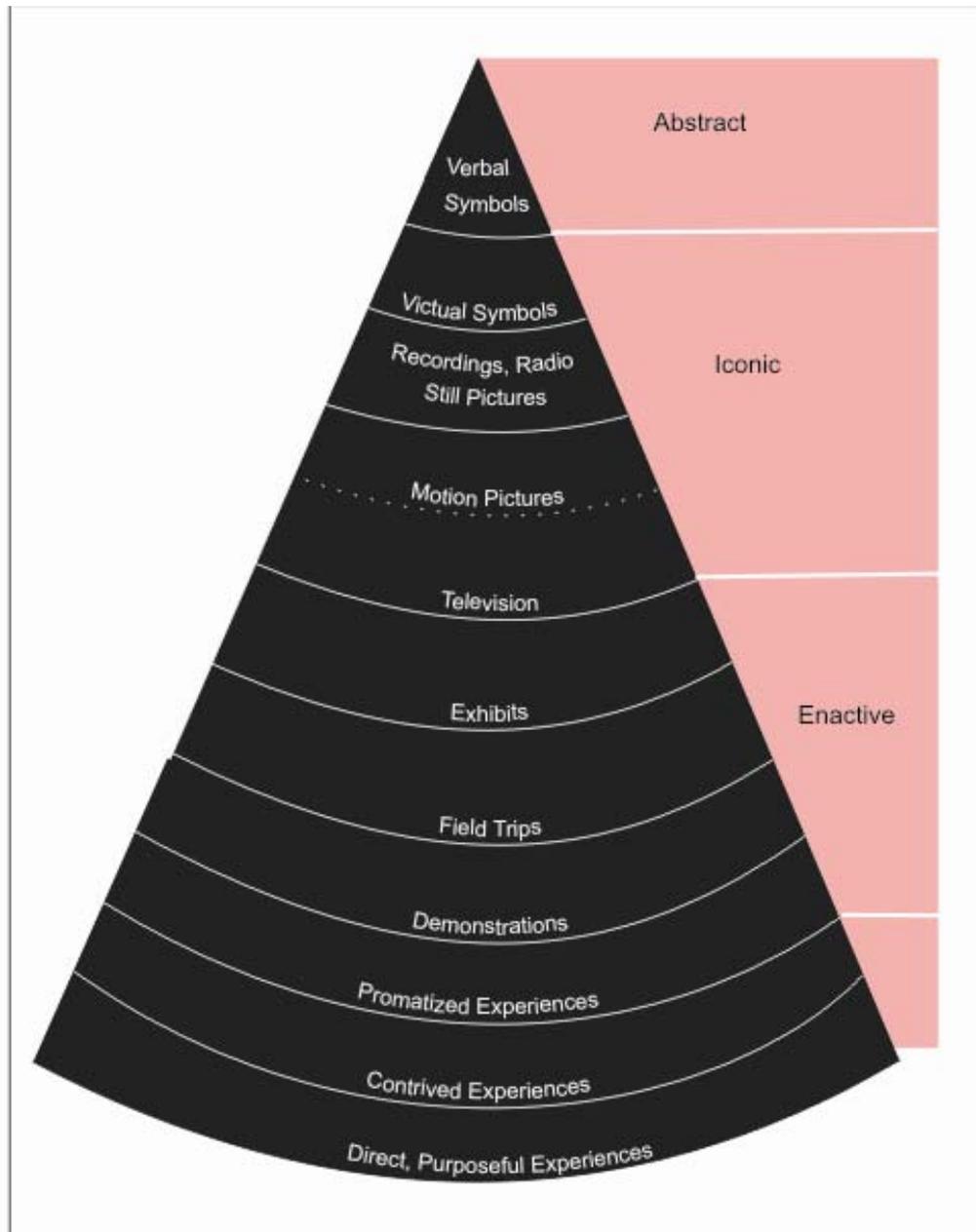


Figure 3.1: Dale's Cone of Experience

Source: Heinich, Molenda & Russell (2002, p.11). *Instructional Media and New Technologies of Learning*

SELF-ASSESSMENT EXERCISE 1

Discuss the merits and demerits of enactive, iconic and abstract experiences in learning.

Give examples of learning materials for concrete level and abstract level.

Designing New Instructional Materials

Designing new instructional materials is difficult and challenging. However, it is more creative, manipulative and satisfying especially for the provider or the teacher. Designing new materials can also be more time consuming, expensive and involving. You should consider the following factors when designing your own materials.

- Objectives of the instruction
- Audience
- Cost
- Technical expertise
- Equipment to be used
- Facilities
- Time

Before you produce instructional materials for classroom presentation, you should consider some factors enumerated by Ajelabi (2000), as follows.

- Instructional objectives. What learning goal is each student expected to reach or what new capability should the learner possess at the completion of instruction? An objective is a target that helps the teacher to hit / achieve his goal / aim. All objectives (instructional or behavioural) must be stated in performance or observable terms.
- Suitability. You need to consider the appropriateness to the learner's age, ability, interest etc
- Content accuracy. You need to consider the authenticity, accuracy and appropriateness of the learning materials.
- Availability. Are the learning materials available and accessible? If not, what options are available– selecting, modifying or designing?
- Size of class. Another thing to consider is the size of the class which determines which media to use, that is, whether to use mass / multimedia for large groups / class or media for small group / individualised learning materials.

- Cost. Is the cost of especially designing new learning materials worth it? Are there materials that can be improvised, realia or community resources? The teacher should know that cheap materials can as well be used as long as they meet the desired goal.
- Teacher's capability. You should select learning materials you are able to handle, manipulate and operate.
- Operating facilities. You should also consider the fact that the facilities for operating the selected learning materials are available. You can also consider the involvement of an expert or technical support.

3.3 Sources of Instructional Materials

Detailed studies have shown that instructional materials may be acquired by schools through the following ways.

- a. The collection of items from the immediate locality of the schools.
- b. The production process by teachers and learners.

The distribution to schools by government and non –government organisations of posters, charts, textbooks, computers and science equipment

- Donations from several sources such as PTA, community, corporate bodies, philanthropist, alumni etc.
- The distribution of productions by pupils in tertiary institutions
- Education Resource Centres (ERCs).
- Direct purchase by the school authority.

Collecting items from the immediate locality. Based on the advice of the teacher, learners could collect the following items from their homes or elsewhere in the locality: milk and beverage containers, discarded plastic containers, bottle tops, old magazines, calendars etc.

Production process by teachers and learners. The teachers and learners should produce some cheap materials such as maps, charts and models from locally available materials.

Governmental organisations. Occasionally, government acquires and distributes to schools, items ranging from inexpensive material such as charts, maps, globes, textbooks, to more sophisticated material / equipment like computers, projectors and laboratory equipment. Nongovernmental organisations such as UNESCO, UNDP, UNICEF, USAID, etc, also donate instructional materials to schools.

Donations from several sources. Philanthropists and other public – spirited people within the school community, town, unions, old pupils association, Parent Teacher Associations, Board of Governors and others similar bodies can also donate instructional materials to schools.

Distribution of productions by pupils in tertiary institutions. Institutional materials produced by pupils in tertiary institutions as part of their projects are subsequently distributed to neighbouring schools after being graded. These materials are then used in schools for the promotion of the teaching –learning process.

Education Resources Centres (ERC). A resource centre is a place where varieties of teaching –learning materials exist for use by teachers, learners and other interested persons within a school or an area. ERCs can be established by institutions, a local or state government, and an individual or non-governmental organisations. Virtually all the states in the country have ERCs. These centres, not only store, sell and distribute teaching–learning materials, they also run short courses on how to use these materials.

Direct purchase by school authority. The school authority should make funds available for the purchase of instructional materials directly from producers.

(NTI, 2009, pp.130-131)

3.4 How to Produce your own Instructional Materials

The following techniques could be employed in the production of instructional materials by the teacher.

- i. Drawing. Examples of these are maps, charts, diagrams, etc.
- ii. Lettering. Examples of this are labeling of materials such as charts, drawings and diagrams.
- iii. Tracing. This is a technique that involves the use of tracing paper to trace visual objects.
- iv. Modeling. You can use papier–mache/ pulp, clay, plasticine, etc.
- v. Copying. This is copying original material to a card board sheet
- vi. Lamination. This is the use of cellophane or polythene bag to cover materials for protection from damage.
- vii. Photograph. The real object can be brought to the classroom situations through pictures from the photographs
- viii. Mounting. Cut out materials from calendar and newspaper could be mounted on a board or plywood for classroom presentation.

Use of discarded items

Here are some discarded materials that you can look for and possibly modify for use:

- a. cartons
- b. spoons
- c. news magazine
- d. cans
- e. forks
- f. calendars
- g. bottles
- h. bottle tops
- i. plates
- j. pots
- k. match boxes
- l. biros
- m. glass frames
- n. boxes
- o. markers
- p. jugs
- q. motor parts
- r. paper
- s. bicycle parts etc.

Production of Materials from Low Cost Items

Instructional materials can also be produced from many items that are commonly available. These items can be easily used to improve instructional materials with minimal supervision.

List of some common instructional materials for primary school that you can produce:

- i. pamphlets
- ii. posters
- iii. pictures
- iv. mock up
- v. graphs
- vi. drawings
- vii. models
- viii. charts
- ix. cartoons
- x. puppets

General Guidelines on Lettering

Lettering is a major part of design. Thus, simple and basic ideas and knowledge will be very valuable at this point. There are four basic methods of lettering. They include:

- stencil lettering guide
- freehand lettering
- letraset lettering
- econasign lettering

In all types of lettering, the following instructions should be followed.
Use the same size as much as possible

- Use guidelines
- Space well
- Shapes well
- Slant letters well

You will now be exposed to the basic methods of lettering. This will help you in the production of media.

Stencil lettering guide. This is of different styles and sizes. It is very good in writing captions, labeling and transparencies. It is like ready made lettering. Practise and get used to the styles before the final work is done

Freehand lettering. This is cheap and it can be done quickly and will also be attractive as long as it is legible, clear, and neat if the general instructions are followed. Lower case letters are easier to read than capital letters especially in writing many words. The capital letters should be used for main titles and short captions. All the general instructions should be applied to the free hand lettering also. Practise a couple of times before the final work. Use the following examples to practice.

Letraset instant lettering. These are usually commercially prepared letters and numbers that can be carefully transferred to a design. The letraset lettering is easy to use. Each sheet is transparent and has a backing sheet for preventing the letters from abrasion from handling and storage. Select the required letter or number along the pre-drawn guidelines, rub across the letter or number with a hard object such as a pencil or ball pen and carefully pull away the sheet after the transfer has been completed.

Econasign lettering stencil. This is simple to transfer or design, only that some letters such as A B D must be printed in two operations of the brush in order to get a complete letter. Note from the example given

below that the portions are always next to each other. The second portion is transferred on the first one until it overlaps and forms the complete letter which can be as good as a printed letter. You should damp and not wet the brush and hold the brush up-right and use lightly to avoid messing up the design.

Grid/graph method

- a. Use tracing paper (or any paper soaked in kerosene) to copy or trace out illustration from the original copy.
- b. Draw grid lines over the assigned numbers to vertical and horizontal lines.
- c. Draw a similar but bigger grid of desired proportion to the first grid say 3:1, 4:1 with corresponding numbers on the location of cardboard or other surface you wish to do the enlarged illustration.
- d. Transfer small portion of lines and curves on illustration on tracing paper to the cardboard or surface until whole illustration is drawn.

Projection method

If you have access to slides, few frames of strip of filmstrip and ready made transparencies that are suitable for enlarging and copying on to poster or chart, they can easily be reproduced in the same way. Illustration for enlargement is put directly under opaque projector. When it is switched on, cardboard is positioned in front of the projector.

The size of the projected image can be determined by the distance between the projector and the screen on which the cardboard is placed.

Designing some instructional materials through improvisation

You can improvise a completely different instructional material from these items using various methods and techniques. The methods of improvisation include the followings:

- cutting and pasting
- dry mounting
- wet mounting
- creation of flannel board
- paper pulp making
- tie and dye
- clay moldings
- manipulation of figure and shapes
- photocopy
- scanning

4.0 CONCLUSION

In this unit, you have learnt some of the factors you should consider when producing materials for instruction. These are instructional objectives, suitability of the materials, content accuracy, availability of materials, size of class, cost, teachers' ability, operating facilities and so on. You also considered the role of instructional materials based on Dale's Cone of Experience, designing new instructional materials, sources of instructional materials and guidelines for producing your own instructional materials.

5.0 SUMMARY

In this unit, you have learnt the following.

- The role of instructional materials based on Dale's Cone of Experience
- Designing new instructional materials
- Sources of instructional materials
- Producing your own instructional materials

6.0 TUTOR-MARKED ASSIGNMENT

- i. List eight important factors you will consider when producing instructional materials.
- ii. Mention ten sources of instructional materials.
- iii. Produce an instructional material to teach a concept in your subject area for primary school.

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UNIT 4 THEORIES RELEVANT TO THE DESIGN AND PRODUCTION OF LEARNING

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Importance of Learning Theories/Psychological Conditions and Principles
 - 3.2 Relevant Learning Theories
 - 3.2.1 Behavioural Theory
 - 3.2.2 Cognitive Theory
 - 3.2.3 Constructive Theory
 - 3.3 Conditions for Effective Learning
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This last unit of module two presents the theories relevant to the design and production of learning materials. You shall be considering the importance of relevant theories such as behavioural theory, constructive theory and conditions of learning.

2.0 OBJECTIVES

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

- explain theories that are relevant to instructional design and production
- describe the importance of theories
- list three theories relevant to learning materials.

3.0 MAIN CONTENT

3.1 Importance of Learning Theories/Psychological Conditions and Principles

What are learning theories? Learning theories can be defined from different perspectives. However, we will want to say that learning theories are a set of ideas, which help to explain learning concepts, principles or laws on which learning or instruction is based. Learning of course is not only the knowledge gained through study but all the

experiences to which the learner is exposed which may result in a positive change in behaviour or human performance as a result of the learner's experience and interaction with the world (Driscoll, 2005).

- Learning theories are important for the following reasons.
- They help provide adequate guide within which learning can operate.
- They help the achievement of learning aims and objectives and help learners to acquire new knowledge and capabilities.
- They help /guide the planning, organising / implementing and evaluating instructional processes as a whole.
- They attempt to describe how humans learn.
- They attempt to prescribe teaching methods and instructional materials.

SELF-ASSESSMENT EXERCISE 1

- i. What are learning theories?
- ii. Explain three reasons why learning theories are important to you as a classroom teacher.

3.2 Relevant Learning Theories

Let's now consider some relevant learning theories based on the major classification presented by Kemp and Dayton (1985). These are as follows.

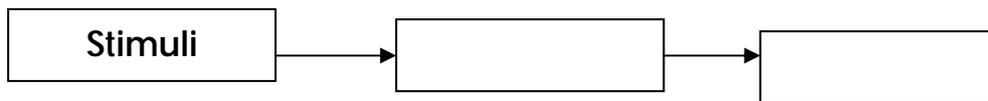
- Behaviourism
- Cognitivism
- Connectivism

We shall now explain these one by one.

3.2.1 Behavioural Theory

How has behaviourism contributed to facilitating learning? Behaviourism (also referred to as connectionism), interprets human behaviour as the Stimulus – Response (S-R) type of learning. This theory was formulated by a psychologist called B.F. Skinner in the 1950s. The message or content of the subject, the instructional materials and all other elements that elicit response or reaction from the learner can be referred to as the stimulus. The response is the new performance the learner is expected to acquire. The learners' responses are rewarded or reinforced with perhaps a word of praise from the teacher or other tangible reinforcers. B.F Skinner discovered from laboratory animals

that by manipulating the stimuli response and reinforcement, he could elicit complex new behaviours from laboratory animals. Other researchers found that humans, too, responded in similar ways to certain types of consequences or reinforcers (Robinson, Molenda and Rezabek, 2008). B.F. Skinner also made the stimulus – response learning clearer in the introduction of the “programmed instruction” in which each sequence of learning is broken down into smaller bits called frames, requiring an appropriate response to each item followed by immediate knowledge of results known as feedback and every correct response attracts reinforcement.



Sources: Ajelabi, 2000.

Figure 4.1: Stimulus-Response Learning

SELF-ASSESSMENT EXERCISE 2

- i. Explain the Stimulus–Response theory.
- ii. Explain the emergence of the behavioural theory and its influence on learning.

3.2.2 Cognitive Theory

What is cognitivism and how is it different from behaviourism? We shall get to know of what cognitivism is and be able to compare it with behaviourism in this unit.

According to Robinson, Molenda and Rezabek (2008), cognitivism is diverse theories in psychology that endeavor to explain internal functions through scientific methods. Learners use their memory and mental or thought processes to generate strategies as well as store and manipulate mental representations and ideas. Cognitive theories were developed by Jean Piaget in the 1920s and 1930s.

Piaget discovered that there were periods called:

- assimilation dominated: where young children build up classification systems and try to fit object and events of their everyday experiences into the existing framework and
- accommodation dominated: where the learners modify their mental structures when they encounter contradictions or experiences that cannot just fit.

Cognitive theory can also be referred to as Gestalts theory in which the theorists believe that transfer of learning involves both generalisation and identical elements fused together (Ajelabi, 2000). The theorists recommended that in order to ensure transfer of learning, there should be adequate practice on the significant elements that can be generalised.

SELF-ASSESSMENT EXERCISE 3

- i. What is cognitivism? Explain how it can be employed in learning? How has it contributed to learning
- ii. Explain the emergence of the cognitive theory.

3.2.3 Constructive Theory

There are many views of constructive theory. It is also referred to as social constructivism because of the social and cultural influences in the theory. It is a socio cultural approach to learning. There were several authors holding divergent and sometimes conflicting views such as Philips (1995); Bednar, Cunningham, Dufty and Perry (1991); Dufty and Cunningham (1996); Dufty and Jonassen, 1992; etc. However, Driscoll (2005) seems to conclude that knowledge is constructed by learners as they attempt to make sense of their experiences.

Tehart (2003) suggested two solutions to the problem of constructivism as follows.

- Moderate constructivism to refer to constructivist theories that accept the assumption of cognitivists
- Radical constructivist as constructivist theories and strategies that depend on the subjectivist epistemology of Von Glasersfeld

SELF-ASSESSMENT EXERCISE 4

- i. What do you understand by constructive theory?
- ii. Explain the different perspectives of constructive theories.

3.3 Conditions of Effective Learning

Ajelabi (2000) suggests that for learning to effectively take place, the following conditions should be considered.

- a. Readiness. The learner must have the necessary pre-requisite that is to make him to be physically and mentally ready for the experiences he is being taken through.
- b. Motivation. The learner needs to be stimulated to learn.

- c. Practice. When trials are repeated, they enhanced discovery, mastery and integration. Practice, according to popular saying, makes perfect.
- d. Provision for transfer of knowledge by giving the learner alternative situation or elements common to two or more experiences in learning can be perceived for better association.
- e. Creating convenient learning environment by providing appropriate learning materials suitable for the age, class, interest, readiness or maturity of the learners.
- f. Organisation of content. A logical, sequential and orderly organisation of learning materials will enhance effective learning.
- g. Participation. Learning is more effective when the learner is fully active or when he is involved in the learning process.
- h. Individual differences. The learners' general and specific characteristics must be considered and involved for effective learning.
- i. Learning objectives must be clearly stated in measurable and performance terms.

SELF-ASSESSMENT EXERCISE 5

List at least nine conditions you will consider for learning to effectively take place.

4.0 CONCLUSION

In this unit, you have considered the importance of theories that are relevant to instructional design and production. Learning theories are important because they provide adequate guide within which learning can operate, the achievement of learning objectives, evaluating the instructional materials and the instructional process as a whole. The learning theories discussed are behavioural theory, cognitive theory and constructive theory. The stimulus-response theory allows you to know when and how to utilise instructional materials. Effective learning takes place under specific conducive conditions which include readiness, motivation, practice, etc.

5.0 SUMMARY

This unit has exposed you to the following points.

- The importance of theories to instructional materials and learning as a whole.
- Relevant learning theories such as behaviourism, cognitivism and connectivism

- Conditions of effective learning such as readiness, motivation, practice, provision for transfer of knowledge by giving the learner alternative situation, a logical, sequential and orderly organisation of learning materials, etc.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Explain the relevance of learning theories to the design of instructional materials and the instructional process.
- ii. Discuss the place of stimulus–response to the use of instructional materials in teaching and learning processes.
- iii. List at least nine conditions you will consider when planning for effective learning.

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MODULE 3 DEVELOPMENT AND PRODUCTION OF LEARNING MATERIALS

Unit 1	Analysis Phase
Unit 2	Design Phase: Educational Objectives Relevant to the Design of Learning Materials
Unit 3	Evaluating Learning Materials
Unit 4	The Learning Package

UNIT 1 ANALYSIS PHASE

CONTENTS

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	The Problem /Task Analysis
3.2	The Identification and Characterisation of Learning Tasks
3.3	Learning Environment and Interactions
3.4	Psychological Conditions and Principles for Instructional Materials Production
3.5	Analysis of Instructional Strategy
3.6	Conditions and Circumstances of the Stakeholders, Beneficiaries, Audience or Users of Instructional Materials
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

1.0 INTRODUCTION

In this unit, you shall be considering the analysis phase of the design and production of instructional materials. The analysis of the characteristics of the learners such as the age, interest, ethnicity, achievement level, socio –economic, background, etc can be used to develop criteria, psychological conditions and principles for instructional materials. The knowledge of the learners’ characteristics will be valuable in determining the appropriateness of the vocabulary, practice activities, details contained in the materials etc. An account description of the learners for whom the materials are intended will facilitate the work of the teacher.

If the teacher wants the learners to use instructional materials independently then the instructional strategies should be well developed and proper guidance or instructions should be included in the

instructional materials. The instructional strategy provides a target with which to measure the appropriateness and standardisation of the materials for the benefit of the present and subsequent utilisation. Lastly, you shall also be considering the conditions/circumstances of the stakeholders, beneficiaries, audience or users of the instructional materials.

2.0 OBJECTIVES

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

- describe the problem you intend to solve through the design and production of your instructional materials
- explain the environmental context in which the instructional materials are designed, produced or utilised
- describe the conditions/circumstances of the stakeholders
- explain the philosophical basis for instructional materials

3.0 MAIN CONTENT

3.1 The Problem /Task Analysis

It is important to know exactly what you want to achieve when producing learning materials. Analysis involves a detailed examination of not only the learners but the instructional materials that the teacher intends to design and produce for the lesson or topic. You are going to learn about the analysis of learning tasks, identification and characterisation of learning tasks, learning environment and interactions such as the teacher, learners with learners and instructional media used in learning.

Analysis of the problem to be solved with the instructional materials is very crucial especially where it is estimated that up to 75% of a child's classroom time and as much as 90% of the homework time are spent using textbooks. If instructional materials play this prominent role in learning, then it requires all the needed attention from all stakeholders, especially the teachers. You need to address questions as follows. What problems are you trying to solve? What specific instructional materials will solve the problems and how? You are to address the needs of the learners at this phase to determine what the students already know and what they need to know at the end of the lesson. This is why objectives should be well stated.

Furthermore, you need to analyse the task to be accomplished or specifically the content and skills to be acquired from the instruction. Task analysis can be carried out through:

- course content or texts
- curriculum / syllabus
- internet facilities which can provide workable template on line on many different courses
- needs analysis of the learners – the learners need to be treated based on their needs

The problem can be addressed once the task analysis, which is related to the content, is done. The knowledge of the actual learning tasks will help the teacher to know the exact learning activities to give to the learners. An example of getting the actual learning tasks will involve taking inventory of the learning tasks and subtract them from the input competence (that is, what the learner already knows e.g. previous knowledge / entry behaviour) and the actual learning tasks will be determined. It can be illustrated thus:

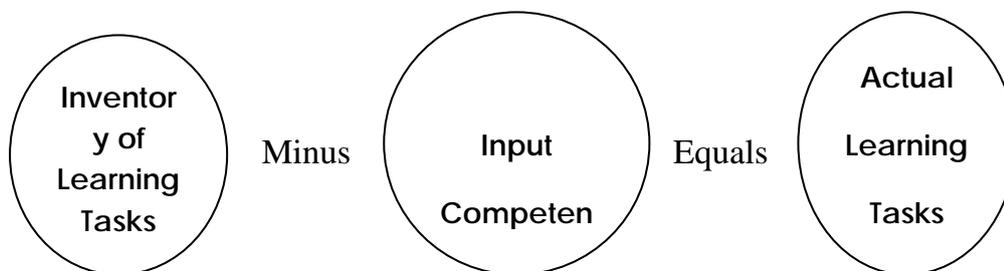


Figure 1.1: Computing the Actual Learning Task (ALT)

Also, learning is more meaningful and effective when the learner's input; competence and actual learning tasks meet the expectation of the inventory of learning tasks.

SELF-ASSESSMENT EXERCISE 1

- What is task analysis and how do you analyse the needs of your learners?
- How will you determine the actual learning tasks of your learners?

3.2 The Identification and Characterisation of Learning Tasks

You are already aware that a task analysis is necessary in order to maintain and determine standard skills or competencies in relation to the instructional content and objectives. Task analysis is done to know the needs of the learner and to establish what must be learnt. In addition to the foregoing, Gagne (1965) identifies a whole set of logical learning types that can further assist in the identification and acquisition of a particular learning task. These are:

- signal learning
- response learning
- motor and verbal chains
- multiple discrimination
- concept learning
- principle learning, and
- problem solving

The learning tasks directly or indirectly dictate the selection, organisation or production of learning content, learning experiences or activities. The information about these learning tasks is necessary for two purposes:

- to project the time needed to hurdle a learning task
- to guide in making an estimate of the amount of content needed for the treatment of any particular learning task.

Strategies for analysing learning tasks

You would have discovered from the foregoing, that analysis of learning tasks is what has to be learned as against what has been learned in order to achieve the stated instructional objectives. The following figure illustrates this further in a diagrammatical form.

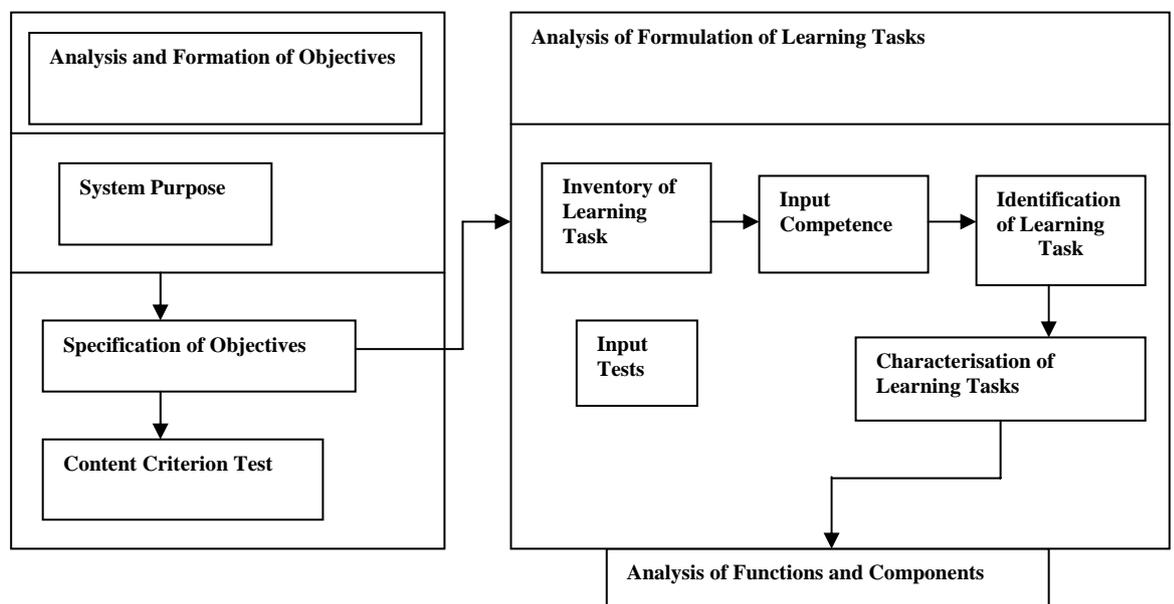


Fig. 1.2: Strategies for Analysing Learning Tasks

All learning tasks should be based on instructional objectives that are stated in such a way that they can be attained by both the teacher and learner at the end of the course or topic. Learning tasks should be so

identified that at the end of the day, the learner actually is made to carry out one learning activity or another.

SELF-ASSESSMENT EXERCISE 2

- i. Identify / explain learning tasks as stated by Gagne (1965).
- ii. Use the figure titled 'Strategies of Learning Tasks' to illustrate how you will practicalise this information in primary school learning.

3.3 Learning Environment and Interactions

Every learner has to go through interactions with the learning environment which dictate and determine the quality of the learning experience. The learning environment and its interaction contribute immensely to the entry behaviour or previous knowledge of the learner. The learning environment provides opportunity for a solid and successful educational foundation for the learner.

According to Ouane (1989) there are three elements in the learning environment. They are:

- the teacher (facilitators)
- other learners
- materials and media for learning

He also listed three types of possible interaction that occur in the learning environment as follows.

- i) Interaction with the teacher. The teacher plans the programme and directs it. This is referred to as "guided learning" where the direction is being determined mainly by the teacher.
- ii) Interaction with other learners / colleagues. This type of interaction occurs among the participants or learners who learn from each other in a permissive atmosphere, this type of horizontal interactions result in "Inter-learning"
- iii) Interaction with instructional materials and media. The learner interacts with certain media and materials such as textbooks, video, internet, radio etc. These may result in discovery, new learning or reinforced learning which may give rise to "self – learning" or "individualised learning".

The interactions should result in improved learner performance on the following tasks.

- Answering questions in reference to concrete phenomena immediately observable in the environment
- Asking questions about the same
- Describing a picture or object
- Describing his actions or the actions of those around him in his environment
- Repeating / rehearsing a short story he has just heard
- Engaging in a conversation about events in which he has been involved

Learners' characteristics

You must know your students very well in order to provide the best instructional materials for their use. As mentioned in the earlier module, you can best analyse your audience / learners in two ways. These are:

- general characteristics
- specific entry characteristics such as knowledge, skills, ability, attitudes etc.

According to Heinrich, Molenda and Russell (1982) the questions you need to ask yourself while analysing your students include the followings.

- Are your learners ready for the learning experience you wish to offer them?
- Is there a match between the learners' characteristics and your materials and methods?
- What are their individual differences/challenges and how can they be satisfied?
- How can the individual learner develop his general and specific characteristics through the materials and methods designed or chosen?

As already mentioned, the general characteristics are those characteristics of the learners that do not relate directly or have direct bearing on the content or subject matter. They include broad identifying descriptors such as age, gender, grade level, intellectual aptitude, cultural/ socio economic factors. On the other hand, the specific entry characteristics relate directly to the content or the subject matter and the decisions about media and methods. Examples are as follows.

- Pre requisite skills –e.g. previous knowledge, entry behaviour
- Target skills – e.g. mastery of the skills
- Study skills – e.g. basic competencies in language, mathematics, reading etc.
- Attitudes – biases or misconceptions about the instructional materials.

SELF-ASSESSMENT EXERCISE 3

- i. What are learners' characteristics?
- ii. Describe and distinguish between general and specific learners' characteristics.

3.4 Psychological Conditions and Principles for Instructional Materials Production

When you know the learners' characteristics, it will lead and help to know the psychological and principles you need to consider as you produce, design or utilise instructional materials. We shall now consider examples of these psychological conditions and principles under the following sub headings.

- a. Individual differences. We already discover from the analysis of learners' characteristics that students vary in almost every area (even if they are twins) such as intellectual abilities, interests, socio-cultural backgrounds, personalities, maturity etc. As a result, you put into consideration their individual differences in order for them to benefit maximally from the teaching / learning process. Media are powerful means of taking care of the individual differences in learning.
- b. Motivation. It has been established by research that instructional media stimulate and arouse the interest of the learners while sustaining their attention during the learning process. Students learn better or learning is more effective when the learners are motivated to learn. Thus, teachers should endeavour to make use of appropriate and interesting instructional materials lavishly.
- c. Learning objectives. The achievement of the learning objectives is very important. The instructional materials should assist in the achievement of the objectives. It is easier to assess the achievement of the objectives if they are well stated in relation to every aspects of the learning process.
- d. Organisation of content. There are some programmes that allow for logical or sequential structuring of learning such as programmed instruction, systems approach, logical sequencing etc. which the teacher can take advantage of in the production and design of instructional materials. Instructional materials can

- present information in terms of the complexity or difficulty of the subject matter.
- e. Participation. Effective learning requires the active participation of the learners during the learning process. This can be done by using different instructional materials that will engage the learners in the learning.
 - f. Emotion. This relates to the affective domain of learning. Instructional materials by their nature can generate emotional responses such as love, fear, anxiety, excitement, empathy etc. You should bear this in mind and produce, design as select instructional materials that will satisfy the emotions of the learners so that they can learn more effectively.
 - g. Practice and repetition. Frequent practice, drills or repetition make information or learning permanent. They also reinforce and arouse the interest and sustain the attention of the learners.
 - h. Feedback. Feedback is also referred to as immediate knowledge of results. Feedback encourages the learners because it helps to know their progress. Programmed instruction is a good example of an instructional material that gives prompt and immediate knowledge of results.
 - i. Reinforcement .Reinforcement strengthens the interest and motivates the learner to want to learn more and helps a student to want to repeat his action that he is positively reinforced.
 - j. Transfer of learning. Successful learning will give the student the opportunity to transfer the knowledge gained from one subject to another if the need arises. The students, while acquiring specific knowledge in the subject matter, should be encouraged to make generalisations relating to the subject.

3.5 Analysis of Instructional Strategy

Instructional strategy is another design phase that requires analysis. Carey and Cary (1987) suggested some components of strategy to assess or analyse in relation to the design, production or selection of instructional materials. These are as follows.

- a. The manner in which learners are motivated to study the materials
- b. Whether learners are reminded of similar material they already know
- c. Whether material is presented clearly with ample examples, rules and demonstrations
- d. Whether relevant practice exercises are included
- e. Whether students receive feedback on the quality of their performance on practice exercises

- f. Whether feedback is presented in a manner that enables students to use the material to adjust their performance on sub-sequent practice activities.
- g. Whether opportunities are provided for summaries and reviews at logical points throughout the materials and
- h. Whether suggestions are provided for enrichment and remediation

Instructional materials that explicitly state the instructional strategy as shown above will be well implemented or utilised whether they are student or teacher managed.

SELF-ASSESSMENT EXERCISE 4

- i. List the conditions/principles that will guide you in the design of instructional materials.
- ii. Describe the relevance of instructional strategy to the design of instructional materials.

3.6 Conditions and Circumstances of the Stakeholders, Beneficiaries, Audience or Users of Instructional Materials

The stakeholders such as the Ministry of Education, the pupils and even the teachers have a lot to benefit from the design, production or utilisation of instructional materials in the primary school. It can be summarised by using the following table which was adopted from UNESCO (2002).

Table 1.1: Benefits of Instructional Materials to Stakeholders

S/N	Stakeholders	Benefit
1	Government	<ul style="list-style-type: none"> • To increase capacity and cost effectiveness of education and training system • To reach target groups with limited access to conventional education training • To support and enhance the quality and relevance of existing education structure • To ensure the connection of educational institutions and curricular to emerging networks and information resources • To promote innovations and opportunities for life long learning
2	Employers / Ministry of	<ul style="list-style-type: none"> • High quality, cost effective professional development in the work place

	Education	<ul style="list-style-type: none"> • Upgrading of employee skills, increased productivity • Development of a new learning culture • Sharing of costs and of training time with the employees Increased portability of training
3	Teachers/ Users	<ul style="list-style-type: none"> • To upgrade standard of education and circular implementation • To increase general effectiveness of teaching and learning processes • To improve access to global opportunities on research and collaborative work • To improve communication skills with learners • To increase / prove access to scientific approach to the teaching industry
4	Students / Pupils	<ul style="list-style-type: none"> • Increased access • Flexibility of content and delivery • Learning centred approach • High quality of education and preparation for higher education • To introduce pupils to technological approach early

4.0 CONCLUSION

In this unit, you have learnt the analysis phase, in which more attention was given to analysis of tasks, how to identify and characterise them. You also dealt with the learning environment and interactions with the teacher, other learners and the learning materials/ media. All the learning environment and interactions should form a solid base for effective learning that results in good performance.

5.0 SUMMARY

In this unit, you have learnt the followings.

- We should deal with actual learning tasks of the learners.
- Taking inventory of learning tasks minus input competence equals actual learning tasks.
- The three elements in the learning environment are: the teacher, other learners and the instructional materials.
- The learning environment, when properly harnessed together, will result in good performance.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Define learning tasks.
- ii. How do you know the actual learning tasks of your pupils?
- iii. Explain the three elements of the learning environment.

7.0 REFERENCES/FURTHER READING

Gagne, R. (1985). *The Conditions of Learning and the Theory of Instruction* (4th Edn). New York: Holt, Rinehart and Winston.

Heinich, R.O., Molenda, M.M.& Russell J.D. (1982). *Instructional Media and the New Technologies of Instruction*. New York: John Wiley & Sons.

Ouane, A. (1989). *Handbook on Learning Strategies for Post –Literacy and Continuing Education*. Hamburg: UNESCO Institute for Education

UNIT 2 DESIGN PHASE: EDUCATIONAL OBJECTIVES RELEVANT TO THE DESIGN OF LEARNING MATERIALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Selecting the Topic / Subject
 - 3.2 Developing the Objectives
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In the previous unit, you considered the analysis phase of learning materials. In this unit, you will be moving towards the “design” phase. Simply put, design is a plan (which may depict drawings, diagrams, etc) that shows a step-by step way of carrying out this phase of instructional materials. This design phase includes the various aspects of designing learning materials such as selecting the topic/subject, developing the objectives, analysing the task(s), developing the assessment or evaluation mode and revising and modifying the whole procedure involved in this phase.

2.0 OBJECTIVES

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

- select the topic / subject
- state the objectives
- analyse the task(s)
- develop the assessment / evaluation
- revise and modify the materials.

3.0 MAIN CONTENT

3.1 Selecting the Topic / Subject

How do you go about selecting the topic when designing? The pool of topics has expanded with technological innovations and with the development of new understanding regarding how these technological

tools might help guide the learning and teaching processes. A topic or subject matter can be selected from the different areas such as the virtual library, the internet, websites, web quests and other traditional technological devices. The nature of the topic / subject can predetermine the kind of method, materials etc to adopt.

Table 2.1: A Procedure for Selection and Verification of Instructional Materials

Phases	Purpose	Type of data	Sources of data
1. Selection	Select materials that have the best potential for affecting learning outcomes desired by the educational agency	Intrinsic	Consideration from formative evaluation agency documentation expert opinions, proposed materials and publisher's documentation.
2.Verification	Verify decisions made in phase 1 and make recommendations to teachers about how the materials can be used most effectively; i.e. as published with additions or with revisions	Pay off	Considerations about student performance, student attitude, teacher attitude, and implementation procedures.

Source: Carey & Carey (1987)

The table above shows the procedure for the selection and verification of instructional materials which transcends the selection of content or topics for instruction.

3.2 Developing the Objectives

Objectives can be described as goals. They are statements targeting a particular area of a learning situation. Have you ever watched a football match before? How are the teams declared winners? A score is not declared until the football hits the target or goal. This happens in learning as well. A learner has not truly learnt until the objective, aim, goal or target is achieved resulting into a changed behaviour in the learner.

There are two types of objectives:

1. Instructional objective. This is what the teacher intends to have achieved after the instructional process.
2. Behavioural Objective. This is what change in behaviour is expected in the learner after the instructional process and it must be stated in observable, measurable or performance verbs such as mention, list, describe, identify, examine, write, clarify, evaluate, etc. Behavioural objectives should not be stated in immeasurable verbs, such as know or understand. Behavioural objective can be stated as follows.

“At the end of the lesson, the student should be able to mention eight out of the ten aims of education in Nigeria”.

SELF-ASSESSMENT EXERCISE 1

- i. What are objectives?
- ii. Give examples of instructional and behavioural objectives in your discipline.

Taxonomies of educational objectives

The taxonomies of educational objectives are scientific classification of objectives into the following three domains of learning.

- Cognitive domain which deals with intellectual development.
- Affective domain which deals with the development of attitudes.
- Psychomotor domain which deals with the physical or motor skills development.

It is advisable to combine all the three domains in order to give a balanced instruction. Also, there are some suggested performance verbs or action words which you can use as you write your objectives. These words are referred to as “measurable verbs /observable verbs” which can help monitor the achievement of your objectives.

Here, below, are some words which demonstrate observable behaviours under the three domains of learning.

Table 2.2: Cognitive Domain

Knowledge	Synthesis	Comprehension	Application	Evaluation	Analysis
Arrange	Arrange	Classify	Apply	Appraise	Analyse
Copy	Assemble	Convert	Assemble	Argue	Appraise
Define	Collect	Describe	Change	Assess	Calculate
Duplicate	Combine	Discuss	Choose	Attach	Categories
Label	Manage	Explain	Defend	Choose	Compare
List	Manipulate	Express	Demonstrate	Compare	Contrast
Match	Modify	Extend	Discover	Conclude	Criticise
memorise	Organise	Identify	Dramatise	Defend	Diagram
Nam		Indicate	Draw	Judge	Differentiate
Order		Outline	Employ	Justify	Distinguish
Quote		Recognise	Extend	Predict	Examine
Recognise		Relate	Illustrate	Rate	Experiment
Recall		Report	Modify	Score	Explain
Record		Respond	Operate	Select	Illustrate
Repeat		Restate	Practice	Support	Question
Reproduce		Review	Predict	Value	Test
Tell		Rewrite	Prepare		
Underlie		Select	Produce		
Compose		Translate	Show		
Create		Originate	Solve		
Design		Plan	Use		
Devise		Prepare	Perform		
Formulate		Propose	Estimate		
		Set up	Evaluate		
		Write			

Instructional Design for Open Learning, Training Manual used by COL to facilitate the first NOUN workshop held at Lokoja Confluence Motel in April 2000, pp. 38-40.

Table 2.3: Psychomotor Domain

Adapt	Duplicate	Move	Select
Adjust	Fix	Operate	Service
Assemble	Generate	Perform	Set up
Bend	Grasp	Pick up	Shorten
Build	Handle	Point to	Show
Calibrate	Hear	Practice	Slide
Close	Identify	Press	Sort
Combine	Illustrate	Pull	Stretch
Construct	Load	Push	Touch
Copy	Locate	Remove	Transport
Design	Loosen	Repair	Write
Diagram	Manipulate	Replace	
Disconnect	Measure	Restate	
Draw	Modify	Set	

Table 2.4: Affective Domain

Accept	Discuss
Attempt	Display
Ask	Dispute
Challenge	Follow
Change	Form
Commend	Initiate
Comply	Integrate
Conform	Join
Defend	Judge
Describe	

SELF-ASSESSMENT EXERCISE 2

Underline the verb phrases which best demonstrate observable behaviours,

Table 2.5

Know	State	Describe
Give examples of	Understand	Really know
Fully understand	Suggest reasons why	Explain
Evaluate	Be familiar with	Become acquainted with
Pick out	Distinguish between	Have a good grasp of
Appreciate	Analyse	Carry out
Summarise	Compare	Acquire a feeling for
Believe in	Learn the basics of	Realise the significance of
	demonstrate	Show
		diagrammatically

4.0 CONCLUSION

In this unit, you have learnt that design is a plan showing a step-by-step way of producing instructional materials. This design phase includes the various aspects of designing learning materials such as selecting the topic/subject, stating the objectives, analysing the task(s), developing the assessment or evaluation mode and revising and modifying the whole procedure involved in this vital phase of production.

5.0 SUMMARY

In this unit, you have learnt that statement of objectives is an important phase in the production process. Objectives are statements targeting a particular area of a learning situation. You are now conversant with two types of objectives. These are instructional objective which the teacher intends to have achieved after the instructional process and the behavioural objective which concerns the change in behaviour expected

in the learner after the instructional process. This, of course, must be stated in observable, measurable or performance verbs such as explain, list, describe, identify, examine, write, clarify, evaluate, etc. Behavioural objectives should not be stated in immeasurable verbs, such as know or understand. You will see that clear objective statement is a sine qua non to the designing and production of learning materials.

6.0 TUTOR-MARKED ASSIGNMENT

- i How do you go about selecting the topic when designing?
- ii State and explain the three domains of learning. How can they help you in the statements of objectives?
- iii Give examples of stating instructional and behavioural objectives in your discipline with performance verbs.

7.0 REFERENCES/FURTHER READING

Heinich, R.O., Molenda, M.M.& Russell J.D. (1982). *Instructional Media and the New Technologies of Instruction*. New York: John Wiley & Sons.

NOUN (2000). *Instructional Design for Open Learning*. A training manual used by COL to facilitate the first NOUN workshop held at Lokoja Confluence Hotel in April 2000, pps. 38-40.

UNIT 3 EVALUATING LEARNING MATERIALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Evaluating Instructional Materials
 - 3.2 The Importance of Evaluation
 - 3.3 Strategies and Types of Evaluations
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Evaluation is an essential part of the design and production of learning materials. I want you to bear in mind that evaluation is supposed to run throughout the lesson. It is not only to be carried out at the end of the lesson. The notion that it is only the learners that should be evaluated should be corrected now. Evaluation should be performed at all stages of the lesson, and should be carried out on the learners' performance and achievement, the teachers' effectiveness, the achievement of the instructional goals and objectives, the instructional materials adopted and also the methods or strategy used.

2.0 OBJECTIVES

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

- define evaluation and state its importance in the design and production of learning materials
- design evaluation instruments
- describe the strategies / types of evaluation.

3.0 MAIN CONTENT

3.1 Evaluating Instructional Materials

The instructional material evaluation is dynamic in nature. It is aimed at ensuring that the set objectives are actualised. You should not use instructional materials just to fulfill all righteousness, but to adequately integrate them for specific instructional outcome. Evaluation of instructional materials produces great results in that it helps to establish

standardisation of the materials. In other words, evaluation also covers the materials designed for the lesson specifically.

Evaluation is not the end of instruction. It is the beginning because at the beginning, evaluation can be used for introducing the lesson while gradually leading the learner into the main body of the lesson and then to the ultimate evaluation which must await the completion of the instructional unit. According to Heinich et. al. (2002), evaluation should be made before, during and after instruction.

Model for evaluating instructional packages

The Reiser and Dick Model (1990), states that the primary criterion to judge the effectiveness of a package is the extent to which students learn the skills the package is intended to teach. The twelve steps suggested by the model are listed below.

- Step 1 Identify package of interest
- Step 2 Identify general characteristics of package
- Step 3 Still interested in the package?
- Step 4 Identify or develop instructional objectives
- Step 5 Identify or develop test items and attitude questions
- Step 6 Conduct one-on-one evaluation
- Step 7 Is further evaluation necessary?
- Step 8 Need to Change test items?
- Step 9 Make changes to test items
- Step 10 Conduct small group evaluation
- Step 11 (Two weeks later): administer retention test
- Step 12 Write evaluation report

SELF-ASSESSMENT EXERCISE 1

- i. What is evaluation?
- ii. Explain Reiser and Dick Model (1990) criteria for evaluating instructional package.

3.2 The Importance of Evaluation

Evaluation is important in the whole learning process and in the instructional materials employed to make the process more interactive and effective. Specifically, evaluation is important for the following reasons. It helps learners:

- recall what they have learnt in a particular section.
- monitor the learners' progress.

- identify any misunderstandings they may have about the content of a unit or a section of it.
- use what they learnt in a lesson to perform tasks that call for knowledge or the skills learnt.
- acquire greater self reliance as they are encouraged to become responsive and responsive to their studies.

It helps the teacher to:

- know the effectiveness of the materials used.
- assess the effectiveness of his teaching methods and to make necessary adjustments where necessary.
- assess the acceptability of the materials by the learners
- determine the standard of the materials used as compared to the accepted standard, especially if the material is improvised, adapted or adopted.

Evaluation of instructional materials is important for the following reasons.

- To determine the effectiveness of the materials.
- To ascertain the acceptability by both the students and the teachers.
- To determine the standardisation or global acceptability or otherwise of the instructional materials.
- To ascertain the usability and maintenance requirements.
- To determine the technical errors, difficulties or defects.

SELF-ASSESSMENT EXERCISE 2

- i. What is the importance of evaluation?
- ii. How will you carry out evaluation of:
 - a. the teacher?
 - b. the pupils?
 - c. the instructional materials?

3.3 Strategies and Types of Evaluations

Gronlund (1981) describes four purposes and four types of evaluations or assessments in education which can be applied to the evaluation of the design and production of instructional materials. These are as follows.

Table 3.1

Types of evaluations	Purposes of evaluations
Placement evaluation	Evaluation of pupil entry performance in a sequence of instruction
Formative evaluation	Evaluation of pupil learning progress during instruction
Diagnostic evaluation	Evaluation of pupil learning difficulties during instruction
Summative evaluation	Evaluation of pupil achievement at the end of instruction

The above explains the general purposes and procedures of evaluations. Let's now consider more specifically the evaluation of instructional materials.

Questions for Review / Evaluation of Instructional Materials

The following is an adapted summary of questions for review or evaluation of instructional materials using the formative evaluation mode.

Table 3.2

Considerations from Formative Evaluation	General Questions
Philosophy	Is the educational philosophy of the school congruent with the philosophy and procedures in the materials?
Learners' characteristics	Are the learners' characteristics of the target population congruent with learners accommodations in the materials?
Instructional goals	Are the instructional goals outlines by the Ministry of Education and stated in curriculum guidelines congruent with the scope and emphasis of goals in the materials?
Instructional objectives	Are objectives specified in curriculum guides and by subject matter experts compatible with those included in the materials?
Content	Is the content specified in the curriculum and by subject matter experts consistent with that in the materials?

Instructional strategy	Are research–based instructional strategies reflected in the instructional materials?
Utilisation	Are cost and format, as well as requirements for time, personnel, media, facilities and equipment acceptable?
Consistency within instructional materials	Is there internal consistency within the instructional materials e.g. are content and instructional strategies appropriate for the objectives; do tests measure achievement of the objectives, and are all components appropriate for the target population?
Developmental documentation	Are data included that provide evidence that the materials have been used successfully in a variety of instructional settings?

Criteria for Evaluating Instructional Materials

The evaluation criteria by Hoepft-Wellenhofer (2009) are as follows.

- a) Goal–centered criteria for evaluating instructional materials. This type of evaluation is targeted on the content of the instruction and the achievement of the objectives. Specific criteria in this area include congruence between content in packages and objectives, adequacy of content coverage and completeness, authority, accuracy, currency and objectivity (Olasunkanmi and Adisa, 2010).
- b) Learner–centered criteria. The learner is the centre of all the instructional process. Therefore, the learner is considered with regards to the appropriateness of the instructional materials such as the interest, previous knowledge or experience, backgrounds, the simplicity or otherwise of the contents, details, vocabulary or language levels used and so on. The instructional materials must be able to address the specific needs of the learner in such a way that effective learning is guaranteed.
- c) Learning-centered criteria. How adequate is the learning material in relation to the stated objectives? Is adaptation or improvisation necessary to add or subtract the details for the learning material to meet the standard required? The instructional materials can be evaluated to determine the adequacy based on the following factors.

- Pre-instructional packages
- Content sequencing and presentation
- Student participation and congruent practice exercise
- Feed back
- Assessments
- Follow-through directions for enhancing memory and transfer
- Delivery system and media formats and
- Learning guidance to move students from one component / activity to the next

These determining factors are inexhaustible but you can develop your own evaluating strategies to suit your own instructional procedures.

Context-centered criteria. These forms of evaluation relate to the authenticity of the instructional materials for content and learners, the feasibility of the materials for setting and budget. The following parameters should be considered when evaluating instructional materials based on context centered criteria:

- the technical quality of existing materials in relation to packaging
- graphic design and typography
- durability
- the audio and video quality
- interface design
- navigation
- functionality

SELF-ASSESSMENT EXERCISE 3

- i. What is evaluation?
- ii. Explain the various criteria you will use to evaluate instructional materials.
- iii. What is the place of the learner in the evaluation process?

4.0 CONCLUSION

In this unit, you have learnt that evaluation is an essential part of the design and production of learning materials. I want you to bear in mind that evaluation is supposed to run throughout the lesson. It is not only to be carried out at the end of the lesson. The notion that it is only the learners that should be evaluated should be corrected now. Evaluation should be performed at all stages of the lesson, and should be carried out on the learners' performance and achievement, the teachers' effectiveness, the achievement of the instructional goals and objectives,

the instructional materials adopted and also the methods or strategy used.

5.0 SUMMARY

In this unit, you are made aware of the fact that, evaluation is not the end of instruction. It is the beginning because at the beginning, evaluation can be used for introducing the lesson by giving your students a pre-test, while gradually leading the learner into the main body of the lesson and then to the ultimate post-test evaluation which must await the completion of the instructional unit. According to Heinich et. al. (2002), evaluation should be made before, during and after instruction.

6.0 TUTOR-MARKED ASSIGNMENT

- i What is the importance of evaluation?
- ii What are the roles of the learner and the teacher in the evaluation process?
- iii Explain the various criteria you will use to evaluate instructional materials.

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UNIT 4 THE LEARNING PACKAGE

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Multimedia Learning Materials
 - 3.2 Learning Package
 - 3.3 Major Sources of Learning Packages
 - 3.3.1 Case Study 1: Rocket French
 - 3.3.2 Case Study 2: Print-based Learning Package
 - 3.3.3 Production Guidelines
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Considering what you have learnt so far regarding learning materials design, I believe you have come to the conclusion that the production of learning materials cannot be handled lightly. It is more a function of your skill, care, creativity and desire than that of available money. In this unit, you shall be introduced to some learning packages and you will also be considering the possibility of producing a print-based package using some guidelines.

2.0 OBJECTIVES

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

- describe what a learning package is
- explain two examples of learning packages
- list some guidelines for producing an effective print-based learning package.

3.0 MAIN CONTENT

3.1 Multimedia Learning Materials

For effective learning to take place, it may be necessary to employ at least three channels of human communication. These are eyes, ears and touch. Learning materials had already been classified and some rationale for their uses had been enumerated. However it will not be out of place to stress some of the advantages of learning materials again here.

Apart from the teacher telling you something in person, modern technology has given us alternative means of conveying and receiving information. There are hundreds of cassette tapes, both audio and video. There are also CDs, DVDs, iPods, mobile telephones, computers and the world-wide-web (www) of internet, etc. All these carry some well designed educational messages for us to choose from as teachers. On the part of the children, whether consciously or unconsciously, these various media impact on them, most times in a competitive way against our effort. Therefore, to develop and produce learning materials, you need to be able to design the lesson in a way that will ensure appeal and acceptance by your clients (the learners). It is popular these days to hear such phrase as ‘learning package’. What is a learning package when discussing learning materials?

3.2 Learning Package

A learning package is a specific programme for learning which has been specially designed for an identified audience. The aim of a learning package is usually to promote or present a topic or subject or skill in a way intended to ensure its appeal or acceptance. Learning packages can be produced for learners at any educational level. However, it is mostly referred to when talking about distance learning.

A learning package can be a single mode— being basically print—based; it can also be electronically—based as is the case with e-learning. A learning package can also be multimedia where several media components are linked to stand alone or complement ideas within the design of the package. Learning packages can be produced on any topic or subject in the curriculum.

Learning packages are research based and require skill, care and creativity for an effective production. It is no wonder, that Strinivasan (2001), says that ‘contents, technology and service are the real and essential ingredients of a good learning package’. Referring to the production of e-learning, he says that the way in which the learning

package is presented makes the developer/vendor stand out. For this reason, most commercially produced learning packages are commissioned productions by experts.

3.3 Major Sources of Learning Packages

The National Open University of Nigeria is a producer of learning packages on a variety of subjects or topics for students who are adults and are learning at a distance. Your course materials, with all the accompanying materials, are learning packages.

Other sources of learning packages are as follows.

- Educational consultancy companies
- Research institutes or council
- Donor educational agencies e.g. UNICEF and UNESCO
- Learning industries of various categories e.g. publishers and media houses.

The production of learning packages is by team work. The learning industries are able to work in partnership with their clients to provide high quality learning materials. Within the partnership, the clients act as the subject matter experts. From this, you can deduce that the production of learning packages is an expensive venture and may not be embarked upon by a single individual.

3.3.1 Case Study 1: Rocket French

Rocket French is a language learning package. It is developed and produced by ITS Directory. The company consists of a team of experts in French language and culture. There are also experts in various aspects of the media i.e. graphics artists cinematographer, graduates in the language etc.

Description. Rocket French is a comprehensive course programme on understanding the French language better and learning to speak it more fluently. It was designed and developed in 2007.

The package consists of 13 modules of 7 units. The duration of each unit is thirty minutes. Each unit contains:

- an interactive audio cassette tape
- an audio track on grammar and cultures
- transcript of the full conversation in the lesson both in English and French
- a dictionary of French words and phrases.

Cite:<http://www.itsadirectory.com/156/rocket-french-learning-package>

3.3.2 Case Study 2: Print Based Learning Package

Title: Training Manual– Course Material Development in Open and Distance Learning.

Description. It is a print –based material. It is comprehensive and consists of three modules of eleven units. It provides a step by step guide to writing course materials for open and distance learning.

Target Audience. Potential course material writers, academic staff of open and distance learning institution, potential editors.

Aim. To equip potential writers and editors with orientation of NOUN course writing style.

- To familiarise writers with course development strategies
- To provide reference materials for course materials development and writing

Delivery. Ten days workshop

Comment. The package followed the systematic approach of instructional materials development. It also adheres to the international standard guideline producing “print based materials” learning packages. The guideline was designed by the Commonwealth of Learning, Canada. It will be useful to you because you and your colleagues could decide to collaborate to design, develop and produce a learning package.

3.3.3 Print Based Materials Production Guidelines

- Direct the learners on how to use the learning materials.
- Clearly state the objective.
- Cover all areas of knowledge in the syllabus.
- Follow a logical sequencing.
- Chunk material contents into manageable segments that can be completed in one session or lesson.
- Provide self evaluation questions and exercises. Provide sample answers.
- Provide assessment instrument.

Take adequate precaution to avoid breaking copyright rules, regarding the contents in your materials

The structure

Ensure consistency in the structure of the material. That is, each unit should have:

- a list of contents
- an introduction
- the statement of objectives
- the main content
- conclusion
- summary
- tutor -marked assignment
- references/further reading

As much as possible, you may use illustrations to increase interest and draw attention. Use symbols /icons to give direction for self instruction format of a learning package.

For example:

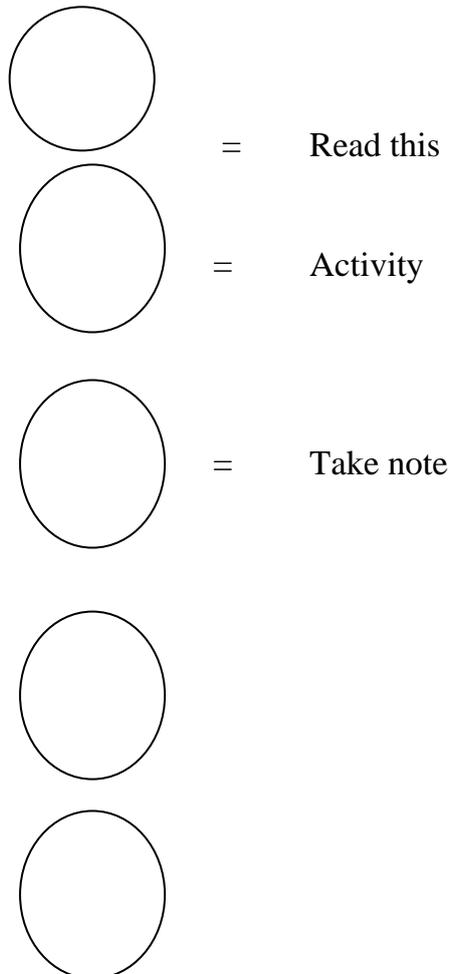


Figure 4.1

4.0 CONCLUSION

There are many materials you can develop and produce for your learners, one example is the learning package. Learning packages are useful audio visual material/ resources, but they are sometime expensive and require skill and creativity. It is important to follow a good guideline and produce an effective package that will stand the test of time, and being cost effective. Content, technology and willingness are the essential ingredients of learning material production more than funds.

5.0 SUMMARY

In this unit you have learnt that the learning package is the learning material that you can develop and produce in partnership with other experts.

Two leaning packages were described as examples. You were given a guideline for the effective production of print–based learning packages. In the next module you will be exploring an alternative measure to the production of costly learning materials.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Describe what is meant by learning package.
- ii. Explain a print–based learning package with an example.
- iii. Enumerate the guidelines for an effective print –based learning package.
- iv. What caution should you take as a learning materials developer?

7.0 REFERENCES/FURTHER READING

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MODULE 4 APPLICATION AND UTILISATION OF LEARNING MATERIALS IN THE CLASSROOM

- Unit 1 Planning and Preparation of Lesson Notes
- Unit 2 Effective Use of Neighbourhood and Environmental Resources

UNIT 1 PLANNING AND PREPARATION OF LESSON NOTES

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Plan the Lesson
 - 3.2 Important Consideration before Preparing a Lesson Plan
 - 3.3 The Lesson Plan
 - 3.3.1 Explanation of the Elements in a Lesson Plan
 - 3.4 Evaluation Instruments
 - 3.5 Strategy / Method
 - 3.6 Teaching Technique and Method
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In module 3, you learnt the theories of learning materials design. You also applied the basic principles of learning materials design into a usable reality. By so doing, you realised that indeed the systematic approach entails analyses and planning at every stage. It is important to note that all through, from the conception of an idea, to the designing, the developing, and the production of the learning materials, planning is of the essence. So, in this unit, you will be able to see that even in the classroom, when you use the systematic approach to plan and present your lessons, you will also be engaged in analysis and planning, preparation and evaluation. It is the only way to the effective achievement of your objectives.

2.0 OBJECTIVES

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

- plan a lesson linking content to the approved curriculum/syllabus
- prepare the learning environment adequately to enhance the achievement of learning objectives
- describe how to integrate learning materials into the learning activity to meet the different needs of your pupils
- evaluate the success/effectiveness of learning material.

3.0 MAIN CONTENT

3.1 Plan the Lesson

You are going to apply all that you've learnt previously in units 2, 3, and 4 of Module 1, and in Module 3, particularly. Each of the steps you use in planning an integrative lesson is a micro approach of the development and production of learning materials. Your ability to organise and structure the learning situation is very essential. You need to systematically plan to integrate instructional/learning materials with your overall lesson plans right from the beginning.

Lesson plan is the preparatory notes on the subjects to be taught on a daily basis. It is the layout of how you intend to present the lesson from beginning to the end. A lesson plan is one of the tools that promote communication of learning in the classroom. As a good teacher, you are expected to plan your lesson, stating the steps you will follow to achieve the stated objectives. It is often said that if you fail to plan, then you have planned to fail. This is very true in teaching and learning.

3.2 Important Consideration before Preparing a Lesson Plan

According to Olutade (2006), preparation of a lesson plan is not an easy task for a neophyte (new/inexperienced) teacher. Certain conditions must be fulfilled in order to make the task easy.

Stating this condition, she itemised the following.

- Consult the current curriculum/scheme of work for the topic
- Think out the objectives of the lessons
- Consult reference books and textbooks for more information and content
- Organise and assemble learning contents needed for the lesson in logical sequence

- Decide on the teaching and learning aids to use
- Think of the most suitable methods of teaching to use
- Think of the subject matter and questions required at each stage of the lesson
- Ensure accuracy and adequacy of facts

Think of the individual differences of your learners and make provision to accommodate them; when you do this, you will have a very clear mental picture of the lesson and planning becomes easy.

Lesson planning is very important. When assessing a good lesson plan, you will generally consider the followings.

- every lesson plan has a beginning, a middle and an end.
- lesson plans are proposed details of the work to be done in one lesson. (objectives, contents and evaluation)
- lesson plans are meant to guide the teaching methods to be selected to deliver the learning points and the activities to be engaged in the lessons (i.e. organisation of learning environment).

So, your assessment should be able to identify what extent the plan will show those considerations mentioned above.

3.3 The Lesson Plan

There are 7 major elements in a good lesson plan. These are:

- information about your class and the pupils
- the objectives of the lesson
- the content of the lesson
- the teaching – learning materials/methods
- organisation of the class
- presentation of lesson plan
- evaluation

3.3.1 Explanation of the Elements in a Lesson Plan

- **Class:** you are already familiar with the pupils in your class (See Module 1, Units 2 & 5 and Module 3, Unit 2, to refresh on what to consider further) to bring out those characteristics and background of your pupils that might affect how the lesson is to be handled.
- **Subject:** this is the subject you teach which is guided by the school syllabus and the National Curriculum,

- **Topic:** choose your topic from the scheme of work. You should research the topic to make sure you fully understand it.
- **Duration:** decide whether you will require more than one normal class period to cover the topic, depending on the approach adopted.
- **Content:** having researched the topic you can decide what information and skills are involved. State them and select those that are necessary in achieving the objectives of the lesson.
- **Objectives:** it is important that you state the objectives of the lesson – i.e. what the pupils will be able to achieve as a result of their learning efforts and as a result of participating in your lesson.

What are the skills, concepts or attitudes the child should learn? For example, the objective statement of “the child will be able to identify the letter M in a group of other letters” is different from, an objective statement of “given the letter M in a group of other letters on the board, the child will be able to identify the letter M”. You can see that statement like “teaching the alphabets M and N” does not tell us what to do. The child can learn to write them, recognise them, make the sounds they represent, say a word that begins with each, differentiate one from the other, etc. The specification or performance word must be indicated. A renowned researcher named Benjamin Bloom prepared the taxonomy of behavioural objectives. This was discussed in Module 3, unit 2 on page 110.

SELF-ASSESSMENT EXERCISE 2

Choose a topic from your preferred subject area; write two objectives statements in line with what you have just learnt.

3.4 Elements of Evaluation Instruments

How do we know that learning has taken place as a result of your presentation in the lesson? Usually you ask the learners questions or you test them. You can also ask the learners to do something or create something. The objectives guide you in setting the questions and activities of evaluation. There are two types of evaluations. Evaluation within the lesson (*formative evaluation*) helps you see if the learner is following and progressing; the evaluation at the end of the lesson (summative evaluation) is to help you find out what has been learnt.

SELF-ASSESSMENT EXERCISE 3

- i. Explain the basic elements in a lesson plan.
- ii. Write a lesson plan for a topic in your subject area.

3.5 Strategy/Method

The teaching strategies and methods are very important aspects in a lesson plan. You need to select a suitable teaching-learning pattern to achieve the objectives. There are three aspects to consider.

- (i) **Class grouping.** Are the pupils to work individually with the help of workbook? Are they to work in small groups which you have decided upon? Are you taking them as a whole class? For this lesson, when should they work as individuals, groups, or as a whole class? Remember that working in small groups and as individuals offer the pupil more opportunities to interact with the learning materials and with the teacher. Naturally, children play and interact in small groups. We should therefore explore the advantages of small group learning in the classroom. Help the children to form research, reading or discussion groups to work in learning centers. Small group based learning helps you to achieve the following.
 - Reduces teacher talk in the classroom
 - Increases pupil participation
 - Increases attention given to individual pupils
 - Increases pupil-pupil cooperative learning
 - Makes learning more relevant to the pupil's situation
 - Reduces meaningless rote memorisation of facts
 - Increases the pupils' ability to find out for themselves instead of learning about ready-made conclusions.
- (ii) **Instructional Materials/Media.** What instructional materials are necessary for the learning of the skills, concepts, and attitudes? Think of the different things you can do with each of the materials treated in this workshop of the learning materials listed on page 96. Now do your selection.

Do you need a flip chart, a flash card, the chalkboard or a tape recorder? Can you get the materials readymade, or do you have to make them?

Are they appropriate to the abilities of the pupils and are you able to use them? If your answers to the questions are positive, then you can choose them for the lesson?

3.6 Teaching Technique and Method

Teaching strategies and methods are very important aspects of a lesson. Should you give the pupils the facts straight in a lecture (rote learning): allow them to work with structured materials in groups, to discover, discuss and come up with suggestions; work individually with a

structured text; interview their parents and report their findings? You have to choose between rote learning and active participatory discovery learning.

You can see that class grouping, instructional materials, and methods are related, and should be decided on systematically. When this is done, you then arrive at your strategy, which you now state in steps.

Example

Step I. Teacher explains what is to be done to the whole class, making them understand the objectives. He divides the class into groups and supplies them with the necessary materials.

Step II. Children experiment with the materials in groups. Teacher moves from one group to another to observe what is being done and ask helping questions.

Step III. The children write down their findings, and answer follow-up question individually.

Step IV. The whole class come together to ask question, to clarify ideas. You should try to assign specific time to each of the segments from the available period for the lesson.

SELF-ASSESSMENT EXERCISE 4

What is the difference between what pupils learn from a lesson on seed germination taught by the teacher giving all the facts on the board and the same lesson taught by making the pupils plant seeds and observe the stages of germination?

The following table will help you decide on class grouping, materials and techniques you could select for your lesson.

Table 1.1: Instructional Strategies/Media

S/N	Teaching Strategy	Characteristics	Learning Influences
1	Demonstration	Impinges on vision Both teacher and learner –centred Intensive teacher use Less information per unit time May involve small or large groups Develops	Develops psychomotor skills and makes abstract concept concrete

		<p>psychomotor skills</p> <p>Teacher–learner contact may or may not be close</p> <p>Impinges on some of hearing when words are used to explain actions and reactions.</p>	
2	(Deductive dialogue) Questioning	<p>Involve small groups</p> <p>Teacher-learner centred</p> <p>Develops mental operations</p> <p>Less information per unit time</p> <p>Teacher–learner contact very close</p> <p>Excites learner’s inquisitiveness and alert mind</p> <p>Encourage debates</p> <p>Teacher intensively used</p>	<p>Develops logical reasoning and encourages meaningful debates</p>
3.	Audio–visual aid	<p>Involves large /small groups</p> <p>Increases visual impression</p> <p>Can be used for individualised learning</p> <p>Encourages redundancy (repetitive)</p> <p>Involves teacher in serious preparation</p> <p>Production cost high because of equipment</p> <p>Releases teacher for other jobs</p>	<p>Improve learning by improving visual impressions. Stimulates interest and arrests attention</p>
4.	Program Tutoring	<p>Involves small group</p> <p>Teacher–learner or learner-learner centred</p> <p>Use of hierarchically structured materials</p> <p>Teacher involved in</p>	<p>Builds up trust and confidence and problem encountered in learning easily discovered because of close contract.</p>

		serious preparation Use of fellow learner releases teacher for other jobs	
4	Lecture (talk)	Involves large group mainly teacher-centred in intensive teacher use Impinges mainly on sense of hearing Encourages rote learning More information per unit time abstract concepts are not concrete	Encourages use of the library and research.
5.	Audio and video – recorded programme	1. Involves small /large group 2. Communicates at the level of the learner 3. Impinges on senses of hearing and sight 4. Encourages redundancy 5. Encourages individual learning thus entering for individual differences 6. Involves teacher in serious preparation 7. Production cost is high because of equipment and materials 8. Releases teacher to supervise and interact with individual pupils/ students	Learning outcome is comparatively high if learners are adequately prepared for programmes
6	Personalised System of Instruction (P.S.I.)	Involves use of concrete and realia Involves individual and /or group learning Caters for individual differences	Learning problems are easily observed and learner's confidence in themselves and in the teacher improves.

		<p>Involves heuristic leaning (relating to past experience and reasoning) Whips up special interests Teacher involved in serious preparation and cost of preparation minimal Helps in handling large classes Encourages proper teacher-learner interaction Allows teacher to pay special attention to individual learners Hierarchical approach can be used</p>	
7	Seminar-Plenary Session	<p>Involves small / large group Seminar uses small groups and the same or different teachers Plenary uses large groups and pools information and methods from seminars together for increase in information Encourages questions and answers which lead to core explanations and better understanding Requires many teachers. Opportunity for group teaching.</p>	<p>Corrects wrong information and impressions points</p>
8	Computer-assisted Instruction (C.I)	<p>Individual / group use Immediate feed back Hierarchical approach redundancy Releases teacher for other jobs</p>	<p>Halo effect on Learning. Encourages good understanding</p>

		Involves teacher in serious preparation Can be costly because of equipment and materials used.	
9.	Use of Modules	Divides information into compartments for easy management and understanding Hierarchical approach can be used to manage large groups takes care of individual differences involves teacher in serious preparation	Simplifies learning and conceptualisation through hierarchical approach
10	Media or Methods Equipment	Makes equipment and materials easily available Ensures close supervision by technician to avert accidents Encourages individual learning Encourages redundancy Gives immediate feedback Imparts psychomotor skills	Enhances interest in learning
11	Distance Learning	Involves large group. Distance poses no barrier Requires minimum infrastructure Individualised learning Use of module strategy Hierarchical approach Involves audio and video use and correspondences Involves many	Influences learning at minimum cost to the learner. Makes information available to large groups at all levels. Learner –centred.

		<p>teachers in serious preparations Calls for effective distribution, reception and transmission skills May involve face-to-face contact sessions Encourages working-learning situations Costly to set up in terms of equipment and materials</p>	
12	Games and Simulation	<p>Games use rules and regulations - Use simulator and calculators Involve small groups - Make abstract theories concrete</p> <p>Simulations: no rule or regulations use simulators and may use calculators involve large / small groups make abstract concepts concrete use scenarios as trigger points</p> <p>Both involve the teacher in serious preparation. They require the presence of the teacher for initial guidance and direction</p>	<p>Reduce strain inherent in abstract thinking. Lead to proper application of theories to practice. Unless carefully managed, may turn serious learning into play</p>
13	Case Study	<p>Involves small /large groups Excites mental operations Encourages individual learning Involves teacher in</p>	<p>Training is decision - making</p>

		creative thinking Preparation cost is not much	
14	Dramatisation / role playing	Involves small / large group Involves teacher in creative thinking Character and stage costing may be high Involves imitation of characters created by writer Mimics social events Allows for pupils' writing creativity	Kills stage fright and develops speech and acting skills
15.	Play	Popular with nursery and infant primary classes Involves teacher in creative thinking mimics experiences and situations Involves small or large group Involves children's creativity Allows freedom of expression Allows high level of interactions among peers	Reduces tension of social adjustment. Motivates learning through enjoyment. Develops self confidence and communication skills. Makes learning memorable.

In the actual delivery of the lesson, you need to remember what was mentioned before. This is that each lesson has a beginning, a middle and an end. The time allocation for each lesson must be well distributed to ensure adequate time for the main learning points. Below is the basic format of a lesson plan.

Sample of lesson plan format

- Name of teacher:
- Subject:
- Class:
- Topic:
- Duration:
- Date:

Objectives: (i)

Previous knowledge:

Method of teaching:

Table 1.2: Presentation

Time	Teacher's Activities	Students Activities
Introduction (5 minutes) Development of lesson in steps (25 minutes)		
Conclusion Summary (5 minutes) Evaluation (5 minutes)		

The timing of the lesson depends on the time allotted to each period per school.

4.0 CONCLUSION

The critical aspect of your profession as a teacher is the ability to plan and prepare an effective lesson. The unit has highlighted the importance of lesson planning. By so doing, the elements in the lesson plan were explained to you, with some examples.

The issue of adequate information to guide the selection of teaching strategies/method/technique has been addressed through Table 1.

Preparation of lesson plan is one of the tools you need to teach well in instructional strategies and methods,. Remember, if you fail to plan, then you have planned to fail. Practise planning your lessons daily. By constant practice, you will soon become expert at it.

5.0 SUMMARY

In this unit, you have learnt the followings.

- The elements in lesson plan were explained and some pertinent examples given.
- The issue of selecting appropriate and relevant strategies, methods or techniques was addressed and a useful table you could refer to over and over during your career as a teacher was presented.
- In the next unit, you shall be learning another aspect of teaching, which is the presentation of the lesson.. So, look forward to add to your knowledge of good presentation.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Choose a suitable method from the box to achieve the listed objectives

List of objectives

- a. to express developed social skills
- b. to interpret data
- c. to enjoy science
- d. to evaluate
- e. to recall facts
- f. to demonstrate knowledge
- g. think creatively
- h. to hypothesise
- i. to express themselves clearly

Choose a Method

Teacher talks Class discussion	Teacher dictates	Teacher demonstrates
Teacher questions class	Pupils work cooperatively in groups	Pupils copy notes
Pupils make their own notes	Pupils work on research task for home work	Pupils watch TV / film video
Pupils plan experience	Pupils debate	Pupils do investigative field work

7.0 REFERENCES/FURTHER READING

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UNIT 2 EFFECTIVE USE OF NEIGHBOURHOOD AND ENVIRONMENTAL RESOURCES

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Importance of the Environment as a Learning Resource
 - 3.1.1 Ways of Using the Environment
 - 3.2 Guidelines in Effective Utilisation of the Local Environment
 - 3.3 Planning and Organising a Class Project: Example of the Market Place
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Have you or your colleagues been complaining that you have no learning materials to teach in your class? Just think again, in fact, what the environment can offer you is far more than you can imagine. All through this course, you have been made to explore the systematic approach to the design and production of learning materials. In the last unit, you were able to discover that the systematic approach, which is also adopted for instructional design, is versatile and can be applied to your lesson planning for effectiveness. One central element in your lesson plan is the selection of learning material. Also crucial are the aspects of integrating, utilisation and application of learning materials in the teaching episode plans. This unit will guide you in the effective use of the environment as learning resources.

2.0 OBJECTIVES

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

- identify local examples of objects, situations, and events in the various subject areas which would qualify your local environment as a learning resources center
- prepare a portfolio of environmental resources in your neighborhood under the headings: people, places, events, and buildings
- describe the steps in planning a successful field trip

- describe a topic for project work based on the environment.

3.0 MAIN CONTENT

3.1 The Importance of the Environment as a Learning Resource

The environment begins from the point we are, in the classroom. The environments can be seen as concentric circles radiating outwards from the classroom and including the school compound, the village, the local government area, the state, the country and the world. You should however be particularly concerned with your immediate environments including your community and extending to the local government area.

The school is often accused of concentrating on book knowledge divorced from the realities of the child's home and community. The child fails to see the relevance of what he is learning in school to his/her everyday life. Do you agree with the statement? By reflecting on your teaching practice or that of your colleagues, how will you attempt to bridge the gap between what is provided and what you need?

3.1.1 Ways of Using the Environment

One sure way of bridging the gap between the home and the school is by making the child see the relevance of learning in school to daily life in the local environment/ community. You take the class into the neighbourhood, and bring the neighbourhood into the class. There are several approaches of making use of the environment in the teaching-learning process; these include the following.

- a. Identifying and selecting real examples from the environment to illustrate topics in all subject areas.

The environment constitutes a wealth of resources from which you can choose your examples. By so doing, you will be able to discuss the topic from the real world of the children. Animals, plants, events and conditions, which are familiar to the children, can be used. You may refrain from citing examples from a different world which the children cannot imagine, such as peaches and snow.

REMEMBER! Learning materials must be relevant to the learners. Examples abound in the community to illustrate your teaching in Science, in Mathematics, in Social Studies, language/ literacy, etc. In English language, for example, you can make the children talk and write about their own experiences, what they did the previous day, what their parents do, or what happens in their families. The journey from the

street where they live to school can be the beginning of map drawing practice in Geography/ Social Studies.

Undertaking field trips. You can visit the site with the children in order to have a planned observation of features in the local environment. You can start with places within walking distance from and around the school. Back at school, they should talk and write about their observations. This could be progressively extended outside the country.

Organising project work. The geography, history, occupation arts and culture of your community are worth studying by your pupils to have a better understanding of the things around them. This will help them develop a greater curiosity about the wider world. There are several everyday places and events in your community which may look ordinary, but which could reveal fascinating information on closer study. This is really the beginning of ‘‘local history’’. The village market, church, mosque, stream, farm, and festivals are some examples.

Learning points. Each of these places could be considered learning points in the community. Various learning activities could be developing around each learning point to cover the subjects in the curriculum. Each aspect of the learning point could be explored separately by the whole class over a period of one term, or by groups of pupils, each reporting back its findings to the class.

Resource persons in the community. The people in the community are valuable learning resources which are usually neglected. Parents can be invited to give a talk to the pupils in your class. Parents have acquired, through first hand experiences, a lot of knowledge which could be used by you to make certain lessons come alive. Traders who travel from one part of the country to another, retired soldiers, craftsmen and women, farmers, etc have knowledge to be shared with the children. A short story by a trader can be a good motivating introduction to a Mathematics lesson on profit and loss.

You can persuade the identified resource persons to come to school and talk to the pupils or you can have the pupils interview them in their houses/shops with the help of a tape recorder. The pupils should think of relevant questions to ask the person on the topic, questions that will enable her/ him clarify issues.

SELF-ASSESSMENT EXERCISE

Describe five ways in which you can use your local environment as a learning resource material.

3.2 Guidelines on Effective Utilisation of the Environmental Recourses

As a starting point, it is necessary for you to compile a data bank of environmental resource ideas under the following headings.

- People
- Places; natural and man-made
- Events
- Arts and crafts
- Historical/cultural artifacts
- Agencies, etc. We have referred to these as learning points.

Prepare a card index for each identified ‘learning point’, giving a brief description of its location and the potentials for learning. File this in an empty shoe box for safe storage and easy reference/retrieval when needed. This then becomes your data bank. You can share your port folio/index card with your colleagues to source for ideas.

When you have decided to use any of the identified resources in your data bank, follow the steps below to achieve your aim.

Preparations

- Make a preliminary visit to the location/person to seek permission for a visit or interview, and to familiarise yourself with the location.
- Seek permission of parent/school authority if the place is far from the school.
- Plan learning activities that will be undertaken before, during, and after the visit.

Pre-visit activities include the following.

- a. Writing letters to the people concerned
- b. Preparing necessary work cards indicating what to look out for or activities to perform
- c. Assigning responsibilities to the children as individuals and in groups
- d. Guiding children to prepare questions for their investigation. These questions could be sent to the resource person or people in advance
- e. Arranging for extra adult assistance to care for the children if the place is far and the class is large
- f. Arranging for transportation and a guide if necessary. Parents may be willing to pay for the trip

- g. Ensuring adequate welfare for everybody- food, first aid, etc.
- Make the actual trip lively, participatory and memorable.
 - Encourage children to observe interesting things and places enroute, talk about them as you go.
 - Encourage children to ask and get answers to their questions while encouraging courteous participation. Older children should be encouraged to make written notes and sketches of their experiences.
 - Use the tape recorder to record events and answers to questions.
 - Indicate other subject linkage you have observed which can be a reference point for another lesson e.g. gulley erosion, ant hill, etc.
 - Plan well and keep to time.

Carry out follow-up activities.

It is usually in the follow-up activity period that the most important learning may take place.

Encourage the learners to react to their experiences through:

- group reports
 - creative writing
 - story telling
 - modeling and drawings
 - acting and bulletin displays.
- a. Discuss and help to clarify pupils' experiences.
 - b. Arrange an exhibition of the children's work based on the trip.
 - c. Prepare a written evaluation of the trip.
 - d. Evaluate the non-curricular aspect of the trip – children's behaviour and adequacy of welfare provision.

SELF- ASSESSMENT EXERCISE

Mention three activities you can undertake to effectively utilise the local environment as a source of learning resources materials.

3.3 Planning and Organising a Class Project

Example of the market project work is an approach of letting the pupils find out and study interesting aspects of their environment for themselves instead of the teacher telling them in the class. If it is planned, it is a way of enabling the children to utilise and apply their knowledge from the different subject areas. An event, a place, an object,

or even a person in the community could be the basis for a class project work.

- With the help of the pupils, choose a topic of study, for example, the local market. Find out what the children already know about the local market. The study will confirm, refute or extend the knowledge.
- Choose aspects of the local market to be studied and prepare work cards for each, stating what is to be found out by the pupils e.g. local history of the market, the people that come to the market, what they come to buy or sell, things sold in the markets in the local government area, stories about the market.
- Assign each aspect of study to a group of pupils.
- Help each group to prepare questions and activities. A record is also to be kept by the group.
- Plan to follow up activities in several subject areas.

4.0 CONCLUSION

In this unit, you have learnt the effective use of the neighbourhood as environmental resources. In effect, you learnt various approaches of using the environment. You also learnt some steps you can follow to plan for, and utilise environmental resources effectively.

5.0 SUMMARY

In this unit, you have been reminded that the environment is a wealth of resources for a creative and resourceful teacher. In the process, I believe you have imbibed the following points.

- It is important to making learning relevant.
- Using the local environment as source for learning materials bridges the gap between the home and the school, showing the relevance to what is being taught and learnt.
- You are shown at least five ways in which you can use the environment for teaching and learning.
- There are at least three major steps you must take for effective utilisation of the local environment. You should compile a data bank of as many learning points as possible of people, events, places, arts and crafts, historical/cultural artifacts within the local environment.
- In order to illustrate the use for your understanding, the local market was explored as an example. It is hoped that you have been inspired to use both your imagination and creativity to see

your local environment and community as resource-filled and veritable centers for learning.

6.0 TUTOR-MARKED ASSIGNMENT

- i. Explain why the environment is considered a wealth of learning resources.
- ii. Explain the three parts for effective utilisation of the neighbourhood in instruction.
- iii. What are the vital steps you will take when you are taking your pupils on a field trip?

7.0 REFERENCES/FURTHER READING

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