Teaching
Methodology

Prepared by Caroline W. **NDIRANGU**
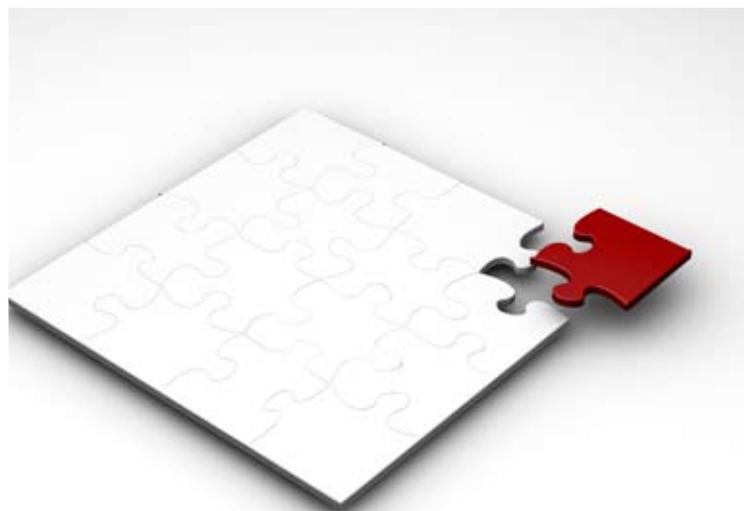
NOTICE

TABLE OF CONTENTS

I. Teaching Methodology

by Caroline W. Ndirangu

II. Prerequisite Courses or Knowledge

- Philosophy of Education
- General Psychology
- Learning Psychology
- Subject matter of the student's elective teaching subjects i.e. Biology, Chemistry History, Mathematic e.t.c
- Classroom management

III. Time

The teaching methodology module will take 120 hours distributed as follows per unit;

Unit 1: Instruction	25 hours
Unit 2: Teaching and Learning	25 hours
Unit 3: Planning for teaching / learning	40 hours
Unit 4: Measurements and Evaluation	30 hours

IV. Materials

- Recommended text books including web based materials.
- Video recording of students teaching if available
- Face to Face for micro-teaching with trainers
- Virtual set ups for micro-teaching demonstrations or practical lessons for students who have chosen subjects that require practical.

V. Module Rationale

Educationists all over the world have been struggling to develop methods that can optimize the attainment of teaching/learning objectives. Every teacher is faced with the responsibility for selecting and designing suitable learning experiences to provide optimal learning opportunities for the students. This module

develops a student's understanding of teaching issues such as the secondary school curriculum, the learner-centered paradigm, lesson planning, teaching strategies, creating conducive learning environments, ways of measuring and evaluating teaching /learning effectiveness.

VI. Content

6.1 Overview

This module introduces you to pedagogy or the methods of teaching. These are the theoretical basis of learning, nature of teaching and learning, interpreting of the syllabus, scheming and lesson planning, teaching and learning activities, micro-teaching , classroom organization, discipline and conflict resolution in a classroom and finally assessment and evaluation.

6.2 Outline

Unit 1   Instruction

- Introduction to content
- Elements of instruction
- Learning objectives
- Roles of the teacher and the learner in instruction

Unit 2   Teaching and Learning

- Application of theories of learning to teaching and learning
- Sequence of learning and Strategies of learning
- Teaching methods, their merits and demerits.
- Classroom management
- Individual differences

Unit 3   Planning for teaching and learning

- Understanding the syllabus
- Preparation of a scheme of work
- Lesson plan preparation
- Micro teaching
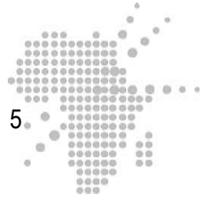
Unit 4   Assessment and Evaluation

- Define measurement, assessment, test, evaluation
- Purpose of assessment and evaluation
- Types of tests
- Grading and reporting the results assessment
- Evaluating teaching and learning

6.3 Graphic Organiser

Teaching Methodology
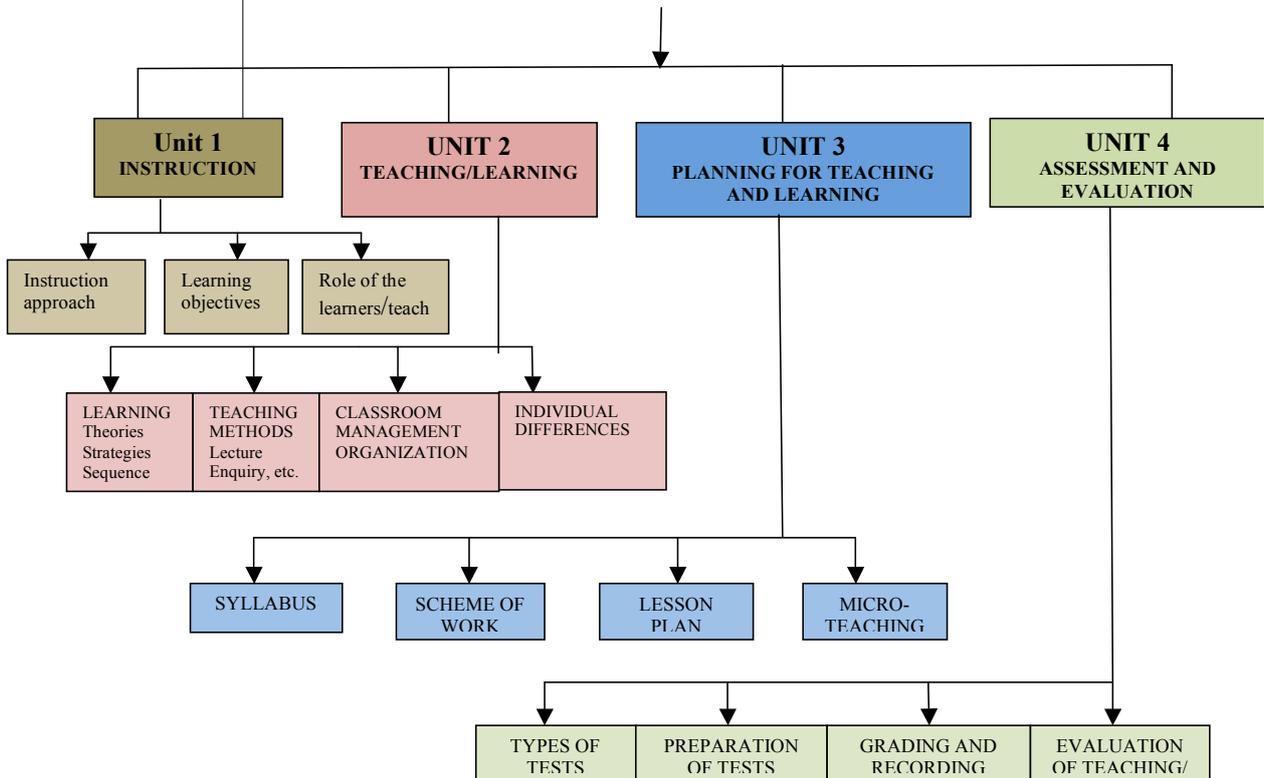
VII. General Objectives

At the end of this Unit you should be able to:

1. Formulate instructional objectives
2. Explain the meaning of teaching and learning
3. Describe various techniques and strategies for teaching
4. Describe the roles of the teachers and the learners in instruction
5. Prepare schemes of work and lesson plans
6. Teach in during a microteaching session.
7. Explain different methods of sustaining effective classroom organization
8. Demonstrate the use of various techniques for assessing and evaluating learning

VIII.   Specific Learning Objectives

Unit 1: INSTRUCTION

At the end of this module you should be able to:

- Define methodology/pedagogy, learning objectives.
- Describe the elements of instruction.
- Construct learning objectives.
- Describe the role of teachers and learners in instruction.

Unit 2: TEACHING AND LEARNING

At the end of the module you should be able to:

- Explain how the psychological theories of learning are applied to learning and teaching
- Describe the sequence of learning and the criteria of selecting strategies of learning
- Describe the different methods of teaching and explain how each teaching method can be used in order to enhance effective teaching and learning.
- Describe various educational provisions for individual differences.

Unit 3: PLANNING FOR TEACHING AND LEARNING

At the end of the module you should be able to:

- Prepare a scheme of work of your elective teaching subjects using the syllabus.
- Prepare lesson plans to be used in teaching of your elective subjects at a given class level
- Select the content, resources to be used in the preparation of schemes and lesson plans in order to suit the student characteristics
- Prepare and teach a microteaching lesson.

Unit 4: ASSESSMENT AND EVALUATION

At the end of the module you should be able to:

- Define the terms, tests, measurement, assessment and evaluation
- Describe the various types of tests, their limitations and strengths
- Describe ways of grading and recording of the results
- Explain the different categories of evaluation and their application in teaching and learning.

IX.   Teaching and Learning Activities

Pre-assessment

Title: This pre-assessment multiple choice questions are designed to test how much you know about the concepts covered in this teaching methodology module.

Rationale: Answering these questions correctly or otherwise will be a good indication of your grasp of the subject matter covered in this module of teaching methodology. It will also indicate what you will need to know as you prepare to become a teacher.

Questions

In each of the following multiple choice questions choose the correct answer out of the options A, B, C, D.

1.   In which domain does the following objective fall?

At the end of the lesson the learner should be able to hit the football using the head.

 A. Affective domain
 B. Cognitive domain
 C. Psychomotor domain
 D. A and C domains

2.   The teachers and students in a school belong to a ………………………… system

 A. Suprasystem
 B. Subsystem
 C. Interface system
 D. Closed system

3.   Planning or arranging the student's environment in order to predict the consequences of a student's behavior is referred to as:

 A. Prompting
 B. Reinforcement
 C. Shaping
 D. Stimulus control

4. Which theory of learning has found knowledge of internal processes crucial to the understanding of learning?

   A. Cognitive theorists
   B. Stimulus – response theorists
   C. Operant conditioning theorists
   D. Classical conditioning theorists

5. Which combination of teaching methods listed below would encourage the learner-centered paradigm?

   A. Individualized instruction and lecture method
   B. Simulation and demonstration
   C. Lecture method and experimentation
   D. Projects and Direct experiences

6. Which of the following teacher behaviour suggests a dimension of "unsuccessful" teacher behaviour? A teacher who is:

   A. Stimulating and imaginative
   B. Business like and friendly
   C. Aloof and routine
   D. Understanding and sympathetic

7. When a teacher ensures that students complete an exercise in mathematics and makes sure instructions are clear and specific. The teacher ensures the ………………..aspect of assessment

   A. Validity
   B. Practicality
   C. Reliability
   D. Wash-back effect

8. What type of test is most effective when trying to test memorization?

   A. True / false
   B. Multiple choices
   C. Fill in blanks
   D. B and C

9.   When a student takes the same test twice it is referred to as?

   A. Post-test
   B. Pre-test
   C. Test-retest
   D. After-test

10. All teachers should have a good ……………… when they go into the classroom

   A. Plan
   B. Choice
   C. Attitude
   D. Class

11. In the introduction part of a lesson plan you get the student ………………

   A. Assignments
   B. Previous knowledge
   C. Attention
   D. Abilities

12. Considering that all behaviour occurs in context, what is the possible source of behaviour of a child who refuses to interact with the teacher and peers all the time?

   A. Materials being learnt are too simple or too challenging
   B. The child has a fight with the parents
   C. The child has been rejected or ridiculed by parents and adults
   D. The child does not understand

13. What does the cognitive domain of Bloom's taxonomy of educational objectives affect in learners?

   A. Thoughts
   B. Emotions
   C. Skills
   D. All the above

14. What is the disadvantage of the project method of teaching?

   A. It is learner-centered
   B. Learners get first hand knowledge
   C. The learners are not well supervised
   D. The learner's interest is considered

15. Which of the following is **not** a characteristic of a slow learner?

    A. Limited vocabulary
    B. Short span of attention
    C. Abstract thinking
    D. Limited range of interests

16. A teacher used the following statement to change the behaviour of a student who was a smoker. "Smoking is healthy for the nation". This is an example of:

    A. Cognitive dissonance
    B. Conceptual conflict
    C. Meaningful learning
    D. Challenge

17. Which type of evaluation is carried out at the end of a course of study?

    A. Summative
    B. Assessment
    C. Formative
    D. A and B

18. Which test is carried out to determine the ability of a learner?

    A. Aptitude
    B. Attitude
    C. Achievement
    D. Scholastic

19. Which of this equipment would be difficult to improvise in science learning?

    A. Periscope
    B. Microscope
    C. Telescope
    D. Camera

20. The verbs write, list, label, and name when used in an examination, test the:

    A. Comprehension level
    B. Application level
    C. Knowledge level
    D. Synthesis level

Title of Pre-assessment: This pre-assessment multiple choice questions above are designed to test how much you know about the concepts covered in this general method module. The answers have been provided below.

Answer Key

1. C
2. B
3. D
4. A
5. D
6. C
7. A
8. D
9. C
10. A
11. C
12. C
13. A
14. C
15. C
16. A
17. A
18. A
19. B
20. C

Pedagogical Comment For Learners

This test is based on your general knowledge about teaching methodology. Those of you who had special prior training on the subject are at special advantage to score well in this test. Any student who scores below 30% is recommended to do some extra reading on the subject.

X. Key Concepts (Glossary)

1. **Affective:** When learners acquire particular attitudes, values or feelings

2. **Assessment:** is a process of gaining information about students' learning and making value judgments about their progress.

3. **Behaviour:** Performance or activity that can be observed or recorded.

4. **Closed system**: A system that is unable to access information input from an external system.

5. **Cognitive:** The recall or recognition of knowledge and the development of intellectual abilities and skills.

6. **Domain:** Specifications that shows the elements and interrelationships of teaching and learning.

7. **Effective:** A learning /teaching method that has an effect and is able to bring about intended results.

8. **Efficient:** Learning method that is able to produce desired results.

9. **Evaluation:** To calculate or judge the value or degree of learning.

10. **Formative evaluation (internal):** is a method of judging the worth of a program while the program activities are forming or are in progress. The focus is on the process.

11. **Information:** Input of data into a system

12. **Inquiry approach:** A problem solving approach to a set of learning activities.

13. **Instruction:** Process of setting the conditions of learning.

14. **Instructional Goal:** Outcome of instruction expressed in terms of student learning

15. **Learner:** It could mean a pupil, student any person receiving instruction.

16. **Learning Objectives:** The behaviour expected of a learner after instruction.

17. **Learning Strategy:** The way which content is presented in the instructional environment.

18. **Learning:** Is a process by which ones capability or disposition is changed as a result of experience.

19. **Lesson Plan:** It is a teacher's detailed description of the course of instruction for an individual lesson.

20. **Lesson:** A structured period of time where learning is intended to occur.

21. **Measurement:** Obtaining information in a quantitative form.

22. **Modeling:** Learning by imitating another's performance.

23. **Open System:** A system that accepts the input of information from external or other systems.

24. **Pedagogy:** Is the art or science of being a teacher or teaching methodology.

25. **Psychomotor:** The manipulation or motor skill area.

26. **Reinforcement:** A consequence behaviour which increases or decreases the frequency of occurrence of that behaviour.

27. **Reliable:** That may be trusted and is dependable.

28. **Resources:** Teaching/Learning materials needed to reinforce learning activities.

29. **Response:** The action which results from stimulation it could be a simple reflex or complicated responses like learned behaviour.

30. **Scheme of Work:** Systematic arrangement in outline form of all topics in a subject indicating them to be taught, objectives to be achieved, teaching learning activities, learning resources required and the source of information or references.

31. **Stimulus:** A physical or chemical agent that acts upon a sensor as a Signal, cue or sign.

32. **Summative evaluation (external):** Is a method of judging the worth of a program at the end of the program activities (summation). The focus is on the end outcome.

33. **Syllabus:** Is a document with an outlined summary of topics to be covered in a course.

34. **System:** A collection of integrated and related entities that have been designed as being of central interest.

35. **Taxonomy:** Classification of principles.

36. **Technique:** A method employed by the teacher to direct the learners' activities towards achieving stated objectives.

37. **Test or Test item:** A systematic procedure for sample of an individual's behavior, such as multiple-choice measuring, performance test.

38. **Validity:** Based on which is true or reasonable, it measures what it is supposed to measure.

XI. Compulsory Readings

For this module you must obtain a copy of the secondary school syllabus of each of your elective teaching subjects. You will also need at least one reference text book on each of the subjects. Obtain them through your subject co-odinators.

Reading #1

Complete reference: Bloom's Taxonomy of educational objectives

MHTML Document Date   16/11/2007

Abstract: It focuses on the development and use of instructional objectives. It also describes the different levels of cognitive domains with examples of instructional objectives from different subjects.

Complete reference: Bloom's Taxonomy et.al taxonomy of Cognitive domains

http://www.coun.uvic.ca/learn/program/hndouts/bloom.html

Abstract: This is simply another professor's handout that diagram's the levels of Bloom's Taxonomy very clearly and concisely.

Reading # 2

Complete reference: Formulating learning objectives

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_9:_Instructional_Planning/Formulating_Learning_Objectives"

Date: 15th November 2007
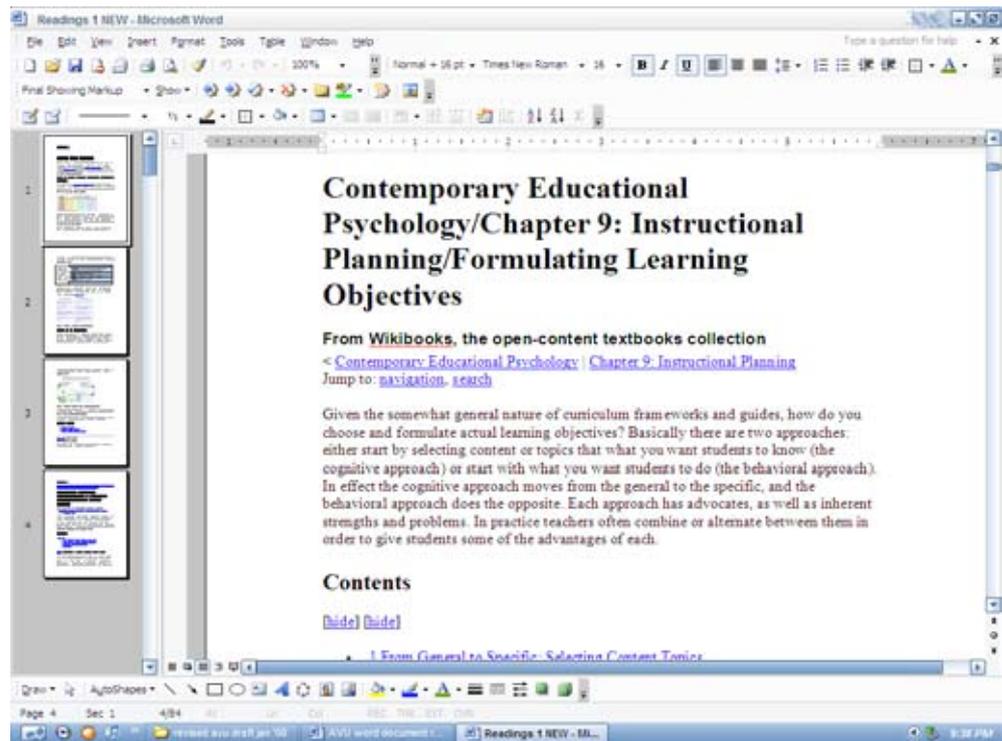
Abstract: it is a guide on how to choose and formulate learning objectives.

Rationale: Writing of objectives is a skill all teachers must acquire. They are statements about what to be learned, the content to be covereed, or targets to be reached at the end of every lesson. They help the teacher to remain focused so that learning can be objectively measured.

Reading # 3

Complete reference: Learning Domains or Blooms Taxonomy: The Three Types of Learning

http://www.nwlink.com/~donclark/
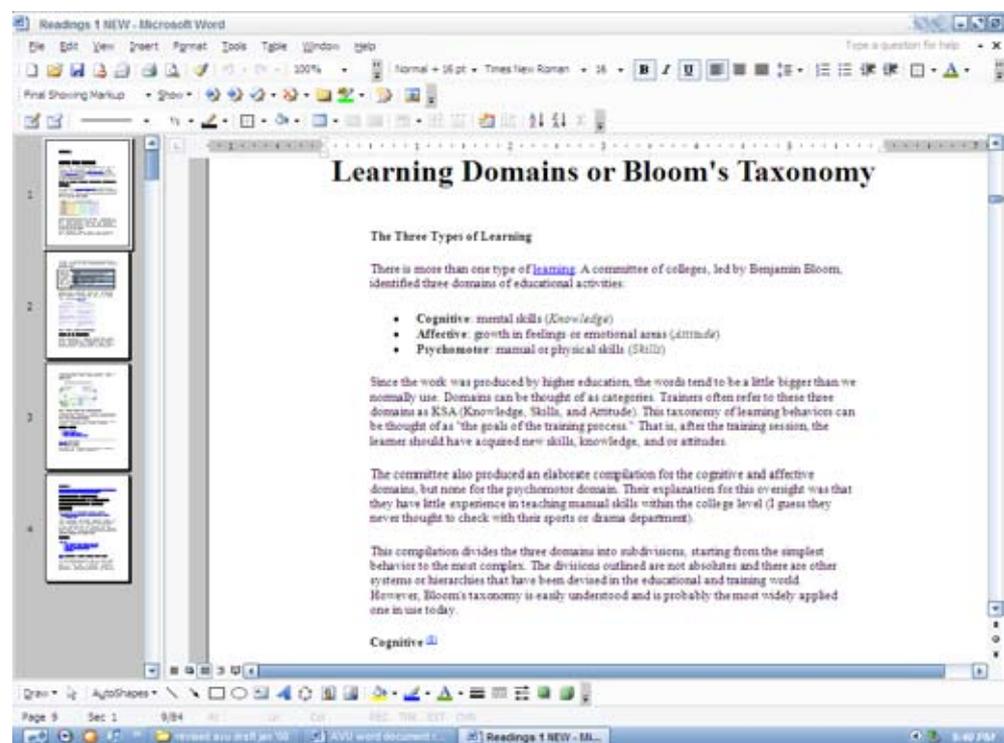
Abstract: It is a detailed summary of Bloom's three domains of educational activities. It outlines their categories and how they are applied in learning and teaching.

Rationale: The main value Bloom's taxonomy references is two_fold;(i) It can stimulate the teacher's to help the learners acquire skills at all the three levels laying the proper foundation for higher levels by assuring mastery of lower levels of objectives (ii) It can also provide a basis for developing measurement strategies to assess learner's performance at all levels and it starts with the formulation of objectives.

Reading # 4

Complete reference: Writing Educational Goals and Objectives

http://personal.psu.edu/bxbll/objectives/psychomotor.htm
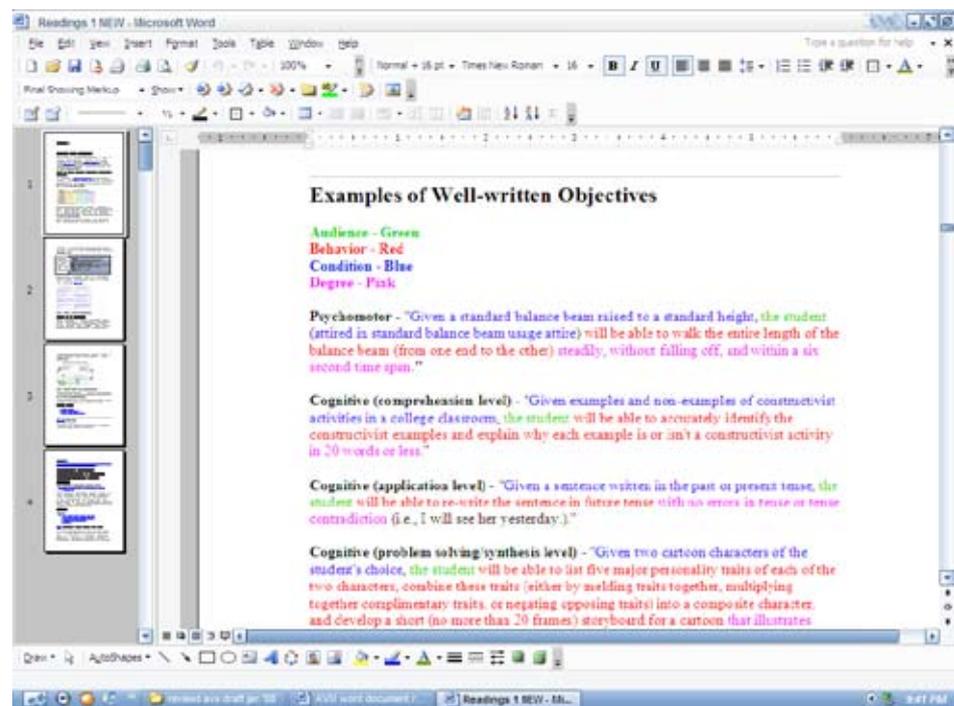
Abstract: It describes instructional objectives and outlines the different types of objectives and how to write them. It also points out the problems encountered in writing them and offers solutions to overcome them.

Rationale: Writing of objectives is a skill all teachers must acquire. They are statements about what to be learned, content, or targets to be reached at the end of every lesson. They help the teacher to remain focused so that learning can be objectively measured.

Reading # 5

Complete reference: Role of the Learner

http://coe.uga.edu/framework/chapters/welcome.htm.

Abstract: it is a one page reading on how learners acquire information during instruction.

Rationale: How learners acquire information helps educators to use diverse and multidimensional approaches to teach them. It is therefore important to be aware of how learners learn best.

Reading # 6

Complete reference: Role of the teacher in a learner centered classroom

http://www.ferris.edu.htmls/academics/center/teaching_and_learning_tips/curr
ent%20Brain%20Research%20and%20Teaching/20_keypoints%20htm.

Abstract: Teachers need to move over and let learners be the focus of the classroom. This reading gives the teachers tips on how to change their role to make student-centered learning possible. 'When the focus of a teacher is less on teaching and more on learning there is greater attention paid to measuring and monitoring the amount of learning taking place'.

Rationale: The role of the teacher in the modern world is quickly changing because of the improvement in technology and new knowledge in the psychology of learning so teachers must be prepared to be guides so that learners can participate fully "hands on" during learning.

Reading # 7

Complete reference: Constructivism

http://en.wikipedia.org/wiki/Constructivism_%28learning_theory%29
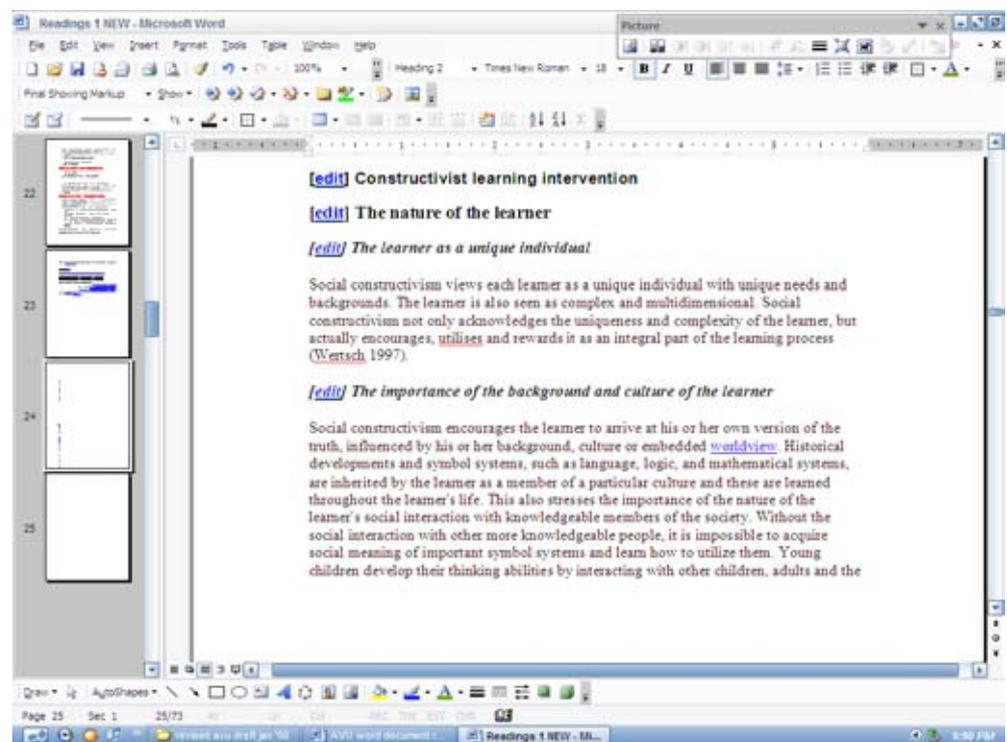
Abstract: It is a description of the constructivism theory. It has also described in details the nature of the learner, role of the instructor, nature of the learning process, assessment and the pedagogies based on the constructivism theory.

Rationale: In a rapidly changing world the issues of pedagogy have had to be re-visited. Constructivism is but one of the theories that emphasizes on" learning by doing". The teachers' role is that of a facilitator during learning not of a dictator.

Reading # 8

Complete reference: Classroom Communication

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_12:_The_Nature_of_Classroom_Communication/Communication_in_Class_vs._Elsewhere
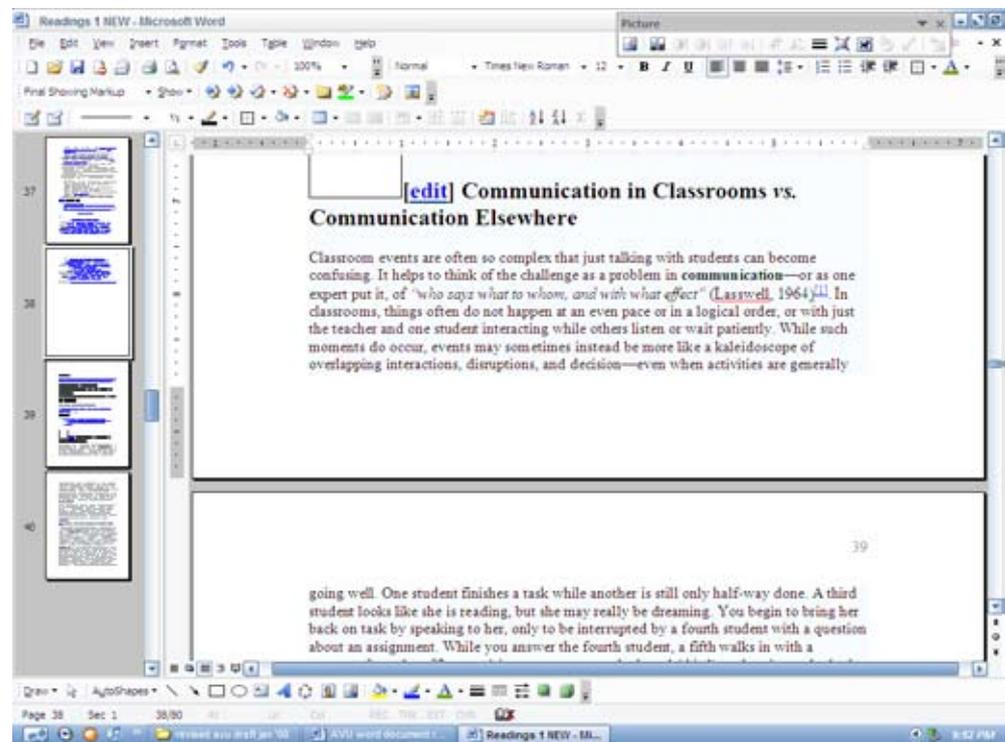
Abstract: It explains how classroom communication serves three purposes at once content, procedure and behaviour control. It also explores verbal, non-verbal and unintended communication and their value in conveying information in class.

Rationale: To become comfortable with the key features of communication that is characteristic of classrooms you must recognize them first. One set of features has to do with the functions or purposes of communication, especially the balance among talk related to content, to procedures, and to controlling behavior. Another feature has to do with the nature of nonverbal communication—how it supplements verbal communication.

Reading # 9

Complete reference: Classroom Talk to Stimulate

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_12:_The_Nature_of_Classroom_Communication/Classroom_Talk_to_Stimulate_Thinking"
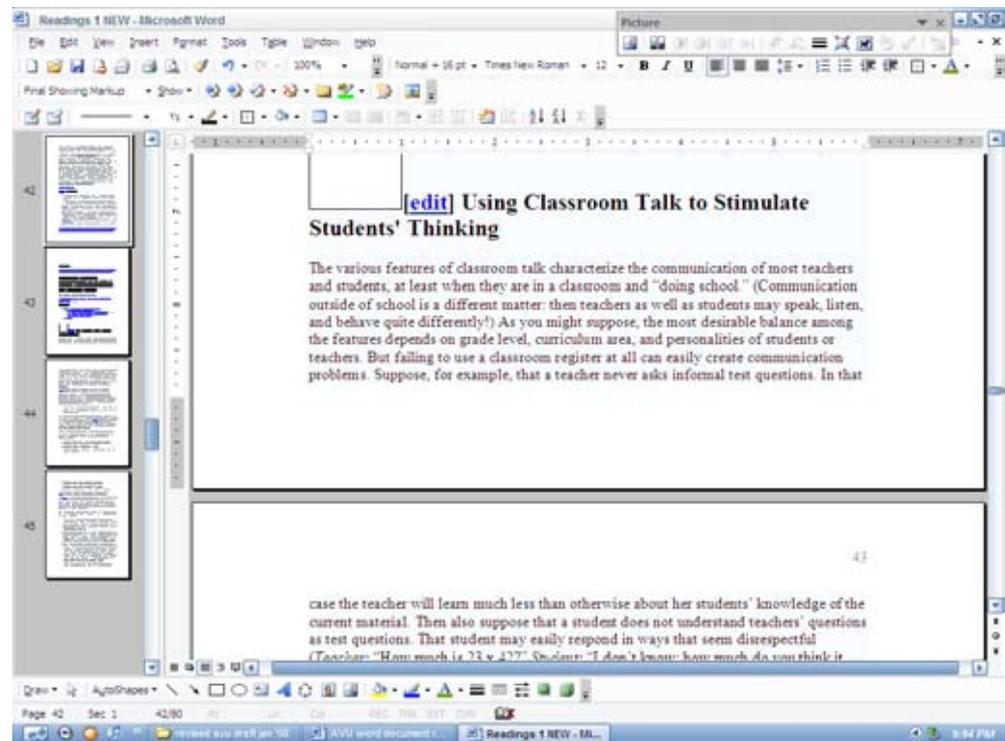
Abstract: It has a detailed description of various ways of using classroom talk to promote student thinking.

Rationale: Both articles on communication seem to indicate that the classroom talk is a "language' for teaching and learning. It can be verbal, non-verbal or unintended to communicate content and control behaviour all at once. Teachers must therefore communicate to the learners with utmost clarity.

Reading # 10

Complete reference: Classroom behaviour Management

http://en.wikibooks.org/wiki/Classroom_Behavior_Management"
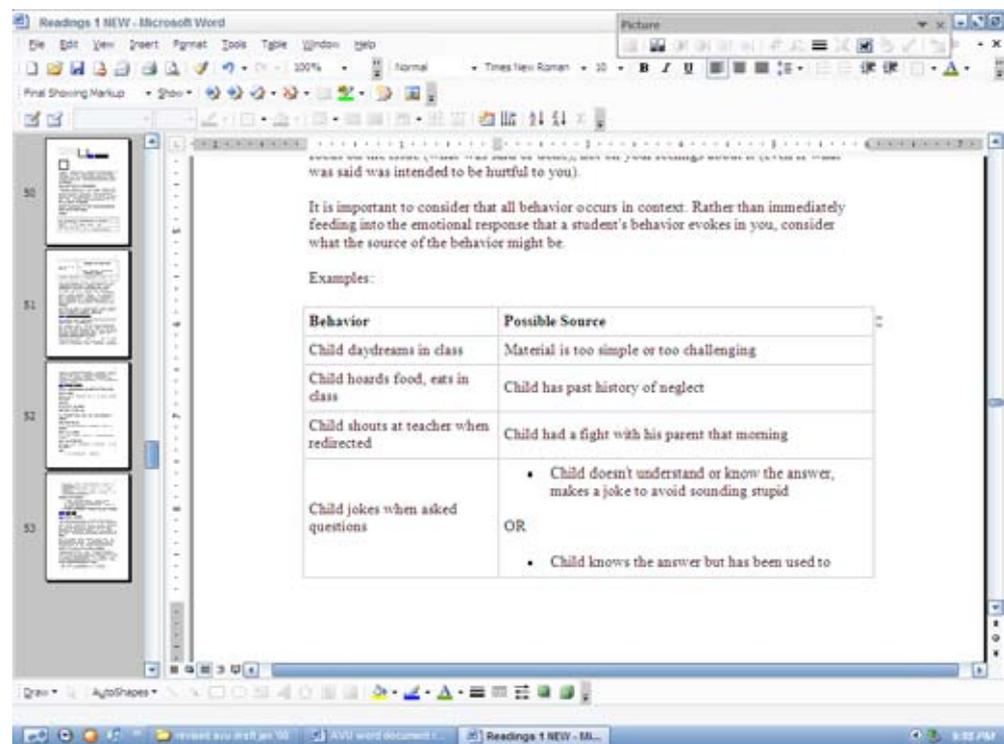
Abstract: Describes the possible types of disruptive behaviour and their possible sources. It also goes further and discusses ways of dealing with misbehavior with ideas like time out.

Rationale: Most schools discourage corporal punishment so it is important to discover different ways of dealing with disruptive behaviour in the classroom.

Reading # 11

Complete reference: Syllabus

http://en.wikipedia.org/wiki/Syllabus
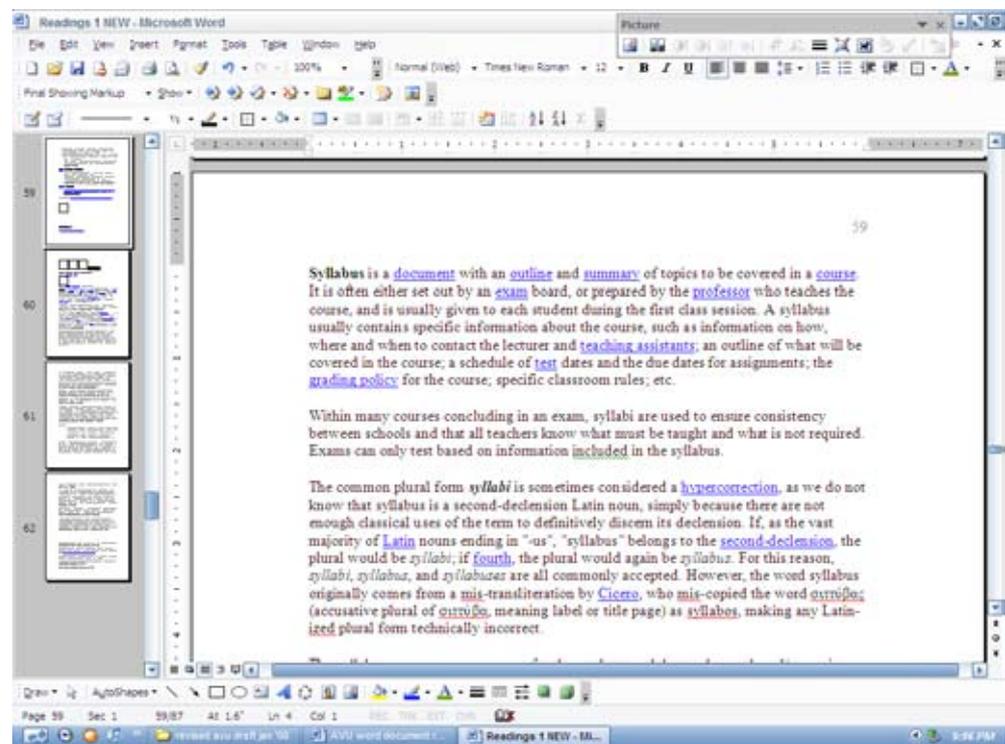
Abstract: A one page reading that describes in details the elements and purposes of a syllabus.

Rationale: A teacher is guided by the syllabus on what to teach in order to cover the course. A syllabus ensures consistency between schools, between teachers on what to prepare learners for in examinations.

Reading # 12

Complete reference: How we plan lessons and why it is important

http://en.wikibooks.org/wiki/Social_and_Cultural_Foundations_of_American_Education/Chapter_10/How_do_we_plan_lessons%2C_and_why_is_it_important%3F_3"
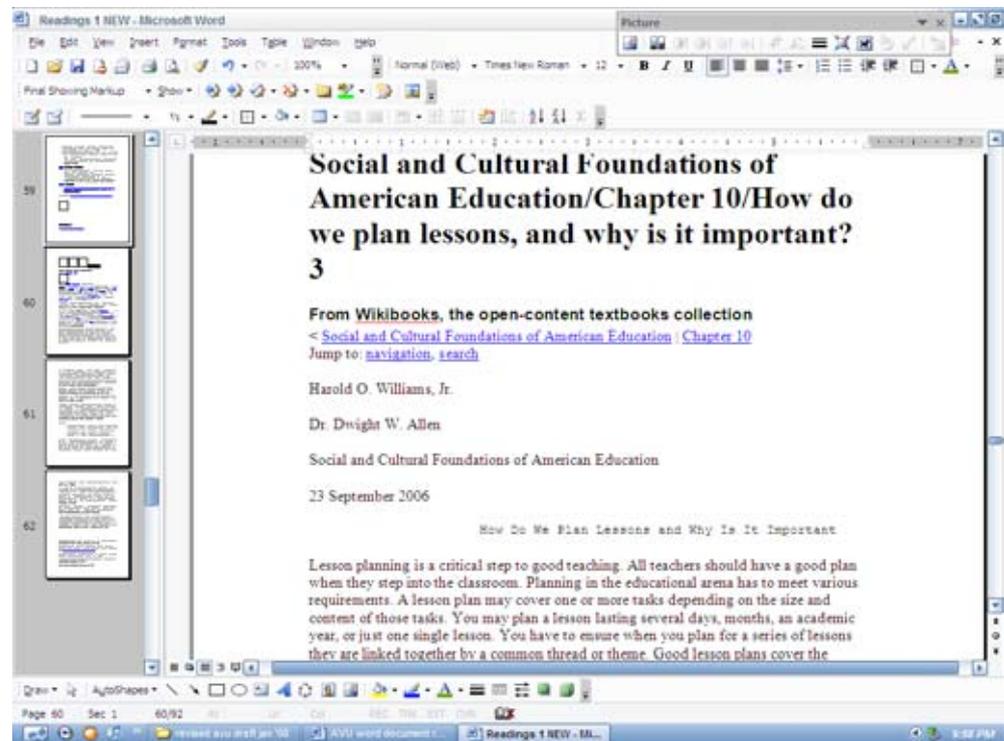
Abstract: It discusses the purpose of lesson planning and the elements of a lesson plan.

Reading # 13

Complete reference: Lesson Plans

http://en.wikipedia.org/wiki/Lesson_plan
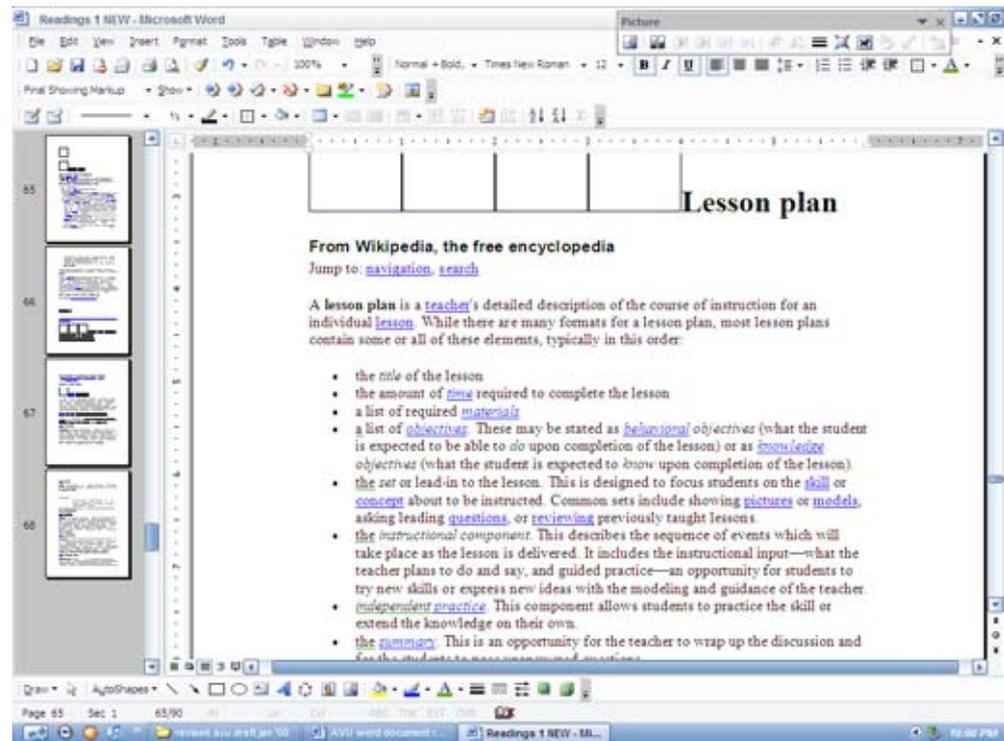
Abstract: The reading has a description of the lesson plan elements and the order of these elements appears in a lesson plan.

Rationale: The lesson plan formats may differ but the elements are basically the same. A lesson plan guides the teacher to determine where the learners are going, how they are going to get there and how the teacher will know they have arrived.

Reading # 14

Complete reference: Principles of Effective Assessment

http://en.wikibooks.org/wiki/Social_and_Cultural_Foundations_of_American_Education/Edition_3/20.1.4"
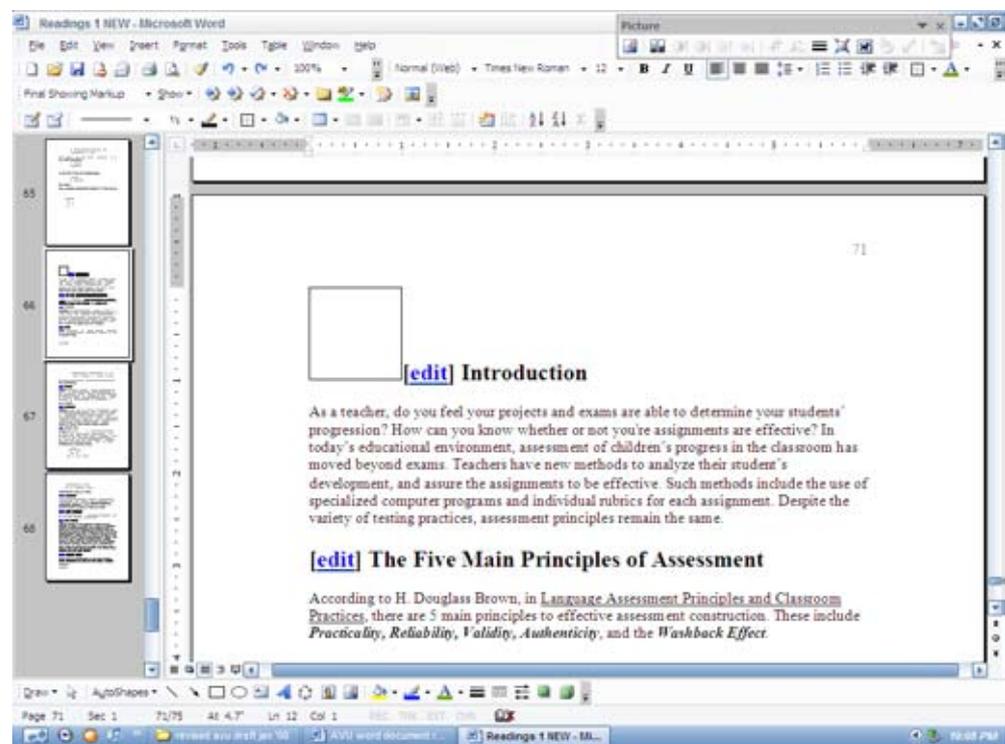
Abstract: It describes five principles of effective assessment instruments. These are practicality, reliability, validity, authenticity and the washback effect. It also describes the role of assignments.

Rationale: Examinations determine student's progression so as the teacher sets the exam they must ensure that they are effective so these exam results can help them evaluate the teaching and learning process.

Reading # 15

Complete reference: Instructional Systems Design.

http://www.nwlink.com/~donclark/hrd/sat3.html
Focus on: Develop Tests
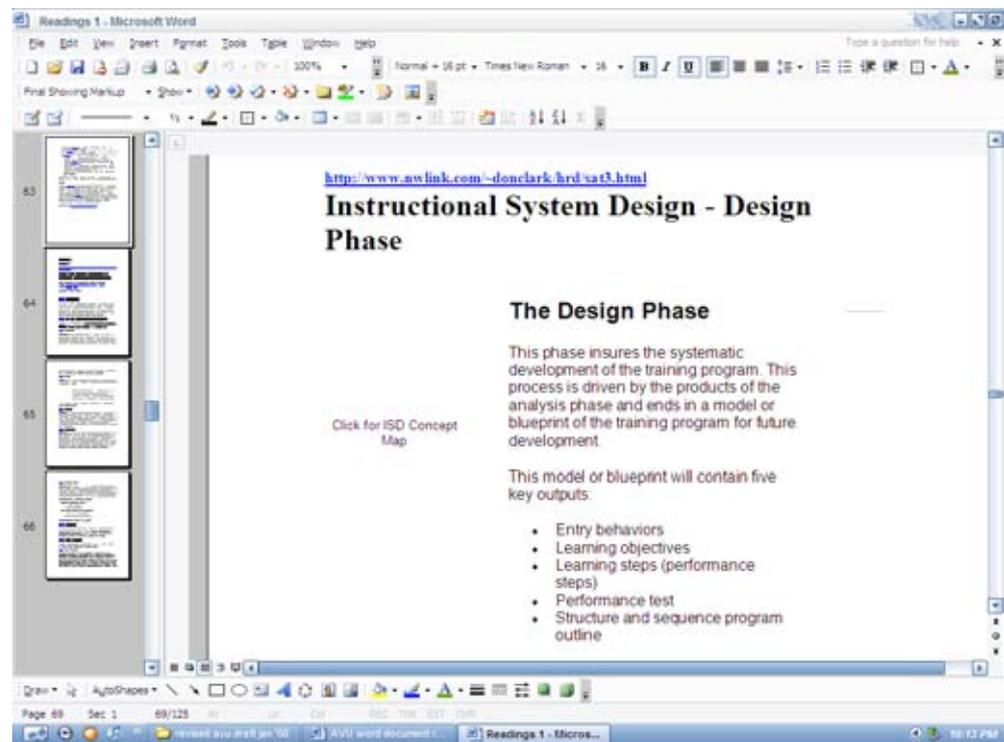
Abstract: It defines the testing terms and describes the procedure for planning tests. It also discusses the types of tests and the domains they fall into. It has good examples of test items.

Rationale: Instructional programs and strategies enable educators to translate theories into practice these strategies are therefore master plans for teaching. Decisions have to be made about the teaching techniques and resources that will be used to ensure effective learning takes place.

Reading # 16

Complete reference: Evaluation Phases

http://www.nwlink.com/~donclark/hrd/evaluation

Abstract: It describes the formative and summative evaluation. This reading focus on item analyzes used to "test the test"

Rationale: In formulating tests teachers must ensure the testing instrument measures the required behaviour needed by the learner to perform a task.

Reading # 17

Complete reference: Grading and reporting

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_10:_Teacher-made_Assessment_Strategies/Grading_and_Reporting"
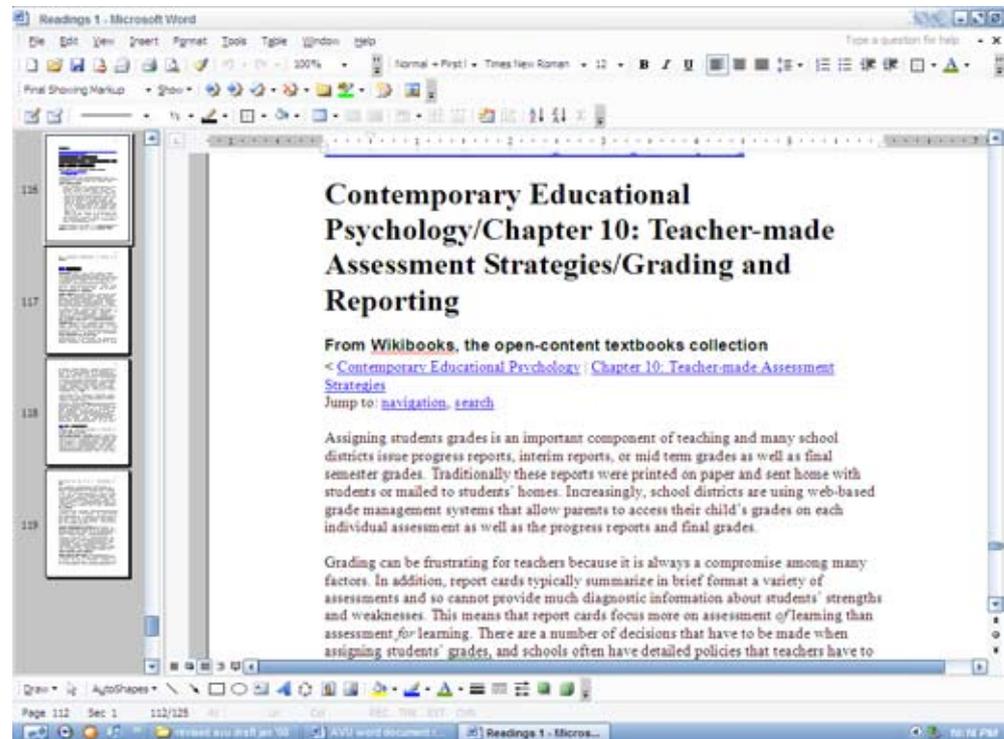
Abstract: Describes how various assessments and assignments are weighted, the different grading systems their merits and demerits.

Rationale: Grading is an important component of teaching. Many schools issue reports bearing grades to parents/ guardians. These grades provide diagnostic information about the student's strengths and weakness.

Reading # 18

Complete reference: Standardized and Other Formative Evaluation

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_11:_Standardized_and_Other_Formal_Assessments"
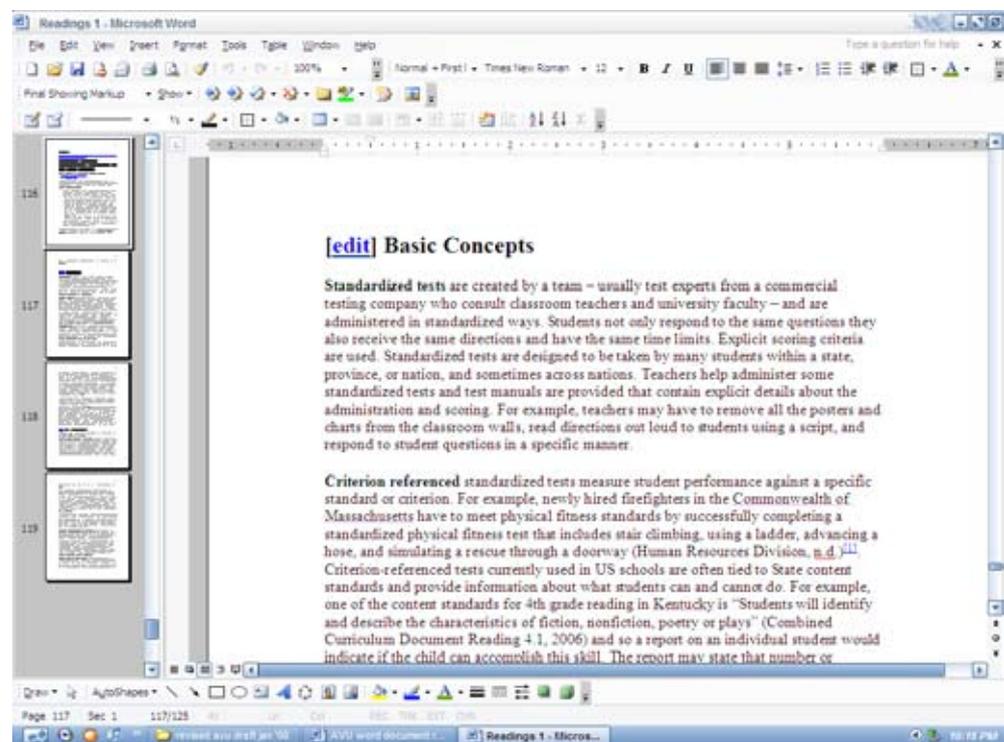
Abstract: Describes the basic concepts of standardized tests, criterion and norm referenced tests. It also outlines the types, uses and the criticism of the standardized tests.

Rationale: Understanding test results helps educators to determine an individual's cognitive skills as well a quality of a school, district or even a country's education system. It is important as a teacher to understand what learner's can do and can not do.

Reading # 19
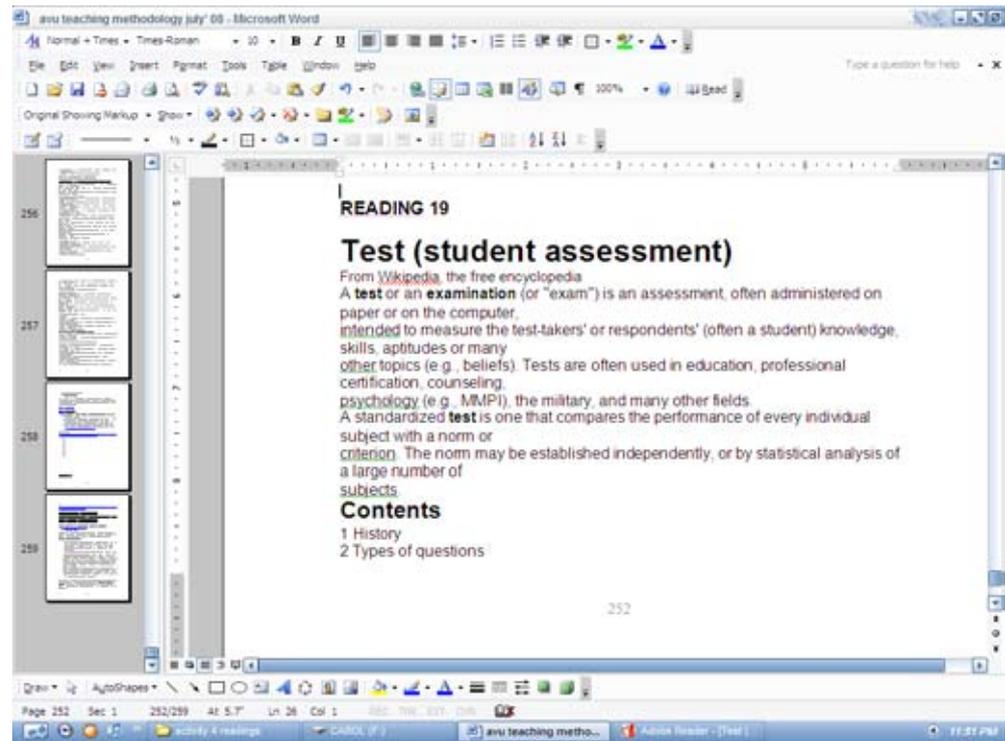
Abstract: It describes the history of tests, the different types of tests, limitation of tests and standardized tests.

Rationale: Tests are used in many fields to measure knowledge, skills, attitude, aptitude e.t.c. Formulating of tests that are valid and reliable is therefore of great importance.

Reading # 20

Complete reference: Classroom Management and Learning Enviroment

http://www.saskschools.ca/curr_content/adapthandbook/envir/classrm.html
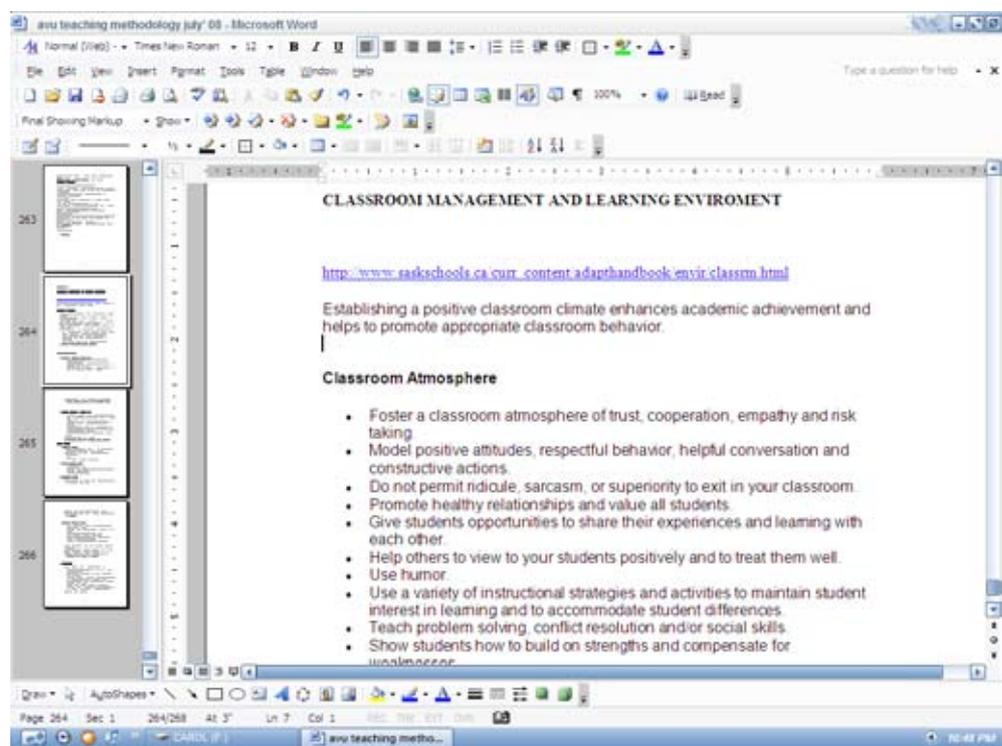
Abstract: This article has summarized points on the classroom atmosphere, classroom management, discipline and organizational skills.

Rationale: Positive classroom climates that foster a sense of belonging provide an environment which encourages risk taking, allows for cooperation, acceptance of the individual, encourages divergent thinking, promotes appreciation of others, practices empathy, and recognizes the unique contributions that each student make to the group is an effective learning environment.

# XII.	Useful Links

Useful link # 1

Title: Bloom's taxonomy and critical thinking
http://www.kcmetro.cc.mo.uslongview/etac/blooms.htm

Description: It has the key words and questions that can be used to state objectives and to measure performance at various levels of Blooms Taxonomy

Title: Bloom's Taxonomy

http://www.coun.uvic.ca/learn/program/hndouts/bloom.html

Description: This is simply another professor's handout that diagram's the levels of Bloom's Taxonomy very clearly and concisely.

Useful link # 2

Title: Task oriented Questions Construction Wheel based on Bloom's Taxonomy
http://www.stewards.edu/cte/bweel.htm

Description: This web page uses a wheel as a visual scheme to diagram levels of Blooms Taxonomy and relates them to key words and to materials that can be used to measure various levels of performance.

Rationale: The main value Bloom's taxonomy references is two_fold;(i) It can stimulate the teacher's to help the learners acquire skills at all the various level laying the proper foundation for higher levels by assuring mastery of lower levels of objectives (ii) It can provide a basis for developing measurement strategies to assess learner's performance at all levels and it starts with the formulation of objectives.

Useful link # 3

Title: Teacher as a learner and the learner as a Teacher Student centered Learning: Is it possible?

file:///E:/-%20student%20centred%20learning%20is%20it%20possible.htm

Description: It explores the difficulty teachers experience in order to move over and let learners be the focus of the classroom. It gives the teachers tips on how to change their role to make student-centered learning possible.

Rationale: The role of the teacher in the modern world is quickly changing because of the improvement in technology and new knowledge in the psychology of learning so teachers must be prepared to be guides so that learners can participate fully, "hands on".

Useful link # 4

Title: Lesson Plan
http://en.wikipedia.org/wiki/lessonplan

Date: 16/11/2007

Description: It discusses the purpose of lesson planning and the elements of a lesson plan.

Rationale: The lesson plan formats may differ but the elements are basically the same. A lesson plan guides the teacher to determine where the learners are going, how they are going to get there and how the teacher will know they have arrived.

XIII. Learning Activities

Learning activity # 1

Title: **INSTRUCTION**

Specific objectives

At the end of this activity you should be able to:

- Define methodology/pedagogy, learning objectives.
- Describe the elements of instruction.
- Formulate learning objectives.
- Describe the roles of the teachers and learners during instruction.

Summary of the learning activity

In this activity, I have provided an introduction to this module by defining methodology and the importance of learning objectives in all aspects of the teaching and learning process. You will do a number of activities to help you construct learning objectives using appropriate domains from Bloom's Taxonomy of Education. Lastly you will establish the roles played by the teachers and the learners during instruction. The activity is organized as follows:

I.1 Introduction to the content
1.2 Instruction
1.3 Formulating learning Objectives
1.4 Roles of Teachers and Learners during instruction.

Key Concepts

- Approach to instruction
- Formulating learning objectives
- Application of Bloom's taxonomy of educational objectives: cognitive, affective and psychomotor to instruction
- Roles of the teachers and the learners in instruction

Key Words

1. **Affective:** When learners learn how to share, to co-operate and to share

2. **Behavior**: Any performance or activity that can be observed or recorded

3. **Closed system:** A system that rejects to accept information / input from an external system.

4. **Cognitive:** The recall or recognition of knowledge and the development of intellectual abilities and skills.

5. **Domain:** Specification that shows the elements of interrelations of teaching and learning

6. **Instruction:** The process of setting the conditions of learning

7. **Learning objectives**: Description of the behaviour expected of a learner after instruction

8. **Learning:** The process by which one's capability of disposition is changed as a result of experience.

9. **Open system:** A system that accepts the input of information from external or other systems.

10. **Psychomotor:** The manipulation or motor skills

11. **System:** A portion of system that is of central interest in this case the teachers, students and the physical facilities of the school.

List of Required readings:

1. Blooms Revised Taxonomy
2. Formulating Learning Objectives
   http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_9:_Instructional_Planning/Formulating_Learning_Objectives
3. Learning Domains or Blooms Taxonomy: The Three Types of Learning
   http://www.nwlink.com/~donclark/
4. Writing Educational Goals and Objective
   http://personal.psu.edu/bxbll/objectives/psychomotor.htm
5. Role of the Learner
   http://coe.uga.edu/framework/chapters/welcome.htm.
6. Role of the teacher in a learner centered classroom
   http://www.ferris.edu.htmls/academics/center/teaching_and_learning_tips/current%20Brain%20Research%20and%20Teaching/20_keypoints%20htm.

List of relevant useful links:

1. Bloom's taxonomy and critical thinking
   http://www.kcmetro.cc.mo.uslongview/etac/blooms.htm

2. Taxonomies of Educational Objectives
   file:///E:/Taxonomies_of_Educational_Objectives.htm

3. Task oriented Questions Construction Wheel based on Bloom's Taxonomy
   http://www.stewards.edu/cte/bweel.htm

4. Bloom's Taxonomy
   http://www.coun.uvic.ca/learn/program/hndouts/bloom.html

List of optional readings

Anderson L.W. and Krathwol (Eds) 2001

Taxonomy of learning, teaching and assessing: a revision of Bloom's Taxonomy of educational objectives, New York, Longman

List of relevant MULTIMEDIA resources:

1. A computer with Internet to access the links and copy write free resources

2. Virtual text book on learning theories

NOTE: All the answers to the activities should be sent to you tutor for correction and clarification via an e-mail address provided.

1.1 Introduction to the Content

Pedagogy is the art or science of being a teacher. The term generally refers to the strategies of instruction. Education today is used to refer to the whole content of instruction, learning and actual operations. Education encompasses teaching and learning of specific skills and also something less tangible but more profound: the imparting of knowledge and positive judgment. Education is an application of pedagogy or teaching methodologies if you like.

You will find that pedagogy is a body of theoretical and applied research relating to teaching and learning. It draws on many disciplines such as Psychology, Philosophy, Sociology, Communication Technology and even Management. You have studied all these areas and you will now have a chance to apply what you learned in General Methods of teaching.

Current global education issues centre on teaching methodology such as, which teaching methods are most effective, how to determine which knowledge to be taught, which knowledge is most relevant and how well the learner will retain incoming knowledge. So the essence of our job as teachers is making sure that the curriculum serves as a catalyst for powerful learning for students who with our guidance and support become skilled and committed to the process of learning. It is imperative therefore, that when teachers are planning for instruction they include effective teaching techniques for efficient implementation of the curriculum.

1.2 Instruction

The teacher has for many years been seen as a giver of information to the learners. This role has rapidly changed with the introduction of new options and aids for instruction. These new concepts include team teaching, individualized instruction, programmed learning, new buildings, television equipment, electronic learning laboratories; computer assisted terminal learning, dial-access retrieval systems. These options have tremendously increased a teacher's choice of ways to accomplish defined learning outcomes. This creates new concerns for the individual learner new ways of presenting information in order to plan effective instruction, your role as a teacher is changing rapidly, as teachers tend to become directors or facilitators of learning experience and goals. This gives a teacher the freedom to design an instructional programme more suitable for the individual students to be taught. With this freedom, a teacher is now strictly required to posses the basic knowledge contained in the educational curriculum made syllabuses, and

must know what she/he wants to teach by selecting proper content, in order to be a successful coordinator of the learning process. The teacher must be able to describe specific objectives and skills that the students should be able to display under defined conditions and at a designated time.

Using the systems approach in education improves the decision-making process by enabling the teacher to understand the education process and all that is involved in education. The information necessary is found easily and within the teacher's reach, since everyone in the educational setting is involved in a systematic manner.

With the help of systems approach, we are able to provide feedback. Feedback means a reaction to the message sent from source to receiver or vice-versa. Knowledge gained from feedback helps the teacher applying the systems approach will apply feedback at almost every stage in the process of preparing source material. Therefore teaching becomes a science, since educational practitioners and theorists will be using scientific methods of going about their work. By applying recognized principles that have evolved through research and have been field tested, you can become a better teacher.

Today's teacher must assume the directorship of learning and must develop a plan or system for reaching defined goals. Your teacher's role as a director is to find ways of dealing with the teaching of such comprehensive systems as those of human growth and development, where most elements are related to each other and contribute to a given common goal. A change in one element may cause a change in other elements or in the system itself.

Read the article below and identify at least ten elements of an instruction system as you read through it.

The Elements of an Instructional System

Looking at an instructional or educational system, there are ten elements that must operate within the system:

A teacher should be able to monitor the **entering behaviour** of the students in other words, he or she should know what each student brings with him to the course. A course should be planned to meet the level of an average student, in order to be able to reach students both above and below the average. This can be done by designing a pre-test, to test the general achievement of a class before the course starts like the pre-assessment test in this module. The test should reveal to what extent the student knows the terms, concepts and skills which are part of the courses to be offered.

It is important for you, as a teacher, to determine your **instructional strategies and techniques**. A strategy is a teacher's approach to using information, selecting resources defining the role of students, and specific practices used accomplish a teaching objective. In the instructional sense your method is defined as a systematic plan for presenting information. The major instructional strategies are: the expository approach and the inquiry approach. We will study these methods in activity 2.

Any organization of students into groups is determined by the **specific objectives.** When objectives have been well stated and refined content selection made; criteria of satisfactory performance identified and entering behaviour measured, then the following questions can be answered:

- Which objectives can be achieved by the learner by themselves?
- Which objectives can be achieved through interaction among the learners themselves?
- Which objectives can be achieved through formal presentation by the teacher? Which ones will be achieved through interaction between learners and teachers? Writing of these objectives will be covered in activity 1

Many variations may be suggested in **classroom organization**, but in practice a decision about dividing children into groups must depend on the objective in question. Some objectives require small groupings while others require large ones. You must also take account of the characteristic of the content. Some of the material you teach may require about 40% of the time to be allocated to group work, while some require 50% face-to-face discussion.

Current instructional planning and design calls for an **individualized approach to learning**, in order to take account of the entry level and skills of the individual learners and the speed with which each is capable of learning. Depending on the learning styles of the individual students, some may reach a given objective efficiently through independent study, while others may reach it most efficiently through formal oral presentations. Some students may need a tutor nearby for guidance over difficulties.

The strategies and techniques used in various groups entail a decision about the use of time. The plan for use of time will also depend on the subject matter**,** objectives, space availability, administrative patterns, and the abilities and interests of the students. The best determinant of **time allocation** is the teacher's own analysis of the above three issues. Decisions about time are usually dictated by the objectives and activities planned the use of groups and size of the class. A teacher must therefore ask, 'How can I best attain the objectives with the

time constraints imposed on me? What groupings, what space utilization, what teaching strategy, what resources are most compatible with the time allocation pattern that I must use?'

Our school day is usually divided into periods of 40 to 50 minutes controlled by bells. This makes it rather difficult for the teacher to schedule time allocations, but you can still plan your approach in the context of such a pattern.

Many classes are taught in classrooms equipped with 50 student desks, a teacher's desk, and built-in teaching tools like chalkboards and bulletin boards. To some teachers, this kind of arrangement is unhelpful, while to others it is a traditional approach to be retained. The classroom space can be arranged for different purposes into: large group spaces, small group spaces and independent study spaces.

The **allocation of learning space** must be based on the three learning objectives which we will refer to when we discuss classroom room organization discuss in Unit 2 and 3. Teaching becomes more effective once you begin to group learners in relation to the objectives you wish to achieve.

You need to decide on the **content** of your teaching before you can select instructional material or determine your objectives. The teacher selects the approach and techniques appropriate to the objectives for each lesson, group size and time to be spent on the lesson. Media selection should be in terms of the responses desired by the teacher from learners and not in terms of stimuli alone. From this point of view, the term '**learning resources'** should be applied instead of 'teaching' or 'instructional resources'. There is no one instructional medium which is categorically better that another. The choice of an individual medium must be based on its ability to contribute to the learning activities planned.

Performance is the interaction between the teacher and the learners, between learners or between the learner and an instructional medium. It is during the performance that stimuli are presented and responses are made. Performance covers both the act of teaching and the act of learning. It cannot be contained by time, although its **evaluation** does occur at many points even though there is also a cumulative sequence during which many varieties of performance learning can be measured or evaluated. Performance is the focal point of learning. All the objectives designed and the planning that has been done become significant at the time when performance is evaluated. The most important parts of instruction are the entering and terminal behaviour. Evaluation of performance is one of the later elements of the instructional system and one of the first concerns of the teacher in answering the question, 'has the terminal behaviour been manifested at the level specified? under the conditions stated?'

Feedback is the final element.

In the reading above you must have identified the following elements of an instruction system.

a) Specification of objectives
b) Selection of content
c) Assessment of entering behaviour
d) Learning strategies
e) Classroom Organization
f) Allocation of time
g) Allocation of learning spaces
h) Selection of learning resources
i) Evaluation of teachers' and learners' performance
j) Feedback by the teacher and by the learner.

Learning Tip

An instructional system requires a teacher to be:

- The designer and developer of the Instruction Programme.
- Knowledgeable in the subject matter content.
- Skilled in the writing of instructional objectives.
- Creative in the choice of teaching resources and aids.
- Innovative in the choice of teaching techniques.
- An assessor and evaluator of teaching and learning outcomes.

2.2   Learning Objectives

Learning objectives are important in all aspects of the teaching and learning process. Learning or instructional objectives are concrete statements of the goals towards which instruction is directed. Objectives provide a genre for choosing subject matter content, sequencing topics and for allocating teaching time. Learning objectives also guide in the selection of materials and procedures to be employed in the actual teaching process. Further they provide standards as well as criteria for evaluating the quality and efficiency of teaching and learning activities.

Historically teachers have looked to Blooms taxonomy (1956) "Taxonomy of Educational Objectives" for the levels of learning, teaching and evaluating. The main value of taxonomy is two fold:

- It can stimulate teachers to help learners acquire skills at all of levels by laying the proper foundations for higher levels by assuring mastery of lower level objectives.
- It provides a basis for developing measurement strategies to assess student performance at all the levels of learning.(Bloom, 1956)

Definition of learning objectives

A learning objective is a statement of the description of the behaviour expected of a learner after instruction. Simply put they are instructional goals.

In this activity we will study the following aspects of learning objectives:

- Functions of learning objectives
- Components of learning objectives
- Classification of learning objectives
- Types of learning objectives
- Elements of learning objectives
- Determining the domains of learning objectives
- Writing learning objectives

Functions of learning objectives

An instructional goal is some outcome of instruction expressed in terms of student learning. As a result of instructing learners the teacher expects them to acquire knowledge, skills, abilities and attitudes.

For a learning objective to be useful for learning purposes, it must perform the following three functions:

- It must serve as a guide for planning instruction
- It must state an acceptable standard for assessing students' achievement
- It must provide a criterion for evaluating instruction itself

Classification of learning objectives

To insure diversity of goals and objectives when planning you must consider using a systematic classification of education objectives. One widely used classification scheme was proposed fifty years ago by Benjamin Bloom (1956).

Reading# 1

Read about Bloom's taxonomy of Educational Objectives from the following readings and perform the tasks indicated below.
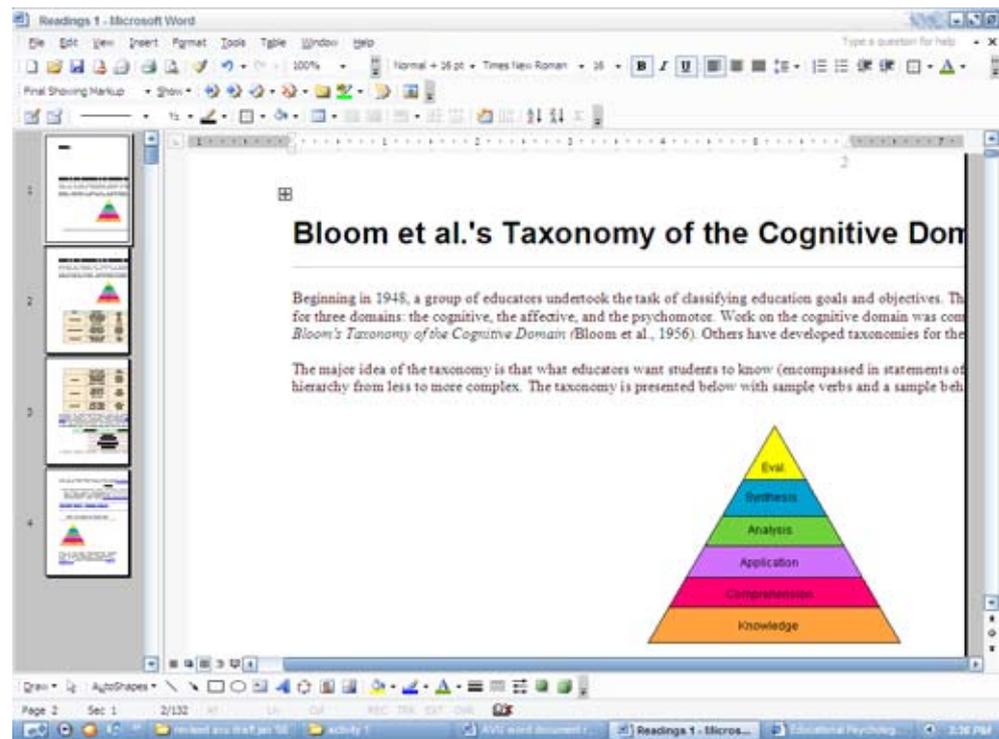
Step 1

Reading I: Blooms Taxonomy

Do the following tasks referring to the readings above on Bloom's Taxonomy

i).   Distinguish between low and high order objectives using 40- 60 words.

ii). Draw a Hierarchy of Bloom's Taxonomy of the cognitive domain.

iii). Write short notes 50-60 words on each of the following orders of Blooms Taxonomy of the cognitive domain;

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

These tasks should have helped you establish that according to Bloom, the lowest order objective is knowledge which involves recalling information of previously learned material while the highest order objective is evaluation which involves judging the value of the product.

iv). Go back to the readings of Bloom's Taxonomy and note that it was revised in the year 2001. Identify the educators who revised the taxonomy and summarize their revision views in 200-250 words.

In this unit on instruction, we will be exploring how this taxonomy of objectives influences how learning is organized. The major idea of the taxonomy is that what educators want students to know can be arranged in a hierarchy from less to more complex levels of learning. Bloom is also reminding teachers to set a variety of objectives. The purpose of writing objectives is to define what the instructor wants the student to learn; using detailed objectives will also help students to better understand the purpose of each activity by clarifying the student's activity during the lesson.

Learning Tip

Blooms Taxonomy in the cognitive domain can be arranged in a hierarchy, from less to more complex as follows: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. In selecting objectives teachers must also build the level of the content to be taught and activities to be learnt from simple to the complex.

First, we will establish the different components of learning objectives.

Components of a learning objective

The different components of a learning objective\ are;

- Terminal behaviour
- Test conditions
- Performance standards

Terminal behaviour

This component of a learning objective describes the behaviour of a student after instruction, what is the outcome of instruction? Behaviour means any performance or activity that can be observed or recorded. Terminal behaviour is the description of a pattern of behaviour or performance we want the learner to be able to demonstrate. An objective should be a statement of performance and responsibility.

Examples

1) **Identify** all the parts of a mammalian digestive system
2) **Draw** the map of Africa showing all the countries and their capital cities

The words identify, draw ,describe are action words or verbs that can be observed and recorded. The terms that learning experience is expected to produce.

Step 3

List down 10 other verbs or action words used in formulating objectives.

Hint you can go back to reading 1 on Blooms Taxonomy where sample verbs have been listed down for the different levels.

CAUTION AVOID using words that are open to many interpretations such as: To know, understand, grasp, believe, enjoy e.t.c at this level just to mention a few.

Test conditions

The tests conditions component of a learning activity describes the situation in which the students will be required to demonstrate the terminal behaviour. There are 3 general conditions that affect student's performance during a task or test. These include the availability of reference books, the time allocated, resource/tools available for the use and how the information will be presented during the testing period or teaching period.

For example to be able to identify the mammalian digestive system a chart of the digestive system or a specimen like a rat that can be dissected to expose these organs are provided for the learners during the lesson.

Identify the different countries of Africa from the **map** provided

Identify all the different structures of the digestive system from a **given mammal**

Performance standards

The standard describes the minimal level of performance that will be accepted as evidence that a student has achieved an objective. Examples:

• Answer **all** the questions correctly.
• Complete **at least 10 questions** within **one hour**

Performance standards provide a criterion for judging the effectiveness of terminal behaviour. Below is an objective that covers the three component of an objective.

At the end of the lesson the learner should be able to draw and label all the structures of the digestive system of a dissected rat.

Identify the three components from the objective above.

You will refer back to this information on components of an objective when you are writing objectives later.

Learning Tip

An objective has three components: Terminal behaviour, test conditions and performance standards

Types of learning objectives

Reading# 2

Step 4

Read the article**: Formulating Learning Objectives** and identify three types of objectives

file:///E:/Formulating_Learning_Objectives.htm

Have you identified the three types of objectives as?

1. Terminal performance objective or long term objective
2. Enabling objective or short term objective
3. Pre-requisite entry, objectives. A learner should have achieved before beginning a unit of learning

Continue using the information on the types of objectives to answer the following questions about you.

a. What do you hope to achieve at the end of this course? (Long term)
b. What are you going to do in order to achieve the objective above? (Short term)
c. What did you know about teaching methods of education before you started this module? (Pre-requisite entry)
d. Refer to the reading you did for this section and describe how teachers use long-term and short-term objectives in their planning for teaching in 100-120 words.

You have read that teachers have long term and short term objectives for students to work towards. To achieve these objectives they formulate objectives from specific to general ones for setting behavioural objectives or general to specific for choosing content topics. They must also find out what their learners know before they do that is, pre-requisite knowledge.

Learning Tip

There are three types of objectives long-term, short term and prerequisite objectives.

So far we have looked at the components of an objective and the types of objectives. We will now identify the elements of an objective.

Elements of learning objectives

In writing an objective the first step is to write down a statement of the learning outcome. Keep in mind that well formulated objective contains four elements. These can be referred to as the A, B, C, D elements of learning objectives.

A **Audience**

This is the learner, the student or pupil

B. **Behaviour**

An action verb and object to describe the observable action the learner/student will be doing as a result of a learning experience,

N.B. behaviour change indicated must be visibly observable

C. **Conditions** are limitations or restrictions placed on the student, or materials or aids given to the learner when she/he is evaluated

D **Degree,** the acceptable level of learning at which a student proves he/she has mastered the objectives

The common stem or statement of beginning of an instructional objective is:

At the end of the lesson the learner should be able to:

The example below shows you the four elements of a learning objective.

A Form I Biology teacher wrote the following objective:

At the end of the lesson the learner should be able to draw and label all the parts of the flower provided

Audience: <u>Form I student</u>

Behaviour: <u>Draw and label</u> parts of the flower provided

Conditions: At the <u>end of the lesson</u>

Degree: <u>All</u> the parts of the flower

Learning Tip

Objectives have 4 elements, the A, B, C, D, audience, Behaviour, Conditions and Degree

Determining the domain of a learning objective

Reading#3

1. **Learning Domains or Blooms Taxonomy: The Three Types of Learning-** <u>file:///E:/blooms%20cognitive%20domain.htm</u>

2. **A copy of your elective subject's secondary school syllabus to make reference to.**

In your reading this time I want you to focus on the articles above

The information contained in these articles is important for the purposes of not only determining the domain the objective falls into, which is our next exercise, but it will greatly determine your planning of teaching outcomes, the learning in class and the evaluation of learning outcomes. To optimize on the reading that you will have done, do the following activities step by step.

Step: 5

From the readings on Learning Domains fill these tables on the three domains of educational activities by indicating:

- Brief information of each category of the domain in 15- 15 words
- Five key words used (hint is indicated in italics)
- Two objectives formulated from any of your elective subjects refer to the syllabus.

Cognitive Domain

The cognitive domain involves knowledge and development of intellectual skills. It includes recall of facts patterns and concepts. It has six major categories which are listed in order from the simplest to the most complex the order in which they are mastered.

NO.	CATEGORY :MAIN CONCEPTS	KEY WORDS(FIVE)	STATE OBJECTIVES FROM YOUR TEACHING SUBJECT MATTER.(TWO)
5.	Synthesis	combines	
1.	Knowledge Recall of data or information	Define,	By the end of the lesson the learner should be able to: (i)Define the term ecology (ii) Identify the component of an ecosystem.
6.	Evaluation	contrasts	
2.	Comprehension	Distinguishes	
3.	Application	constructs	
4.	Analysis	Compares	

Affective Domain

This domain deals with the manner in which learners deal with emotions, such as feeling values, appreciation, motivation and attitudes. It has five major categories again listed from the simplest to the most complex.

NO.	CATEGORY MAIN CONCEPTS	KEY WORDS(FIVE)	STATE OBJECTIVES FROM YOUR TEACHING SUBJECT (ONE)
1.	Receiving	asks	
2.	Responding	Helps	
3.	Valuing	demonstrates	
4.	Organisation	Adhere	
5.	Internalizing	performs	

Psychomotor DomaiN

The domain includes physical movement, co-ordination and use of motor skills. The development of these skills requires practice, speed, precision, procedures and techniques to perform. It has seven categories listed from the simplest behaviour to the most complex.

NO	CATEGORY, MAIN CONCEPTS	KEY WORDS (FIVE)	STATE OBJECTIVES FROM YOUR TEACHING SUBJECT(ONE)
1.	Perceptions	describes	
2.	Set	explains	
3.	Guided response	Traces	
4.	Mechanism	assembles	
5.	Complex overt response	rearranges	
6.	Adaptation	rearranges	
7.	Origination	combines	

To further understand the application of Bloom's Taxonomy in teaching and learning answer the following questions referring to the same article.

a. Compare and contrast the cognitive and affective domains of learning in 200-250 words.

b. What is the effectiveness of writing learning objectives using a Bloom's taxonomy? Use 200-250 words to explain.

c. The table below shows a list of examples of learning objectives. Classify them according to their domain that is cognitive, psychomotor, and affective.

Objective	Domain Cognitive / Psychomotor / Affective
By the end of the lesson the learner should be able to:	
i) Solve at least 10 Simultaneous equations	
ii) Explain the process of soap making	
iii) Draw and label all the structure of a mammalian heart	
iv) Identify the various parts of the urinary system	
v) Develop interest in the writing of poetry	
vi) State the names of the capital cities of Africa	
vii) Distinguish between the Anopheles and Culex mosquitoes	
viii) Kick the football using the instep	
ix) Construct a third class lever.	
x) Set a practical to show that light is required for photosynthesis by plants	
xi) Describe how a pinhole camera can be used to model the actual camera	
xii) Type a letter using the computer	

By completing the above exercises you will have written objectives that fall in one of the three domains. A domain as we noted on the key terminology is a specification that shows the elements and interrelationships of teaching and learning. These three domains you will note from the reading have different outcomes on teaching and learning as shown in the learning tip below.

Learning Tip

1. COGNITIVE DOMAIN focuses on acquisition of knowledge. This is what a learner recalls, understands or the information he or she knows.
2. AFFECTIVE DOMAIN focuses on acquisition of particular attitudes, values or feelings. The learners show increased interest, are motivated or they demonstrate a change in attitude. This domain is usually under used by teachers.
3. PSYCHOMOTOR DOMAIN focuses on how a learner moves or controls the body. The learner learns how to manipulate an object, use a tool, produce a product or perform a routine.

Writing learning objectives

Reading# 4

Writing Educational Goals and Objectives

 http://www.personal.psu.edu-Instructional Goals and Objectives.

This article defines goals and objectives and gives tips for writing objectives refer to it whenever you are writing learning objectives. Below is a summary of a quick checklist for writing learning objectives an exercise that you will do for every lesson that you plan to teach in the future.

Check List For Writing Objectives

You should ask yourself the following questions as you write objectives are they:

i)   Written in terms of **students' performance**?

ii)   **Observable** by one or more of the five senses?

iii) **Specific**?

iv)   **Valid** and **reliable** to the major objectives and goals of the course?

v)   **Measurable i**n terms of level of performance and conditions under which performance takes place?

vi)   **Sequential** in relation to prior and subsequent knowledge?

vii) **Relevant** to the students' experiences

viii) **Attainable** within the **time period** you have allotted for it?

ix)   **Challenging** to each student?

x)   **Acceptable** to society?

xi)   **Realistic**?

xii) Having **a stem**: At the end of a given period (lesson, course, module) the learner should be able to:

Learning Tip

Use the checklist to ensure the objectives you have written in the exercise above are S. M. A .R. T that is: Specific, Measurable, Achievable, Reliable and Time-bound.

2.2   The Role of Teachers and Learners in Instruction.

Largely as a result of technological change, forces of globalism, multiculturalism and multimodalism the roles of both the learners and the teachers have been transformed and ultimately enriched in the process. In the traditional classroom, teachers stand in front of the class and present information to the learners. This process is seen as effective because teachers can present immense amount of information in a short period of time. Constructivist research has however shown how ineffective this practice is. Instead their research has shown that when teaching focuses on students and challenges their perceptions learning becomes more meaningful and productive to the learners. In this activity we will study the roles of the leaner and those of the teacher during instruction, have they changed? I hope by the end of this activity we will have an answer to this question.

Reading # 5

Read about the **role of the learner** in article provided in the

Read the article above and identify the roles of the learner during teaching.

Role of the Learner

file:///E:/ROLE%20OF%20THE%20LEARNER.htm

From the reading you have gathered that the learner is a unique individual, with unique needs and they come from different backgrounds. The learner has multiple roles during instruction, the main ones are to:

- Select/reject information when reading, listening, viewing, and writing during instruction.
- Analyze and synthesize information, compare, sequence, link, classify, establish cause and effect, summarize e.t.c
- Apply information to their daily life
- Transform information into knowledge
- Interpret information
- Pass examinations

The role of teachers

The role of teachers falls broadly into the six categories listed below.

The information provider

A traditional responsibility of the teacher is to pass on information, knowledge and understanding of the contents of the study. This information can be delivered using various teaching methods. The choice is the challenge in teaching.

The role model

A teacher should exemplify what should be learned. They should be models not only as they teach but as they perform their duties.

The facilitator

As we move to the learner- centered view of learning the role of the teacher is changing to that of a facilitator of learning. Teachers are no longer viewed as 'walking tape recorders' teachers must therefore hone theirs skill of facilitation and mentorship as they support the problem - based learning and the learner's ability to source for information.

The assessor

The teacher assesses the student and the curriculum. The assessment of the students competence though examinations. The teachers assess the curriculum by monitoring and evaluating the effectiveness of the teaching of the courses.

The Planner

Teachers plan the curriculum and the courses to be taught as well as their implementation.

The Resource Developer

Teachers develop the resources that are used during the delivery of the curriculum. They develop their teaching aids, incorporate new technologies in the teaching technique, prepare study guides and they also keep abreast of any changing knowledge.

In a school setting some teachers have only one role. Most teachers have several roles. All roles must however be represented in an institution or school.

- Which teachers represented these roles in your former secondary school?
- Which roles would you like to play as a teacher?

Reading # 6

Role of the teacher in a learner centered classroom

file:///E:/Role%20of%20the%20Teacher%20in%20a%20Learner-Centered%20Classroom.htm

1. Suggest why it is difficult for teachers to move over and let students learning be the focus of the classroom by reading the above article on a learner-centered set up? Give at least 4 reasons in 100-150 words

2. Discuss the **role of the teacher** in a learner-centered classroom in 200-250 words. Enumerate at least six different roles

3. Describe the **role of the learner** in a learner –centered classroom in 200-250 words. Enumerate at least six roles.

Learning Tip

The teacher plays multiple roles and these roles are often interconnected and closely related. As a teacher you are an information provider, role model, facilitator, assessor, Planner and a resource developer. It would be unreasonable to expect an individual to be competent in all of them. Schools and institutions have a human resource planning section that matches teachers with the roles that they have the greatest aptitude.

Learning activity # 2

Title: TEACHING AND LEARNING

Specific Objectives

At the end of the activity you should be able to:-

 (i)   Explain how the psychological theories of learning are applied to learning and teaching
 (ii) Describe the sequence of learning and the criteria of selecting strategies of learning
 (iii) Describe the different methods of teaching and explain how each teaching method   can be used in order to enhance effective teaching and learning.
 (vii) Analyze the different aspects of classroom organization.

Summary of learning activity

In this activity teaching and learning will be defined. The psychological theories of learning studied in general psychology will be related to the teaching of learners, the sequence and strategies of learning will be described. The various teaching methods and the situation in which they are used to enhance effective teaching will be discussed at length. Lastly, class organization will be analysed.

The activity is organized as follows:

 2.1 Learning Theories and Theorists
 2.2 Sequence of Learning and Strategies of Learning
 2.4 Teaching approaches and Methods
 2.5 Classroom Organization

Key Concepts

 The Learning Domains of Bloom's Taxonomy and their application.
 Application of the psychological theories of learning
 Sequence and strategies of learning
 Teaching approaches and learning
 Classroom organization

Key Words

1. Effective: A learning /teaching method that has an effect and is able to bring about intended results.
2. Efficient: Learning method that is able to produce desired results.
3. Inquiry approach: A problem solving approach to a set of learning activities.
4. Learner: It could mean a pupil, student any person receiving instruction.
5. Learning Strategy: The way which content is presented in the instructional environment.
6. Learning: Is a process by which ones capability or disposition is changed as a result of experience.
7. Operant: behaviour which changes frequency or rate as a function of its consequences.
8. Reinforcement: A consequence behaviour which increases or decreases the frequency of occurrence of that behaviour.
9. Resources: Teaching/Learning materials needed to reinforce learning activities.
10. Response: The action which results from stimulation it could be a simple reflex or complicated responses like learned behaviour.
11. Stimulus: A physical or chemical agent that acts upon a sensor as a Signal, cue or sign.
12. Technique: A method employed by the teacher to direct the learners' activities towards achieving stated objectives.

Compulsory Readings

1. Teaching Methods:
   http://en.wikipedia.org/wiki/TeachingMethods
2. Learning Domains or Blooms Taxonomy: The Three Types of Learning
   file:///E:/blooms%20cognitive%20domain.htm
3. Classroom behaviour Management
   file:///E:/Classroom_Behavior_Management.htm
4. Classroom Communication
   http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_12:_The_Nature_of_Classroom_Communication/Communication_in_Class_vs._Elsewhere
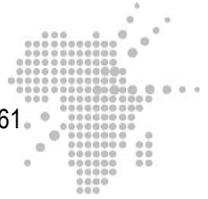
5. Classroom Behaviour Management
   http://en.wikibooks.org/wiki/Classroom_Behavior_Management
6. Constructivism
   file:///E:/Constructivism_(learning theory).htm
7. Classroom Talk to Stimulate Thinking.
   http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/
   Chapter_12:_The_Nature_of_Classroom_Communication/Classroom_
   Talk_to_Stimulate_Thinking

List of Relevant Useful Links

1. Learning by teaching
    http://en.wikipedia.org/wiki/learningbyteaching

1.1   Learning theories and theorists

As you read through this section pay attention to the traditional and the progressive points of view.

Traditional education, as Dewey states, is primarily concerned with teaching students' information and skills that have already been worked out in the past. They assume that the future will be just like the past; therefore the skills and knowledge that were of useful in the past will help students succeed in the future. He identifies this assumption as a major flaw in traditional education. Dewey believes the world is constantly changing, and students need to learn critical thinking skills and problem solving skills in order to deal with these changes. Traditional education treats students as docile, non-active receptive entities that learn only from books and teachers. Knowledge is taught as a finished product. Students cannot learn essential problem solving skills if they are taught that all problems and answers to these problems have already been worked out (Dewey, 1952). "If we teach today as we taught yesterday, we rob out children of tomorrow" (Dewey, 1944, p. 167).

Dewey stressed the importance of active learning; students must be engaged in the learning process. Traditional education, in which conduct is strictly enforced, automatic drills are used to transfer knowledge and students' power of judgment and intelligence are impeded, created the wrong kind of experiences to promote learning.

Progress Education Theory main tenet is that education is based on personal experiences of the learner. Teachers are the mature person who provides guidance to the students to facilitate learning. The instructor's main function is to arrange for the kind of experiences that engage students and promote further experiences. Dewy states that quality experiences are necessary. Quality experiences are experiences that lead to more experiences; Dewey refers to these types of experiences as the experiential continuum. Quality experiences must also lead to intellectual growth, which arouses curiosity and strengthens initiative. Again, Dewey criticized traditional education practices because the type of experiences promoted did not lead to the continuity of new experiences or aroused curiosity or initiative (Dewey, 1952).

Students should understand why they are learning. Instrumentality of learning is paramount in progressive education. Students should not learn in isolation. Dewey stresses that education is a social process that everyone should participate in. Schools should be involved in their local community so that students learn how to participate in the community.

Teachers are also required to know the students in order to identify their needs and capacities so that they can arrange classroom experiences that will help the students cope with real life situation.

Teachers must recognize what surroundings are conductive to promote quality experiences. Traditional Education did not allow teachers to affect the learning environment. Desks were arranged in rows and students were to sit still and sit up straight. This arrangement encourages passivity in students. Progressive education requires the teacher to arrange the learning environment to promote active student learning. Students may move around the room from work station to station, actively working on and solving problems. The classroom setting is arranged so that students have freedom of movement. Physical freedom of movement lends itself to freedom of intelligence. This requires lesson planning and arranging the learning environment teachers to put more thought into (Dewy, 1952).

i)   Referring to the passage above which approach would you choose as a teacher the traditional or the progressive point of view? Give your opinion in 150-200 words

Reading #7.

Constructivism (Learning theory)

file://E:\Constructivism_(learning_theory).htm

CONSTRUCTIVISM

Constructivism is a theory of learning where humans construct meaning from current knowledge structures. Read the article above and answer the following questions regarding its contents.

i)   Describe the constructivist learning theory in 100-120words.
ii) Describe the nature of the learner from a constructivist point of view 100-150 words.
iii) Explain the role of the learner from a constructivist point of view 50-60 words.
iv) What pedagogies are based on constructivism, explain in 50-60 words.
v)   Explain in 100-120 words why the constructivist theory of learning is criticized.

According to the constructivist individuals construct new knowledge from their experiences. Learning is therefore an active social process. There is dynamic interaction between the task (learning), the teacher and the learner. The teachers are facilitators. It emphasizes on hands-on approaches, so the" learning is by doing".

Learning Tip

In a changing world teachers must choose methods that enhance the learner's critical thinking skills and problem solving skills in order to deal with these changes. Learning by doing pedagogy is today's teacher's choice of the teaching. The learner-centered paradigm must therefore be emphasized.

Application Of Learning Theories

You have already studied the views of the different learning theorists in your psychology

Module you will apply these theories in this module as you prepare to teach.

Read through this passage carefully and note down the different theories and theorists and how their ideas can be applied during teaching. Pay special attention to reinforcement, conditioning, cognitive and insight. It will be worthwhile to refer to your module in psychology too.

In each of the learning theories you come across the term stimulus and response are usually mentioned so I will start by defining them.

A Stimulus was defined as a physical or chemical agent, it acts upon a sensor. In common terms, stimuli can be called signals, cues or signs. A stimulus may be simple or relatively complex, and can be external or internal.

A Response is behaviour which can be sensed. Responses may be simple or complex; for example, eye movement when reading. Responses can be measured by the number of times the response is made (frequency), time from stimulus appearance to when the response gets underway (latency) and speed of response from start to finish or response (response time).Stimuli and response are linked continually in student behaviour.

To provide a satisfying state of affairs for your student you have to reinforce them. One type of reinforcement is termed primarily **reinforcement**, that is, it is a positive rein forcer that fills a physiological need, such as hunger or thirst. This process he called primary reinforcement, and the food a primary rein forcer. The
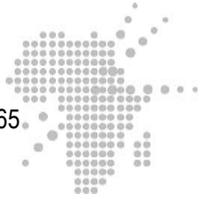
second type of reinforcement is called secondary reinforcement. This is a conse-quence that serves to increase the frequency of behaviour without fulfilling the needs of hunger, thirst, warmth or simply the primary gratification. An example of secondary reinforcement is the association of the rattling of dishes and the mother's voice with a primary rein forcer: food following immediately. When a teacher prepares lessons that are motivating, learners look forward to those lessons. Teachers are continuosly looking for ways of reinforcing their learners with a good, well done, try again, a pat on the back to material rewards. These are positive rein forcers

In humans, each individual expects the consequence of his behaviour to be consistent with past experience; hence it is sound to conclude that reinforcing properties do not lay in a stimulus but in its effect on behaviour. A satisfying state of affairs can be approached from two directions: by reducing or adding stimulation. Whether the stimulus is a positive or negative rein forcer depends on the resulting change.

B.F. Stinker experimented on animals and came up the concept of '**operant conditioning**'. Operant is an example of behaviour which increase the frequency or rate of a particular operant called positive rein forcers.

At times your student cannot achieve the target behaviour well enough receive positive reinforcement. In circumstances like these, what you have to do is to reward successive approximation to the desired behaviour. This is a use of the process called shaping. At first you reinforce any approximation to the desired behaviour. Then, on subsequent trials you reinforce any approximation to the desired behaviour. These on subsequent trials you reinforce only that behaviour which shows improvement in the direction of the target behaviour. Besides sha-ping, you can also apply continuous reinforcement, which means reinforcing the behaviour until the target response is achieved. Here the number and timing of reinforcements are very important, particularly when you consider the resulting activity and permanence of response. Besides continuous reinforcement, you can also use intermittent or partial reinforcement. This means that instead or reinforcing every single response, you reward the student only after every 10 to 15 instances of completion of the task. Another method of increasing reinforce-ment is by keeping a cumulative record, in which you keep track of the record of behaviour on successive particular days.

Cognitive psychological theorists view learning as a change in knowledge, and infer mental processes such as purpose, insight and understanding. They believe successful performance to be more closely related to an understanding of relationships in the present situation than to past experiences, which are more important to the stimulus-response (S-R) psychologists.

This theorist introduced the term **'insight'**. This concept of insight has been described as getting the point, grasping the idea, or catching on. With insight the student grasps the essential relationships in a situation. She/he then knows what leads to what and how to reach the goal.

The process of insight is regarded as an essential component of learning, which proceeds better when the components of a problem are so laid out that their relations are evident and a sensible solution is possible. The student considers this to be equivalent to learning with understanding.

When teachers have taught the lesson they want the learners to be able to retain what has been learnt in a way that they can apply the concepts to their daily life. Teaching Methodologies chosen must meet these demands of learning for them to be effective and efficient.

To summarize behavorial theories explain why learning has or has not taken place. Cognitive theories explain the role of logic and the learner's cognitive (knowledge) structure in learning. The language based theories explain the role of communication in teaching and learning (Young,1995).

Learning Tip

Psychologists have developed a number of theories and concepts that tell us what happens in classrooms and offer guidance for assisting learning. As a teacher you will make reference to them as you plan for teaching in order to optimize on the learning process.

2.2   Sequence of Learning

In the light of the psychological theories of learning we might say that any form of learning involves these five stages discussed below:

Attention

Attention is considered a necessary preparatory set. Your students have to pay attention in order to follow and understand the content you are teaching them. Attention prepares your students for the next stage in learning, which is called perception.

Perception

At this stage of learning, there is an input to the senses that gets registered so that its meaning is established. The result, namely what is perceived, depends partly on the students' prior learning and partly on what stimuli or parts of stimulus situations your students attend to.

Perception involves a complex interrelating of information from the environment and information retained from prior learning.

Acquisition

This is the phase of learning in which a student acquires a new capability or new skills in operating something. Acquisition involves identifying how ways and means are mastered and learning how to respond to a situation.

Retention

What your students have learned is retained until the time it will be used. Psychologists believe that there are two types of retention: short-term and long-term retention.

Short-term retention is demonstrated when your students hold information long enough for immediate use. For instance remembering a telephone number until a call is made, a hotel waiter memorizing details of your order before serving you waiter memorizing details of your order before serving you with the food you ordered.

When the outcomes of learning last in your student's mind beyond the immediate occasion for their use, say from a few minutes right up to a lifetime, long-term retention is observed. Long-term retention of behaviour is required in education for learning purposes.

In learning, the best way of improving retention is to give attention to what is learned initially and how this learning is organized, and to relate this to the kind of problem you are faced with.

Transfer

This is sometimes called application and is the highest and most psychologically complex level of learning. It occurs when you require your students to apply, or put to use motor skills they are able to recall.

You should now be aware that objectives that require your student to apply their knowledge in a real world setting are the most complex psychologically and require more instruction than the other phases of learning we have described.

Learning Tip

The sequence of learning involves five stages namely attention, perception, acquisition, retention and transfer

Strategies for Learning

In activity one you learnt how to write objectives in measurable terms and you were also exposed to the meaning and categories of learning domains. A statement of objectives, it was stressed, was the first step in determining learning arrangements. The next step after stating your objective(s) has to do with the means of learning the target performance of the objective and it is called a strategy of learning. Knowledge about objectives is going to help you to learn how to select and use strategies for learning purposes.

The strategy you select belongs either to the expository or the inquiry general method of learning.

When you are selecting a strategy for learning, you must be sure that it is both effective and efficient. The meaning of these terms will now be explained for you.

Effective

Effective learning strategies are those that are powerful in bringing about expected results in a given situation. One way of testing for effectiveness is by trying to find out whether principles a student has acquired can be transferred and used in a new setting.

Suppose, your students have been taught about the pyrogras principle of determining the height of an unknown side during a math lesson. You then ask them to apply this knowledge to determine the height of a tree or a wall. If your students can determine the height of the given tree or wall then the principles they learned from the math lesson are effective.

Efficiency

Efficiency refers to those learning strategies that bring about learning quickly and adequately within a specified time. As a teacher you will notice that certain objectives can be accomplished in less time with one method of teaching than with other methods. These methods could be described as being efficient.

Efficiency and effectiveness are usually considered together. If the retention or transfer of information or skill learned is greater for one method than another, and also takes a shorter time, then that method is more effective and efficient for teaching a specific objective than other ways of teaching.

As you examine the strategies for learning it would be helpful to study and apply them in the light of their efficiency, as well as their effectiveness.

Learning Domains

Taxonomy is a wonderful reference model for all involved in teaching, training, learning, coaching – in the design, delivery and evaluation. At its basic level the Taxonomy provides a simple, quick and easy checklist to start to plan any type of personal development. It helps to open up possibilities for all aspects of the subject or need concerned and it also suggests a variety of the methods available for delivery of teaching and learning. As with any checklist, it also helps to reduce the risks of overlooking some vital aspects of the development. You will therefore require **READING# 1 AGAIN** this time it will be applied to learning strategies

Read the following articles of Blooms Taxonomy of Learning Domains

Learning Domains of Blooms Taxonomy: The Three Types of Learning
http://www.nwlink.com- Blooms taxonomy

Read the article above but concentrate on the column titled **activities/experiences to be trained or demonstrated** for the three domains and insert them in this table below in al least 10-15 words for each category. See the example in italics all the information is from the readings.

COGNITIVE (KNOWLEDGE)	AFFECTIVE (ATTITUDE)	PSYCHOMOTOR (SKILLS)
1. Recall; do an activity to recall a process, rule, quote a law or procedure.	1. Receive (awareness)	1. Imitation (copy)
2. Understand	2. Respond (react)	2. Manipulation (follow instructions)
3. Apply (use	3. Value (understand and act	3. Develop Precision
4.Analyze (structure/elements)	4. Articulation (combine, integrate related skills)	4. Organize personal value system
5. Synthesize (create/build	5.Naturalization (automates, become expert)	5. Internalize value system (adopt behavior)
6. Evaluate (assess, judge in relational terms		

The table above is a really simple adapted 'at-a-glance' representation of Bloom's Taxonomy. The definitions are intended to be simple for modern day language use, to assist you in explanation and understanding. This simple overview can help you to understand and explain the taxonomy. Refer back to it when considering the tasks ahead, getting to grips with the detailed structures – this overview helps to clarify and distinguish the levels.

You actually have a choice as to how to use Bloom's Taxonomy. It's a tool – or more aptly – a toolbox. Tools are most useful when the user controls them; not vice-versa (Bloom et al).

From the summary you have made the domains provide points for learning design and evaluation, whether for a single lesson, session or activity, or training need, or for an entire course, program or syllabus, across a large group of trainees or students, or a whole organization.

Learning Tip

The Taxonomy provides a simple, quick and easy checklist to start to plan any type of lesson. It suggests a variety of the methods available for delivery of teaching and learning. As with any checklist, it also helps to reduce the risks of overlooking some vital aspects of the development required.

2.3 Teaching Approaches and Methods.

Approaches

An educational approach can be defined as a way of dealing with an education issue. A teaching approach may be defined as a combination of ways that a teacher uses when presenting the content of a lesson.

The different approaches to teaching will be discussed below note them down as you read through

Didactic Approach

In the early days, teaching was didactic, i.e. lecture method. Students were given rigidly formulated statements, which they had to memorize and regurgitate when required to do so by teachers. Little or no emphasize was placed on understanding; learners were simply made to cram things. It was believed that the human brain is a blank store where knowledge can be pumped and stored.

Expository Approach

This involves the kind of teaching that is characterized by predominance of teacher talk with little or no involvement of students on practical activities. It is a teacher-centered approach. The teacher gives facts, explains concepts, and gives illustrations. Anything that needs to be taught practically is done through teacher demonstrations. Student participation is limited to listening and asking questions and writing notes as the lesson progresses.

This approach is not considered very effective in the teaching. However, it is alleged that there are some topics in science/mathematics that can only be approached satisfactorily by exposition because their very nature they are difficult to teach practically.

Empiricist Approach

Emphasis was on the need to acquire scientific knowledge through observations. Laws were reached by induction. The learner was now given opportunity to at least handle apparatus and make observations thus developing interest and manipulate skills.

Heuristic Approach

At the turn of 20th century advocates of the Heuristic approach of teaching believed that learners could be trained to discover scientific ideas by using faculties of observation, reasoning and memory. Learners were involved in observation, recording, analyzing data and drawing conclusions on their own. This was a better approach since it involved real inquiry, which would lead to understanding of the theory however, this approach tends to consume more time, hence delay in syllabus coverage.

The Inquiry/Discovery Approach

This is a learner-centered approach with a high degree of involvement of all who participate. It is systematic in that a set of activities is used, yet highly flexible in that the sequence of the activities can be changed and others can be substituted at any time. The teacher involves students in activities that help in the development of scientific skills such as the ability to make observations, perform experiments, collect data make deductions and present results.

A Chinese proverb says, 'I hear I forget, I see and I remember, I do and I understand.' The learners would carry out experiments then create concepts at first hand in the laboratory, as a means of awakening original thought. With passage of time, it was realized that despite the many practical activities may of the learners still face problems understanding science, hence the slogan 'I do and I am even more confused'. The teacher's role is to guide students by clarifying instructions where necessary and being available to answer any questions that may arise in the course of the activities.

Constructivist approach

The constructivists approach takes cognizance of the fact that by the time a learner enters formal education he/she has already interacted with former environment and has developed ideas and concepts in relation to what he has experienced? As a child grows up, it continuously encounters new horizons in terms of knowledge gained, which require explanations either from its parents, family members, or peers. The entire encounter is digested and stored in their memory and becomes knowledge. Learning therefore should be built on the learner's practical experience while at the same time correcting any misconceptions or learner's alternative frameworks. According to Piaget, an individual interprets reality via intellectual structures characterized by acting schemes that change as one grows. An individual therefore tries to attain structures to make it consistent with the new experience.

The role of the teacher is to provide guidance as a facilitator by giving students challenges that will help to correct their misconceptions and enable them to draw correct concepts. The teacher can do this through:

- Class discussions (peer group learning)
- Students' experiments and demonstrations
- Use of audio visual aids, charts, diagrams models etc.

In relation to the inquiry approach, this involves a wider range of activities centered on helping students to learn by:

- Gaining new insight from the outcome of their investigations
- Modifying their pre-existing ideas in the light of the new insights
- Constructing their understanding of a scientific concept.

The basic assumption is that students have their own explanations of the phenomena encountered in their every day life. This approach helps them to test their understanding using the scientific approach.

Learning Tip

There are various approaches to teaching and they could be teacher or learner-centered. These are didactic, expository, empirical, heuristic, inquiry and constructive approaches.

In view of the above teaching approaches teachers therefore have various methods of teaching as you read through these methods answer the short questions that you come across.

Teaching Methods

Teaching methods may be defined simply as a way of carrying out actual teaching in the 'classroom'. They are the means by which the teacher attempts to impart the desired learning or experience. The concern is with the way the teacher organizes and uses teaching techniques or skills, subject matter, teaching aids or resources to meet teaching objectives. The particular method that a teacher uses is determined by a number of factors. These include:

- The content to be taught
- The objectives which the teacher plans to achieve
- Availability of teaching and learning resources and the ability and willingness of the teacher to improvise if convectional teaching aids are not available.
- Evaluation and follow-up activities.
- Individual learner differences.
- Size of the class

Lecture (Chalk and Talk) Method

This involves giving factual information with very little or no participation by the learners. This method is outmoded due to a number or reasons:

- It does not offer training for the attainment of scientific skills
- Content taught in a lecture is quickly forgotten
- Lectures can be boring especially if they are lengthy and if the teacher lacks appropriate communication skills.

However, this method is most effective for transmission of large amounts of matter. In spite of this criticism this method is still very useful an instructional technique as long as it is used appropriately.

Teacher Demonstration Method

The purpose of a demonstration is to provide a means by which the teacher can explain or clarify certain parts of the context quickly and economically e.g. it can be demonstrated that metals expand when heated; or that seedlings exposed to a unilateral source of light bend towards the light. It is essential that the students should be involved actively. One way in which this can be achieved is through questioning as the demonstration progresses. Whenever possible the teacher should also give students an opportunity to set up the apparatus required for carrying out

a certain procedure. The students should be organized in such a way that every student is able to observe the demonstration.

Demonstration can also be used to explain an experimental set up before the students begin to set up their own apparatus and/or materials to be used are not enough for the whole class; or when the materials are too dangerous or equipment too delicate to be entrusted to the students e.g. use of high voltage capacitors; experiments involving a mixture of hydrogen and air.

Which sub-topics in your elective teaching subjects can benefit fro this teaching method? Enumerate at least 4 ideas.

Practical Work /Experiment Method

This involves teaching/learning activities conducted by the students under the guidance/supervision of the teacher. The teacher provides the students, either singly or in groups, with the materials and apparatus well as the instructions to be followed in performing the activities. Deliberate effort should be made to enhance group work although individual participation must be assured.

The ability to follow instructions and the use of scientific methods and skills to solve problems with little help from the teacher is an important aspect of learning science. Lack of laboratory facilities or equipment should not be taken as an excuse to limit practical work. The teacher (and the students) should collect materials and improvise as much as possible. Where improvisation is not possible, small-scale experimentation should be encouraged.

There are certain basic skills that are essential in order for learners to carry out practical work safely and successfully. Examples of such skills include:

1. Ability to read instruments (measuring cylinders,) accurately.
2. Correct use of equipment and apparatus (magnifying glass,).

Successful practical work depends on a number of factors that include the following:

1. Preparation before the practical period
2. Trying out of activities to make sure that the materials used will give the expected results.
3. Clarity of the instructions-language should neither be ambiguous nor include terms that are unfamiliar to the students. If such terms must be used they should be clearly defined.
4. Effective guidance and supervision by the teacher.
5. Group size and composition.

6. The ability of the teacher to establish a link between the practical work and the concept to be learnt (bridge)

7. Briefing on any precautions to be taken to ensure the safety of the students and the equipment.

Project Work

The value of project work in the learning of science or humanities cannot be over-emphasized. Project work enables learners to actually engage in investigation in an area of their own interest. The students learn to appreciate the basic steps in the scientific method. It combines the following skills:

I.   Observation
II.   Identification of a problem
III.   Discussion
IV.   Formulation of a hypothesis
V.   Design and investigation
VI.   Data gathering
VII.   Data analysis
VIII.   Making deductions
IX.   Report writing and presentation

Contrary to popular belief project work need not consume a lot of the time and resources allocated to the subject. There are many opportunities for students to learn through individual or group project work. The problems to be investigated may are arising from the students' own interest but they may also be suggested by the teacher. Whatever the case, the teacher should make sure that students have sufficient background information before they embark on project work. Teacher supervision and guidance are important pre-requisites for successful project work.

Suggest 6 possible problems from your subject area that you can assign your students to research on in a project.

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Field Work/Excursions

Fieldwork method needs to illustrate the natural development or technological application of certain topics dealt with in the classroom. It provides students with first-hand evidence of scientific phenomena and how they impact on every day life. Students learn to appreciate the sciences and arts not only as subjects in the curriculum but also as part of the real world. Students may also get an opportunity to interact with experts in particular fields of study.

What are some of the possible places that students can be taken for field trips or excursions?

- Example a near by pond to study the ecosystem
-
-
-
-

Fieldwork is difficult to organize, but if well planned, it can be an effective method of teaching and learning some aspects of science as well as art subjects. It need not be conducted in a place that is far from the school. The immediate environment of the school may offer unique opportunities for students to conduct field work which may help to reinforce what is learned in the classroom. To avoid a situation where students reduce a field trip to sightseeing, the teachers must plan as thoroughly as they plan any other lesson. Specify the objectives, learning activities, evaluation and follow-up activities. Prepare a detailed work sheet or questionnaire and give clear instructions to students before hand to focus them on key areas of study. Form the working groups in advance.

Suggest aspects of your teaching subject that can be taught using field work as a method of teaching?

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Discussion Method

Discussion is an important component any teaching /learning situation. It allows students to share their ideas. It can be used at the beginning of a topic to ascertain students' pre conceived notions of the subject matter or towards the end of a topic by presenting students with a new situation and asking them to explain it in terms of what they have just learned. However, discussion in groups might not have much value unless it is followed by presentation of reports.

Other Teaching Methods

There are other methods such as simulation, games, skits, and others. These may be effective in teaching if understood and well used.

- Simulation – This is an imitation of the appearance or character of the real situation e.g. a car, plane an actor, a shop. It is the use of models to represent the real situation.
- Role play- acting out characters so that learners can understand the situation.
- Skit – This method involves role-play but it is a short play.
- Games and puzzles to answer questions
- E-learning – Use of computers to explain processes or concepts.
- Broadcasting Method – Use of radio and television to deliver lessons.

Self instructions method

It is also called Programmed Instructions learning. Here the learner proceeds to learn materials at his own pace it is individualized learning done through a programmed text book or a take or CD. The learning takes place in small steps ranging from very simple facts to very complex ones. Reinforcement is immediate and at the learners pace. The teacher gives guidance on the use of materials or instruction and how to assess learning.

Do you recognize the self instructions method as your own type of learning technique? What challenges are you facing? Explain in 100-150 words.

i) Review each of the teaching methods and indicate which category they fall into according to this classification. Which are the teachers or learner centered ones?

LEARNER - CENTERED	TEACHER-CENTERED

ii) Africa is behind the rest of the world technologically which teaching methods can be used to enhance the students' technological capabilities. Explain in 100-150 words

Study the diagram below on subject mastery and interpersonal skills and answer the following questions.

Subject Mastery and Interpersonal Skills

Warm, open
Learner - centered

Teachers
Interpretational skills

Distant, overly
Structured, aloof,
Rigid, teacher- centered

Low content, vague

Excellent content
Good organization

Poor organization

Teachers
Subject Mastery
KEY OF THE TYPE OF TEACHER

Incompetent   Effective   Very effective
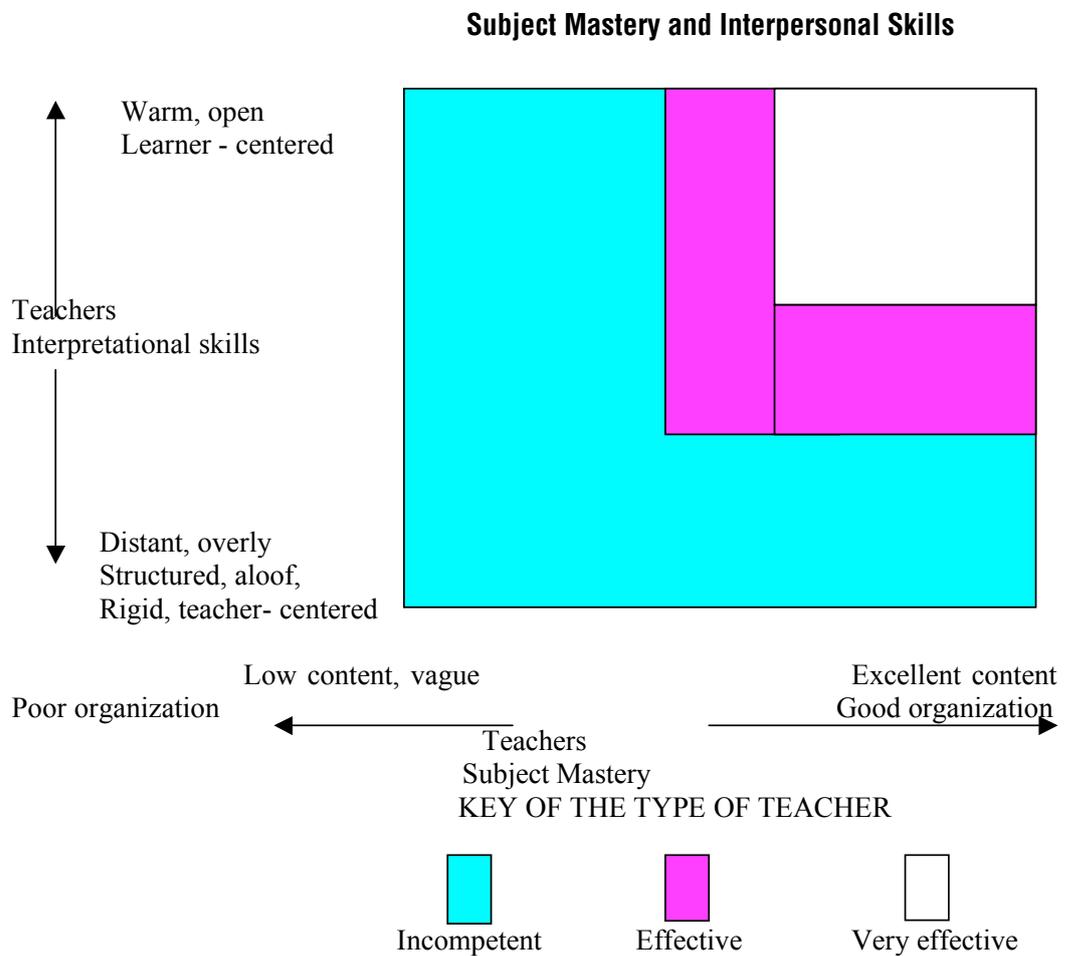
(i.) What does it suggest about an effective teacher, explain in 50-60 words.

(ii). What does it suggest about an incompetent teacher, explain in 50-60 words.

I believe your answer is that an effective teacher's interpersonal skills are warm and open. Their subject mastery is excellent leading to well organized learner centered teaching.

Questioning techniques

Questions play an important role in teaching and learning they are applicable in all teaching approaches and methods discussed above. It is one of the basic and successful ways of stimulating student's thinking and learning

Teachers must ask many questions during a lesson. It is important therefore to develop the skill or technique of questioning. The goal is to be fluent in asking questions.

The types of questions asked and those used in testing are based on the Bloom's Taxonomy

1. knowledge
2. comprehension } Low order cognitive questions
3. application

4. analysis
5. synthesis } High order cognitive questions
6. evaluation

Knowledge

   i.   Recalling facts, i.e. what is the function of the phloem?
   ii. Recalling observations, i.e. what is the color of Iodine?
   iii. Recalling definitions, i.e. What is diffusion? Saponification?

These questions usually have a single correct answer. They ask who? What? Where? When? Recall questions are answered accurately and specifically.

The number knowledge questions asked must be limited to a desirable proportion.

Comprehension Questions

These are designed to make students organize facts they have learned in various ways .i.e.

- Describe what happened in the experiment on photosynthesis.

- Compare the results in experiment A and B

- How do centipedes differ from millipedes

Comprehension questions do not call for information outside the lesson being taught. They test the understanding of the current lesson.

Comprehension questions are important because the learners are required to organize and select facts in order to give and answer.

Application Questions

These questions require the pupils to apply the knowledge acquired. They are required to apply rules, principles, methods, laws and theories.

This is a common way of questioning in science and mathematics

i.e. Explain why there is moisture in exhaled air?

Application questions require a high level of understanding and teachers should help the learners to apply technical terms, concepts, rules and formulas in new situations.

Analysis Questions

The questions will require the student to breakdown into its components like,

- Identification of parts
- Analysis of relationship between parts

The question here requires understanding of the content and structural form of the material. Analysis questions have no single correct answer

The "stem" of an analysis question is recognized by terms such as

- Why
- Now that we have studied this, what can we conclude about…?
- What does this tell us about…?
- What evidence can you find to support…

Analysis questions are very important in experimentation and data interpretation.

Synthesis Questions

Synthesis is the ability to put parts together to form a new whole.

Synthesis answers will require classification of things, learners are encouraged to give answers from a personal approach and it introduces creativity in essay writing and research reports.

Synthesis questions do not have a single correct answer.

The "stem" of a synthesis question would be.

- How can you solve…
- How can you improve no this experiment...
- What will happen if the micro-organisms are removed from an ecosystem?
- What do you predict would happen if pollution occurs in the Nile river

Evaluation Questions

These types of questions Judge the value of materials. They require the opinion of the learner

I.e. do you agree with the Darwin theory of Evolution? Discuss.

The "stem" usually begins with

- Do you agree…?
- Do you believe…?
- What is your opinion...?
- Would it be better…?
- Which do you like...?

This category of questions can be used all the time during a lesson and also in the testing. All levels of questioning should well distributed at any one time during the lesson.

Teacher should increase their frequency of the use of higher order questions in order to improve the student's learning.

Fluency in asking questions

This includes:

- Clarity and coherence
- Pausing and pacing
- Directing and distributing
- Prompting and probing

Clarity and coherence

Questions need to be planned. They should be included in the lesson plan and the expected answers should be written too in the learner's activity column. Use simple language. Ask one question at a time.

Pausing and pacing

Teachers have a tendency of asking more questions than receive answers.

This is due to lack of pausing between questions. Pausing (3 seconds) gives the learners an opportunity to think. One should look for non-verbal clues which tell you whether pupils have an answer i.e. hands are put up, facial expression. Pacing is determining how often to ask the questions.

Directing and distributing

Some pupils are more willing to answer than others therefore the teachers must learn their learners by name so that all the learners are involved during the lesson. Question answering is a time to build self esteem. Questions could be answered by a group if the learners are doing group work, the 'Heads Together' method results in more student –on- task behavior, better test performance and greater satisfaction with instruction.

Directing a question to a learner who is not attentive is a way maintaining class control and disciplining. Redirecting questions helps keep students alert and attentive.

Prompting and probing

This involves building up questions from low level to a higher level order questions. Prompting involves giving hints to help the learners gain confidence in replying. Probing helps the pupils to think deeply and express them selves clearly.

Other things to consider during questions:

- Put the questions to the whole class then pause, and then name the learner to answer thus allowing the whole class to think about the question.
- Avoid asking questions where the answer is merely YES or NO where there is only one alternative.
- Make sure the question is clearly understood by rephrasing it or taking a different approach.
- Do not ignore learner' answers because they are wrong. One can use them to develop further questioning, probing.

- Insist the learner' answers are loud enough so that every member in the class can hear.
- Distribute the questions around the class.

When you learner ask and answer questions

- Create an atmosphere that encourages learners to ask questions
- Repeat the question asked by the learner
- If you think other learner know the answer, use them to answer.
- If the question is irrelevant but asked sincerely, give a short answer or if possible, see the learner afterwards but do not ignore the question
- If you do not have the answer, admit it but give a suggestion of where to find the answer.
- Praise stimulates future effort.
- If the answer is correct use it as the basis of another question to move on to the next step.
- If the answer is not correct, ask the pupils why it's wrong and how it might be improved guide them to answering correctly.
- Do not accept chorus answers.
- Remember long pauses make a long boring lesson ensure the pace is just right.

Learning Tip

There are various teaching methods that teachers can choose from, these are lecture demonstration, practical , project, field work, discussion, simulation role-play E-learning, broadcasting and self-instruction. The teacher's choice largely depends on the objectives, content, nature of the learners and the availability of resources.
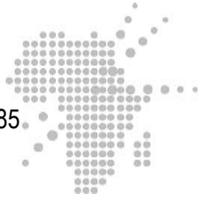
2.5   Classroom Organization

Managing the learning environment is both a major responsibility and an on-going concern for every teacher, even those with years of experience. There are several reasons. In the first place, a lot goes on in classrooms simultaneously, even when students seem to be doing only "one" task together. At any one moment each student needs something different—different information, different hints and different kinds of encouragement. The diversity increases even more if the teacher deliberately assigns multiple activities to different groups or individuals.

Another reason that managing the environment is challenging is because a teacher can never predict everything that will happen in a class. A well-planned lesson may fall flat on its face, or take less time or even a longer time than you expect, and you find yourself improvising to adjust to the class time.

The teacher's responsibility of preparing a room full of children for a bright and successful future is faced with the burden of preparing lessons and tests, satisfying curriculum requirements, marking papers, planning field trips, meeting with parents, and preparing for standardized student testing which could ultimately impact school funding and accreditation, if private. The teacher must ensure that after organizing all this work it is not undone at the delivery level.

Teachers have come up with some ways of preventing management problems in the classroom by increasing students' focus on learning. The methods include the arrangement of classroom space, the establishment of procedures, routines, and rules, and communicating the importance of learning both to students and to parents

Reading # 20

Class room Management and Learning Environment
http://www.saskschools.ca/curr_content/adapthandbook/envir/classrm.html

Read the article above and answer the following questions:

a.   Explain in 300-400 words how you can create learning environ-
ments that enhance   academic achievement and promote appropriate
classroom behavior.
b.   i. Outline the steps the teacher should follow while establishing a disci-
pline plan.

ii. Discuss various ways of dealing with indiscipline in the classroom in
500-600 words

Learning Tip

Classroom organization entails arrangement of the classroom space, the establishment of procedures, routines, and rules, and communicating the importance of learning to learners. Preventing management problems largely depends on the preparedness of the teacher.

2.5.1 THE CLASSROOM ENVIRONMENT

This part of the unit focuses on techniques you can use to arrange the environment so that your learners can act appropriately. These techniques are called: stimulus control, modeling and rules. For each of the three techniques, you will learn what the technique is and when and how to use it. Note these aspects down as you read through the article.

Stimulus Control

This refers to arranging the learning environment so that the group behaves as the teacher intends. One of the techniques of stimulus control is called prompting. Prompting means providing extra cues or instructions so that your students know what behaviour they are asked for. For example, you might use handouts on performing a practical skill when you are demonstrating it in front of your class or a chart or model to explain concepts. The long-run purpose of stimulus control is to get your students to be able to control themselves and make rational decisions.

Modeling

Modeling means acting or being the same as someone else, following the example of someone. Modeling produces effects, for example showing and appropriate response for situation or producing complicated behaviour quickly.

The characteristics of appropriate models are: the model should be someone important to your students and secondly the model should have some type of rein forcers for your students, for instance, the model's similarity to the subject.

When your student models an example of behaviour, praise him or her for the behaviour. One could ask the student to act like a certain judge, policeman, doctor, politician or comedian and so on.

When modeling a kind of behaviour keep in mind the following points: tell your students what to look for, label the demonstration as you model it, and once the behaviour model has been completed ask the students to analyze what they have seen, debrief them.

Rules

One way to stop unwanted behaviour is to state rules that your students should follow. Here are some characteristics of good rules. They should be:

- Stated to the students in behavioural terms with objective criteria.
- Reasonable, thus the student could do what is asked if given the opportunity.
- Enforceable, that is, the teacher has control over the consequences and observation of the act. When students follow the rule they are reinforced positively.
- A rule is enforced by having the student repeating the rule; the student may acquire the habit of following it.
- After following rules and seeing their functions, students learn very fast to make rules of their own and to participate in rule making.

The other aspects of the classroom environment fall under two categories; the Physical Environment and the Psychological Environment

Physical environment comprises of the buildings, indoor facilities, the resources and the people. This physical environment includes:

- Neat and Clean classrooms
- Arrangement of desks must suit the lesson being taught
- Consider learners of various handicaps
- Learners must be neat and tidy
- Classes must get free flow of fresh air/ well ventilated classes.
- Controlled room temperatures.
- Good lighting. Avoid glare on the chalkboards
- Classrooms should have informative bulletin boards.

Psychological environment ensures that the teacher creates a relaxed atmosphere in the class by:

- Encouraging freedom of expression and independence of choice.
- Encouraging individual participation.
- Choosing learner-centered learning techniques
- Motivating learners by reinforcing learners' response and performance during lessons
- Catering for individual differences

Learning Tip

The classroom environment could be:

1. Physical: appropriate buildings, facilities and resources.
2. Psychological: where the teacher creates a relaxing learning environment.
3. Technique: the teacher chooses to arrange the learners so that they can act appropriately using stimulus control, modeling and rules

2.5.2   CLASSROOM COMMUNICATION

Classrooms are different from many other group situations such that classroom communication serves a unique combination of three purposes at once: content, procedures, or behavior control. **Content talk** focuses on what is being learned; it happens when a teacher or student states or asks about an idea or concept or when someone explains or elaborates on some bit of new knowledge. Usually content talk relates in some obvious way to the curriculum or to current learning objectives, as when a teacher teaches secondary school content in a history or biology class. Content talk can also digress from the current learning objectives. A student might unexpectedly bring in new ideas from their own experiences.

Procedural talk, as its name implies, is about administrative rules or routines needed to accomplish tasks in a classroom. Procedural talk provides information that students need to coordinate their activities in what can be a relatively crowded space—the classroom, in a laboratory—and under conditions in which time may be relatively short or tightly scheduled. It generally keeps activities organized and flowing smoothly. Procedural talk is not primarily about removing or correcting unwanted behavior, even though certain administrative procedures might sometimes annoy a particular student, or even though students might sometimes forget to follow a procedure. Instead it is intended to provide the guidance that students need to coordinate with each other and with the teacher.

Control talk is about preventing or correcting misbehaviors when they occur, particularly when the misbehaviors are not because of ignorance of procedures. Control talk is obviously important for managing class effectively.

Another way to understand classroom communication is to distinguish verbal from nonverbal communication, and intended both unintended forms of communication. As the name suggests, verbal communication is a message or information expressed in words, either orally or in writing. Classrooms obviously have lots of verbal communication; it happens every time a teacher explains a bit of content, asks a question, or writes information or instructions on the chalkboard.

Non-verbal communication is any gesture or behavior that conveys information, often simultaneously with spoken words. It happens, for example, when a teacher looks directly at students to emphasize a point or to assert her/his authority, or when the teacher raises her/his eyebrows to convey disapproval or disagreement. Non-verbal communications are just as plentiful as verbal communications, and while they usually add to a current verbal message, they sometimes can also contradict it.

Reading # 8

Classroom Communication

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_12:_The_Nature_of_Classroom_Communication/Communication_in_Class_vs._Elsewhere

Read the article above and focus on non-verbal and unintended communication to answer the questions below. Also refer to your unit on communication for more information and apply it in this module on teaching methodology.

i)   Enumerate examples of non- verbal communication and unintended communication and explain what each of them implies in 100-150 words.

Reading # 9

Classroom Talk to Stimulate Thinking.

http://en.wikibooks.org/wiki/Contemporary_Educational_Psychology/Chapter_12:_The_Nature_of_Classroom_Communication/Classroom_Talk_to_Stimulate_Thinking

Read the article above on classroom talk to stimulate thinking pay attention to the questioning technique to answer the question below.

i)   Discuss how class room communication can stimulate the learners thinking in 300- 350 words.

Learning Tip

Classroom communication can be verbal or non-verbal. Classroom talk is a combination of three purposes at once content, procedure and behaviour control. It is also important in stimulating the learner's thinking by asking probing questions, articulating ideas and problem solving.

2.5.3 CLASSROOM DISCIPLINE

Discipline refers to controlled behaviour. It is the ability to get attention when you need it. There is often quiet and purposeful talking in a well disciplined classroom.

Dealing with disruptive behavior is one of the most stressful aspects of teaching.

The disciplinary tone you set in your classroom over the first couple of weeks may determine how your room operates or fails to operate for the rest of the year. Your handling of discipline is noted not only by the student in question, but an audience of peers, who may gauge how far you can be pushed based on your handling of an incident. You should strive to have a very even-tempered, firm delivery of your requests, and proceed with ordered steps of increasing consequence for continued non-compliance.

However, even if the responsibility of redirecting students and giving them consequences lies at your feet, while the job of finding out the underlying causes go to someone else, it is urgent that the process return back to you in a complete circle.

i) Find out from two neighboring schools the following issues about indiscipline.

   - Identify the indiscipline problems that occur in their classrooms by interviewing a teacher/s from the school and student/s by asking them what they are usually punished for. During the interview ask them to suggest ways of curbing indiscipline. Describe these findings in 250-300 words.

   - Do the indiscipline problems arise from the pupils, teachers, parents, administration or the community? Categorize them and explain why you chose those categories. Peer review your findings with colleagues to get a wide scope of disciplinary problems and the approaches used to curb indiscipline.

   - Do the schools have similar indiscipline problems? Comment in 100-150 words.

Reading # 10

Classroom Behaviour and Management
file:///E:/Classroom_Behavior_Management.htm

Read the above article on classroom behaviour and identify the causes of the classroom indiscipline, categorize them as follows. Use 50-70 words for each.

1. Society
2. School
3. Learners
4. Teachers
5. Parents

Teachers you have noted can contribute to disruptive behaviour in classrooms. The secret of discipline control is learning how to prevent discipline problems in the first place. Suggest twelve ways of preventing indiscipline in the classroom in 200-250 words. Refer to the article above.

What are the modern ways of dealing with disruptive behaviour? Explain in 200-300 words. Refer to the article in the link indicated above

Learning Tip

The best discipline control is to prevent discipline problems in the first place.

Learning activity # 3

Title: PLANNING FOR TEACHING AND LEARNING

Specific Objectives

At the end of the activity, you should be able to:

i) Prepare a scheme of work using the syllabus.
ii) Prepare a lesson plan.
iii) Select the content, resources to be used in the preparation of schemes and lesson plans in order to suit the student characteristics;
iv) Prepare and teach a micro-teaching lesson.

Summary of the learning activity

In this activity, I have provided information on what a syllabus is and its use. The outline of preparing a scheme of work and the lesson plan format has also been provided. The preparation of both is guided by the selection of content, resources and teaching aids, methods of instruction all geared to suit the student's characteristics. In this activity, you **will be required to have a copy of the syllabus and textbooks of your elective subjects**. They will be used as references in scheming and lesson planning activities, microteaching will be carried out face to face with your trainer.

This unit is organized as follows

3.1   SYLLABUS
3.2   SCHEME OF WORK
3.3   LESSON PLAN
3.4   MICROTEACHING

Key concepts

- Use of the syllabus
- Preparation of schemes of work
- Preparation of lesson plans
- Microteaching aspects

Key Words

1. **Learning Objectives**: The behaviour expected of a learner after instruction.
2. **Lesson**: A structured period of time where learning is intended to occur.
3. **Pedagogy**: Is the art or science of being a teacher or teaching methodology.
4. **Syllabus**: Is a document with an outlined and summary of topics to be covered in a course.
5. **Lesson Plan**: It is a teacher's detailed description of the course of instruction for an individual lesson.
6. **Scheme of Work:** Systematic arrangement in outline form of all topics in a subject indicating them to be taught, objectives to be achieved, teaching learning activities, learning resources required and the source of information or references.

Compulsory Readings

Reading # 11   Syllabus
file:///E:/Syllabus%20-%20Wikipedia,%20the%20free%20encyclopedia.htm

Reading # 12   How we plan lessons and why it is important
http://en.wikibooks.org/wiki/Social_and_Cultural_Foundations_of_American_Education/Chapter_10/How_do_we_plan_lessons%2C_and_why_is_it_important%3F_3"

Reading # 13   lesson plan
http://en.wikipedia.org/wiki/Lesson_plan

Introduction to the Content

Planning for teaching

Planning offers the teacher a chance to organize and direct all the teaching effort towards producing an effective lesson. An effective lesson ensures that important aspects of the content are taught using appropriate teaching methods, teaching aids and resources while taking into consideration the learners characteristics. Planning is the process of formulating and organizing methods by which an activity is carried out. The design chosen in any planning activity should be should be systematic.

Planning allows you to foresee areas which require input before the lesson, i.e. require longer preparation, and obtain resources in advance and the subject matter that is not clear so that you can consult. Good planning will enables you to face the class with confidence and it contributes to effective class control. For this activity you MUST get a secondary school syllabus and reference books of your elective teaching subjects at least of the lower classes i.e. form one and two. These references will be used for the preparation or reference of the following:

- Syllabus
- Schemes of work
- Lesson plans
- Resources, teaching aids
- Facilities
- Learning activities, suggested practical, excursions and so on.

We will begin by looking at the syllabus you will require the syllabus of your elective subjects for these activities.

N.B ALL THE WORK IN THIS ACTIVITY # 3 MUST BE SENT TO YOUR TUTOR FOR ASSESSMENT IT WILL CONTRIBUTE TO THE CONTINOUS ASSESSMENT GRADE.

3.1 SYLLABUS

READING# 11

Read the article of the syllabus provided and also go through the syllabi of your elective teaching subjects.

1. Syllabus.
   file:///E:/Syllabus%20-%20Wikipedia,%20the%20free%20encyclopedia.htm

A syllabus is an outline of the topics to be covered and each subject has its own syllabus. A syllabus outlines the content to be taught to different classes, the depth, suggested activities the mode of formative evaluation and the general objectives of each topic. During this activity study the reading on the syllabus and answer this question.

i) What are the purposes of a syllabus according to the reading above? Outline them in 100-150 words.

The syllabus serves many purposes for the students and the teacher the main ones are providing a roadmap of course organization, direction, materials to be covered and the resources needed.

With reference to the syllabus of both of your elective subjects study the general objectives of teaching your subjects. Note down at least seven of each.

Elective subject 1 name--------------- Elective subject 2 name--------------------

Have noticed that the main words used to describe the general objectives of teaching the subjects are:

- **Communication** of the information in precise clear and logical manner,
- **solve** problems
- **design experiments,**
- **apply** knowledge,
- **develop** positive attitude,
- **demonstrate**,
- **create** awareness,
- **construct** and
- **Acquire** skills of the subject matter.

iii) Go back to the syllabus of both subjects this time study the secondary school form one syllabus of both subjects and fill the table below.

SUBJECTS---

FORM AND TERM	TOPIC TO COVERED	TIME ALLOCATED TO TOPIC	GENERAL OBJECTIVES OF THE TOPIC	LEARNING RESOURCES REQUIRED FOR THE TOPIC: LIST THEM DOWN

This activity has helped you determine the topics you are to cover in a given period. It also suggests the time allotted the depth to which you should cover each unit and the resources required for each topic. You can do the same for any of your elective teaching subject. This information will be required in the next activity in the preparation of the scheme of work.

We will now use the syllabus to guide you in the preparation of a scheme of work. This exercise has given you an overview of the content, general objectives of teaching each topic and a guide of the learning resources required. At the very end a syllabus also outlines the mode of evaluation. What is the mode of evaluating each of your elective subjects?

3.2   SCHEME OF WORK.

A scheme of work is a plan made by the teachers. It enables them to implement a syllabus as required by the Ministry of Education. It is intended to help you project your teaching activities for the term or the year. Before you prepare a scheme of work the following information and resources must be gathered.

- Number of lessons per week for each of the subjects.
- Time allocated for lessons 40 or 35 minutes or 1 hour.
- Duration of the lessons, single or double lessons.
- Length of the term 10, 12 or 14 weeks
- Facilities available i.e. classroom or laboratory for sciences
- Size of the class
- Classes you will teach Form 1,2,3 or 4
- Previous topic taught
- Record of work
- Term dates i.e. end of term, half term, sports day, public holidays, exams,
- Resources i.e. reference books at least 4 different ones, teaching aids, ensure laboratories have resources needed for practical lessons
- Availability of resources
- Provision for field trips, excursions

N.B For the sake of practice inquires about the information above from a neighboring secondary school or make up the details where applicable.

A standard scheme of work should have the following essential components: week/date, lesson, topic, sub-topic, Specific learning objectives. Teaching /Learning activities, Learning resources, references and remarks. You need to find out how your country's format is like and adjust accordingly. Prepare a <u>four week</u> scheme of work for each one of your teaching subjects for FORM ONE TERM ONE.

SUBJECT --------------------------------- CLASS -------- TERM ---------------- YEAR. -------------

NUMBER OF LESSONS PER WEEK --- DURATION OF LESSONS------------------------

NAME OF SCHOOL-------------- NAME OF THE TEACHER----------

PREVIOUS TOPIC TAUGHT---

Week/ dates	Lesson	Topic	Sub-topic	Specific Learning Objectives	Teaching/ learning Activities	Resources Teaching Aids	References	Remarks
1 14-18 November,	1 2 3&4 NUMBER VARIES AS PER SUBJECT	Obtain from the syllabus	Your own to indicate what will be taught TITLE SHOULD BE SHORT AND PRECISE	AT THE END OF THE LESSON THE LEARNER SHOULD BE ABLE TO: i) ii) iii)	-Teacher activities could be Discussion, write notes, draw illustrations, use a teaching aid, demonstrate Supervise, question -learner activities could be Discussion, answer Q's, set up experiments, draw, record, observe, measure, write down in books, carryout experiments ENSURE THAT THE LESSONS ARE LEARNER-CENTRED	Equipment, materials, apparatus, charts models YOU CAN IMPROVISE BE INNOVATIVE	minimum Two refs. Books of the subject Pages referred to must be included	Used after the lesson to evaluate it COMMENT AFTER EVERY LESSON

N.B. You will be required to give your trainer your scheme of work to guide you. However, consider the following HINTS and cross check your own scheme. Does your scheme of work?

- Show logical presentation of the topics guided by the syllabus
- Consider the level of the learners
- Consider the lesson is neither under or over schemed

- Consider the objectives are SMART that is specific, measurable, achievable, realistic and time bound
- Have the teaching/learning activities for all lessons
- Have objectives that fall under all the domains of educational activities cognitive affective and psychomotor
- Have a variety of teaching methods.
- Progression of the content is evident
- Considered all the term dates
- Have all the resources required for each lesson.
- Have more than two reference books for reference during preparation

Once the scheme of work is completed the next aspect of planning is the preparation of lesson plans. The scheme of work becomes the guide line for lesson planning. Schemes of work that you prepared for this section should be assessed by your tutor.

3.3 LESSON PLAN

A lesson plan is a design which shows how the elements of the lesson are systematically organized and sequenced for presented over a period of time. Lesson plans should be detailed enough to guide your teaching. As a teacher you must have a lesson plan for every lesson. There are different types of lesson plans a theory, a practical, a quiz, a revision, a field or excursion. According to the list lesson plans should be tailor made to suit the lesson. However, what constitutes a good lesson plan varies in the minds of educators.

Reading # 12

How we plan lessons and why it is important
http://en.wikibooks.org/wiki/ social and cultural foundations.

i) Read the article above and explain in 200-250 words why lesson planning is critical to good teaching.

ii) Distinguish between performance and enabling objectives in 30-40 words.

During these reading you noted that teachers need to choose learning opportunities which are developmental and those that cater for individual differences (Lyons). This is because students differ in many ways their interests, abilities, and background information. Teachers need a variety of activities as they develop the lesson in order to meet the needs of all learners.

Reading # 13

Lesson Plans

file:///E:/Lesson%20-%20Wikipedia,%20the%20free%20encyclopedia.htm

Elements of A Lesson Plan

Use the lesson plan guide instructions from these readings to write short notes in 10-15 words on each of the elements of a lesson plan listed below.

- Subject
- Class
- Date
- Topic
- Time of the lesson
- Sub-topic
- Objectives of the lessons
- Resources
- References
- Timing of the stages
- Introduction
- Stages of development
- Conclusion
- Assignment
- Self evaluation

Prepare a complete lesson plan of any 40 minute lesson of your choice from the scheme of work you prepared earlier. Using the elements listed above and the lesson plan format provided. Read the notes below this format and develop the lesson plan step by step.

NB. A SAMPLE LESSON PLAN HAS BEEN DONE IN ITALICS.

LESSON PLAN FORMAT

SUBJECT------BIOLOGY----------------------------------   CLASS-------

FORM ONE------------------------------

DATE 12.O4.07------------------------------------TIME 8.00-8.40----------------

TOPIC----CELL PHYSIOLOGY---

SUB-TOPIC---OSMOSIS--

OBJECTIVES

By the end of the lesson the learner should be able to;

1. Describe osmosis
2. Explain how the process of osmosis takes place.
3. Describe the effect of osmosis on living tissues

RESOURCES: Potato tubers cylinders, razor blade, salt solution, distilled water, Petri dishes, ruler, absorbent   tissue. A chart: illustrating osmosis.

REFERENCES

LESSON ORGANIZATION	CONTENT	TEACHING/LEARNING ACTIVITY
INTRODUCTION (5 minutes)	Different ways of introducing a lesson i.e Review the previous lesson by asking questions. • State the need for movement of substances. • What is diffusion?	Question /Answer POSSIBLE ANSWERS from the learners Expected answers: to transport nutrients, remove waste products Diffusion is the movement of molecules from a high to a low concentration until equilibrium is reached.
DEVELOPMENT STEP 1. (5 minutes)	• Describe osmosis as movement of water molecules from a low concentrated solution to a high concentrated solution through a semi-permeable membrane • Explain that it takes place in living tissues only.	Teacher organises the learners into groups and guides the learners Teacher illustrates osmosis using a chart. The learners set up the experiment on osmosis using the procedure below • Cut the potato cylinder into 2 cm pieces • Place 4 pieces in each of the solutions provided salty and distilled • Observe after 10 minutes • Draw the set up and Record observation
STEP 2. (15 minutes)	Explain the procedure of the experiment on osmosis.	Teacher supervises the activity and guides the learners Learner writes down the procedure and also measure the potato cylinders after 10 minutes. Learners draw their own conclusions.
STEP 3. (5 minutes)	Explains the results of why cylinder in the salt was shorter and flaccid; cylinder in water was longer and turgid. Inform learners the effect of osmosis in cells	Learners report their findings as they discuss and record the group findings Learners take down notes

CONCLUSION (5 minutes)	Recap of the lesson through question/answer technique: 1.Define osmosis 2. What are its effects on living tissues 3. When do the cells loose and gain water?	Teacher asks the learners questions to consolidate the lesson 1. The process of osmosis water movement from a low concentrated solution to a high concentrated on through o semi permeable membrane Expected answers: 2. Helps cells in living tissues to loose or gain water. 3. Cells loose water when surrounding concentration is higher than the cell's and gain when it has a lower concentration. than the cell.
ASSIGNMENT (2 minutes) TITLE; Look up the terms hypotonic, hypertonic and isotonic in relation to osmosis REF .Soper, R. and Smith, T.S., Biology for East Africa,(An Integrated Approach),(1986)London: Macmillan Ltd. Pages 15-17 SELF EVALUATION ; done by the teacher after teaching the lesson		

CAUTION: **Note lesson notes are not lesson plans.** Lesson notes are prepared separately

Before writing a lesson plan of your own read through the following section on elements of a lesson plan. The section will guide you on what is expected in every stage of lesson planning. Use it to write your lesson plan in stages as you read through. Remember you can also go back to the format above and the compulsory readings on lesson plan in order to write a comprehensive lesson plan.

GUIDE ON ELEMENTS OF A LESSON PLAN

Time

- Prepare a 40 minute lesson plan.

Topic

- The topic comes from the syllabus. Write down the topic you have chosen.

Sub-Topic

- The sub-topic reflects the content the teacher intends to teach
- Sub- topics should be short and precise
- They imply the depth of the lesson

Write down the sub-topic you have chosen to be covered in a 40 minute lesson.

Objectives

- When writing the objectives they should be consistent with the overall topic objectives
- They should build upon the previous lessons in order to have continuity
- They should be S.M.A.R.T specific, measurable, achievable reliable and time bound.
- They should be behavioural use a verb to describe the intended outcome.
- They should cover at least two learning domains
- Each lesson should have at least 2-3 objectives

Write down 3 objectives for this lesson.

Resources

- Give a complete list of resources required
- Cross check to ensure they are available
- Be creative and improvise when the actual resources are not available
- Try out experiments before the lessons to ensure they work
- Prepare the practical set ups before the lesson during the actual teaching
- Art and music classes set up materials, instruments needed for the lesson
- Prepare teaching aids in advance.
- Prepare the reference notes well in advance

Go through the syllabus and reference books on the content you have chosen and list down the resources you need. For the teaching aid, write down the title.

References

- You should refer to more than one text book so as to provide dependable details as you prepare for lessons
- Use the A.P.A system to write down the titles of reference books
- For assignments give the learners references they can easily access and the pages to refer to.
- Read widely on your subject matter from texts or internet.
- Indicate the pages of the content you are teaching.

Introduction

An introduction assists the learner to do the following:

- To bridge the gap between the old and the new learning.
- To focus his consciousness on the task, materials media they need to observe
- To acquire new learning
- To anticipate gains during the learning

Below is an outline of various ways of introducing lessons.

A. Linking Techniques: to bridge between the old and the new learning. This can be done by:

- Reviewing previous lessons content so as to invoke the recall of relevant skills or Concepts learned before
- Asking pupils to recall relevant events from their own experience
- Relating the new topic to its place in a theme or a broader topic being developed in a series of lessons.

B. Focusing attention Techniques

- Posing a problem or a question which will serve as a focal point for discussion.
- Calling upon pupils to observe charts, maps specimens, listen to recordings that highlight significant aspects of the lesson's task.

C. Presentations

- Presenting short dramatic skits, Sketches, film, slides that emphasize on things to be observed.
- Animation of voice, movement gestures to stimulate and inspire pupils.
- Use of audio visual media to arouse attention

D. Imparting motivational qualities

- Presenting a situation which is challenging, puzzling, a discovery that is appealing and arouses curiosity.
- Giving learners information about values of the particular outcomes of the lesson to them.

Choose one of the introductory techniques for your lesson. It could take 4-5 minutes.

Stages of Lesson Development

- Identify the number of steps
- Time each of the steps.
- A new concept could be used indicate new a step. Outline the major concepts to be covered for each lesson
- The lesson should be broken down into manageable steps which correlate with the objectives stated.
- Refer to the text to ensure the content is accurate
- Sequence the content follow a logical sequence from start to the end, from simple to complex.
- In the activities list down a sample of the questions you intend to ask the learners
- Include the motivational techniques you plan to use during the lesson
- Plan learner- centered activities
- Vary the activities, combine observing, listening, reading, note taking questioning, practical skills
- Plan the time spent on each activities in each step to avoid over and under planning

Develop this lesson in 3 steps. The lesson development should take 30 minutes

Conclusion

In the final stages of a learning episode, the acquisitions of new learning, their retention and potentialities for transfer are facilitated when the learner is assisted during the conclusion to:

- To integrate new learning with old, this is the process of assimilation.
- To confirm the learners initial expectations self satisfaction, the reinforcement of learning
- To apply the response to new learning in different types of situations, the verification of new learning.
- To amass learning.
- To determine whether they have learned the new material
- To evaluate the learning.

In concluding a lesson there are various types of concluding techniques:

A.   Unifying the lesson to promote integration

- Summarizing by repeating in sequence all the main points or concepts in a motivating way.
- Asking learners to state the main concepts learnt during the lesson as the teacher records them.

B.   Evaluating the success of the lesson

- Calling attention to what has been learnt by questioning. What have we learnt in this lesson?
- Giving a short test or exercise on what has been learnt and providing the answers and results

C.   Providing for consolidation to ensure sustained interest and application

- Giving assignments which enable learners to apply their learning to similar or different types of problems or exercises.
- Mentioning the relevance of the lesson to future accomplishments planned for the learners.

Write down a conclusion for your lesson it should take 3 minutes. Ensure the conclusion has evaluated the objectives you wrote for this lesson.

Assignments

- They should be carefully planned to meet a specific purpose
- They are planned to offer further practice in a skill just taught,
- To improve proficiency
- To prepare learners for the next lesson, field trip, excursion

Write down an appropriate assignment. Give learners a title of the reference book to refer to including the pages to find the content in question. You should take 2 minutes to give the assignment.

Self Evaluation

This is done by a teacher after every lesson taught its purpose is for you to:

- Review the lesson and evaluate your effectiveness
- To find out whether all the objectives were achieved
- Finding ways of improving in areas you have a weakness in they could be over planning , under planning, class control, communication, subject matter mastery, practical procedure, voice projection and so on.

- To try and discover better ways of teaching the next lesson
- For decision making, does the teacher need to repeat the lesson, use a different approaching the future

Go through your lesson and ensure you have incorporated all these aspects.

Prepare another lesson plan this time from your other teaching subject. You will have a chance to use the lesson plans that you have prepared though it will be scaled down lessons in our next area of discussion which is microteaching.

Learning Tip

Lesson planning gets better with practice, the more you lesson plan the better you get and the easier the teaching gets. A good lesson plan also increases confidence during teaching. All lessons must be planned for following the scheme of work. The schemes of work remember are derived from the syllabus.

3.4   MICROTEACHING

Microteaching is a scaled down teaching encounter. Microteaching provides the teacher trainee with an opportunity and methodology to implement competency-based teacher training

Microteaching provides you a chance to concentrate on specific teaching- learning behaviour and to practice the art of teaching under controlled conditions. The micro-teaching mainly exposes you to a varied range of practical experiences by assisting you to:

1. Learn competent skills in order to implement effective teaching learning strategies
2. Plan and use behavioural strategies for specific lessons
3. Develop your capacity for self evaluation and self instruction in the learning and use of effective teaching pedagogies.

Its basic elements are you as the teacher, the peer group of 5-10 student- teachers, a short lesson plan lasting 5-10 minutes, predetermined objectives, a trainer to observe you as you teach, a video recorded session taken of you teaching for feedback purposes and a classroom facility

Your Micro-teaching Task

At this point of the planning process for teaching you are almost half way in planning for your micro-lesson.

- Choose a suitable topic from your teaching subject and plan a 10 minute lesson. 2 minutes introduction 7 minutes lesson development and 1 minute to conclude.
- Follow the lesson plan format.
- Study the techniques used in introduction, teaching methods and concluding techniques and choose appropriate ones for this micro-lesson
- Plan to teach only one concept of the sub-topic you choose to avoid over planning
- Prepare your lesson plan in triplicate one for you to use during the lesson and the others for the supervisors just in case you have more than one.
- Prepare a teaching aid or resources suitable for the lesson you choose
- View the micro-teaching facility before hand and organize the class room set up to suit your lesson

- Ensure you have writing material chalk, duster, blackboard ruler, pointer etc
- Prepare notes for the lesson.
- Teach the lesson, evaluate it, comment on it and follow up in order to improve your self.

Your primary responsibility as a class room teacher is to guide the learning activities of the learners. As a teacher you will occupy the role of a leader and you will be interacting with the students as individuals or as a group. In the process of interacting you will influence the learners.

Guided by your own experiences how did your teachers influence who you are today? Explain in 20-30 words

You have probably summarized their influence on you as either positive or negative. What type of influence do you want to have on your learners?

As you interact with learners your influence on them falls under these three categories;

- Sometimes intentional with planned behaviour
- Sometimes consciously without planning
- Very often unaware of your behaviour and the effect it has on the learning process.

As you prepare to teach a microteaching lesson you will put into practice all you learned in activity 1-3 especially the skills on classroom interaction. As a teacher your influence should be intentional with planned behaviour. In the end you should be asking yourself 'did I teach what I set out to teach'

Teaching a Micro - lesson

During the microteaching lessons pay attention to the following during classroom interaction as a student teacher or trainee.

Learner Participation

- Provide the learners with opportunities to participate by calling upon them to explain what is happening during a demonstration, through questioning, taking down notes, interpreting data labeling of diagrams
- Allow students to express their views, to discover things for themselves
- Allow the learners to communicate with each other to encourage peer learning by letting them react to each others answers.
- Plan to use group work and organize them efficiently

Activities

- Organize a variety of learning activities by choosing teaching methodologies that will enable you to achieve the objectives you set out
- Use practical, demonstration, discussion, role play, brainstorming, modeling debate etc to practice during micro lessons. It is possible to use at least 2-3 during your 10 minute lesson if you plan carefully.
- Maintain a task- oriented atmosphere in the class

Questioning technique

- Use a variety of effective questioning
- Use discussion generating questions
- Prompt and probe the learners to assist them in answering hard questions
- Direct questions to individuals by name to ensure you are involving all of them and discovering their individual differences
- Avoid chorus answers
- Use the questioning technique to get feedback of the learners understanding

Reinforcement

- Praise correct answers, good questions or good efforts with a good well done excellent etc.
- You could also use non- verbal communication i.e. gestures. Facial expression
- Rewards

Language

- Use clear language and vocabulary to the level of your students
- Use clear diction, vary your tone , stress where appropriate
- Use gesture, postures. Movement and facial expression with a combination of language
- Encourage the students to use language correctly both spoken and written
- Correct grammar and spelling on the blackboard

Resources

- Handle equipment apparatus and materials correctly and with confidence
- Choose or design useful aids and use them effectively
- Use the chalkboard to develop notes .etc.
- Organize the chalkboard, legible handwriting ,well placed, neat

Content

- Show mastery of the content being taught
- Add value during delivery of the lesson, give examples of how to apply the concepts to daily life

Class control

- Encourage formal and informal interaction among learners to create a conducive learning environment
- Deal with indiscipline problems with a patience and firmness
- Encourage a sense of responsibility in the learners for their own learning and for group learning

A Teacher Trainee Appraisal Guide

The microteaching sessions are carefully and deliberately planned to facilitate a climate of acceptance and support. You should be free to judge you're own and your peer's behaviour objectively and honestly without fears of threats and recriminations.

Assess each of your micro teaching lessons using the guide below and rate yourself using the five-point scale as follows. This guide could also be used to score your own or your peer's microteaching lessons.

Use the following grading

WEAK 1: Below Average 2: Average 3: Strong 4: Excellent: 5

NO.	QUALITY	SCORE
1.	**Objectives:** Are the aims of the lesson clear appropriate for the lesson ,clearly stated, Achievable within the time specified, to the level of the class?	
2.	**Selection of content**: Is the content appropriate, relevant to the objectives and to the level of the learners?	
3.	**Preparation of the lesson:** Is it well prepared, complete, sequential and all the requirements/resources assembled?	

4.	**Preparation of experimental work/practical sessions:** Has the trainee organized the practical, grouped the learners, and assembled the resources in the work stations?	
5.	**Introduction of the lesson:** Do all the learners come quickly to attention, themselves to the task of the lesson, and are they motivated?	
6.	**Clarity of the presentation:** Does the teacher have a good grasp of the lesson content, is it understood by the learners? Teach to the level of the learners? add value to the learners?	
7.	**Use of the teaching aids:** Is the teaching aid suitable, well illustrated, and appropriately used? Can all the learners view it? enough resources?	
8.	**Chalkboard or whiteboard work:** Is the teachers work clearly organized, are the notes well developed and the handwriting legible?	
9.	**Teaching techniques:** Has the teacher integrated various techniques to maximize on the learning i.e. practical, discussion, group work	
10.	**Questioning technique:** Does the teacher have good questioning technique? Well phrased, ability to rephrase, do the questions test the three domains? Are the questions well distributed during the lesson?	

NO	QUALITY	SCORE
11.	**Learners responses:** Are all the pupils involved during the lesson? Does the teacher deal effectively with the right and wrong answers?	
12	**Learner activities:** Are the learners involved in a range of activities, does the teacher involve them in demonstrations, note taking, discussion, practical, answering and asking questions? LESSONS MUST ALWAYS BE LEARNER-CENTERED.	
13.	**Motivation:** Is the learner level of interest kept high, are they attentive and interested throughout?	
14.	**Reinforcement:** Are the learners responses reinforced with a good excellent when applicable?	
15.	**Speech:** Is the teacher's voice audible, clear, and varied in tone? Does the teacher have good mastery of content?	
16.	**Pacing of the lesson:** Does the teacher stay with the class and adjust the tempo accordingly?	
17.	**Class control:** Does the teacher have good class control, exercise discipline, moderate?	
18.	**Teacher- learner interaction:** Does the teacher have a good rapport with the learners, friendly and harmonious? Does the teacher maintain eye contact, face the learners, and include all of them during the lesson?	
19.	**Evaluation:** Does the teacher device and use an adequate variety of procedures to evaluate the progress in class? Questioning? Exercises? Test their skills?	
20.	**Professional attitude:** Does the teacher concerned behave in a professional way towards learners, the administration and other staff? Respectably dressed? Cultured language	
21.	**Concluding the lesson:** Did the teacher review the lesson, test whether the objectives were achieved?	
22.	TOTAL SCORE	

USE THIS GUIDE FOR ALL YOUR MICRO-TEACHING SESSIONS. HAVE YOU IMPROVED ON YOUR WEAK AREAS? YOU SHOULD TEACH AT LEAST TWICE FOR EACH OF YOUR ELECTIVE SUBJECTS.

Learning activity # 4

Title: ASSESSMENT AND EVALUATION

Specific Objectives

(i)   Define the terms, tests, measurement, assessment and evaluation
(ii) Describe the various types of tests, their limitations and strengths
(iii) Describe ways of grading and recording of the results
(iv) Explain the different categories of evaluation and their application in teaching and learning.

Summary of learning activity

In this activity I have started by defining tests, assessment and evaluation. I have also described the various types of tests, their limitations and strengths and the properties of a "good" test. The different ways of grading and recording the results from assessments has been explained as well as the categories of evaluation. Lastly, the application of assessment and evaluation in teaching and learning has been discussed.

The activity is organized as follows:

4.1   Assessment
4.2   Kinds of tests
4.3   Formulating tests
4.4   Grading and Reporting
4.5   Evaluation

Key concepts

Formulating test instruments
The different types of test items
Grading and recording
Evaluating the teaching and the learning

Key words

1. **Assessment:** is a process of gaining information about students' learning and making value judgments about their progress.
2. **Evaluation**: To calculate or judge the value or degree of.
3. **Formative evaluation (internal):** is a method of judging the worth of a program while the program activities are forming (in progress). The focus is on the process.
4. **Measurement:**
5. **Reliability**: That which may be trusted and is dependable.
6. **Standardized Tests:** Compares the performance of every individual subject with the norm or criterion.
7. **Summative evaluation (external**): is a method of judging the worth of a program at the end of the program activities (summation). The focus is on the outcome.
8. **Test or Test item:** assessment administered on paper intended to measure the learners knowledge, skills, aptitude of the content learnt
9. **Validity**: measures what it is supposed to measure.

List of Compulsory Reading

Principles of Effective Assessment
http://en.wikibooks.org/wiki/ socialandculturalfoundations . Date 16/11/07

Main Principles of Assessment.
http://en.wikibooks.org/wiki /socialandculturalfoundation Date 16/11/07.
Teacher-made Assessment strategies/

Grading and reporting
 http://en.wikibooks.org/wiki/contemporaryEducationalpsychology.

Instructional Systems Design.
http://www.nwlink.com/~donclark/hrd/sat3.html
Focus on: Develop Tests.

Evaluation Phases
HTML Document

List of relevant useful links

> Bloom's Taxonomy of Academic Behaviors
> http://www.west.asu.edu/westvu/spe311/blooms.html

This web page offers a nicely formatted list of key words and assessment formats that can be used to measure performance at the various levels of Bloom's Taxonomy.

Introduction to Content

Every thing related to the teaching and learning that has been covered in the previous activities can be assessed and evaluated. That is: the objectives, scope of the content, quality of the teaching, learners, learning process, the equipment and materials used. Assessment is the presentation of a standard set of questions through which you obtain a measure. Evaluation on the other hand is a continuous process of collecting and interpreting information in order to assess outcomes, in this case of teaching and learning.

Assessment and Evaluation

Read through this passage and note down: why teaching and assessment are complementary?

For effective assessment and evaluation of learners, we need to observe the upward, downward or steady (constant) trend in their performance.

These are pointers to the behavioural change in the learners. Whatever change is evident, will be a guide to what measures should be undertaken or adopted. The measures adopted should enhance the teaching/learning process.

The assessment tools used should be able to illustrate the change in the learner. This involves the educational measurements, which deals with techniques and strategies for evaluating how successful the educational process has been. It provides a valuable feedback to the educator because it answers the questions:

- Are we getting the results we are expecting? If the answer is "Yes" then the teacher can be pleased with a job well done.
- If the answer is "No" it means he/she has to find out why and try to remedy the situation.

Teaching and measuring are looked upon as complementary activities for both the teacher and the learner. No matter how efficient the teacher, how intelligent

the learners, how adequate the audio-visual equipment, if no provision is made for some evaluation of progress, the teaching effort may be completely invalidated. Too often in schools and colleges, teachers are unwilling to test and evaluate because of extra work it presents.

On the other hand, learners are scared of being tested. Some teachers dispense with tests as a means of achieving popularity with learners. Often by the end of the year, without tests, the teacher and the learners have drifted from one topic to another and neither the teacher nor the learners can tell what has been achieved except that one year of classroom activities came to an end To avoid such a situation, the relationship between objectives of education, the content and techniques used to achieve these objectives and process of evaluating the outcome of the educational endeavor should be adopted.

Course Objective

Evaluation of Course ⟶ Content and Techniques
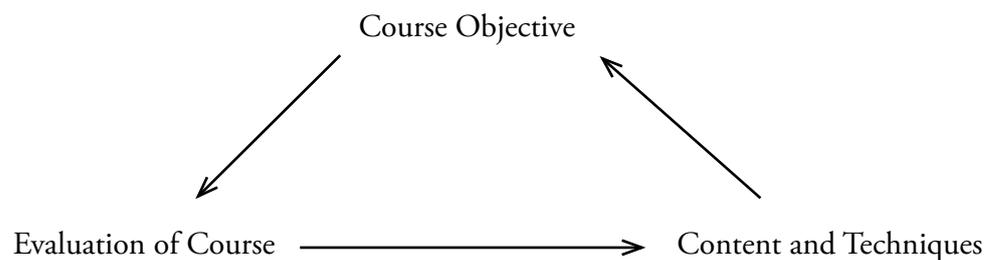
Each of the elements in the triangle influences the other two and is in turn influenced by them. In any valid teaching/learning situation; these three elements must be present. Objectives in education are worthless without the content and techniques for achieving them and without methods of determining whether or not they have been achieved.

Therefore teaching and measuring are looked upon as complementary activities for the teacher and the learner.

4.1   ASSESSMENT

PURPOSE OF ASSESSMENT

Why is assessment necessary? As you read through the passage identify several purposes of assessment and also note down the wrong reasons for assessing.

Few people, particularly those on the receiving end, enjoy the process. To determine the worth of something, we need to evaluate it. We need to find a method against which to judge the information we require worth of circular, teaching methods etc.

It is by analysis of the assessment results that we can make informed decisions. To put it as simply as possible, the purpose of assessment is to measure, in the most reliable way, how far the educational objectives of the course are being attained. There are many reasons for this exercise: First, if there are objectives in mind, it is not possible to make progress in teaching unless there is some way of measuring the extent to which the objectives are attained. So the prime purpose of assessment is to provide information about present attainment to guide teaching and learning in the future, in other words, assessment can be an instrument for educational progress. Thus assessment:

- Motivates learners to study.
- Determines the learners' special abilities
- Provides information on individual students experience and achievement.
- Identifies what students know, understands.
- Provides information to guide future learning.

These functions are positive and beneficial to the educational process. However, there are negative uses to which assessment have been put and should be discouraged. E.g. Testing in order to punish the learner for bad behaviour can lead to hatred of examinations and tests and education in general.

It is wrong to fail a learner on any grounds other that he/she has not reached an appropriate level of achievement. Tests are regularly used to motivate learners to study/learn towards weekly test, monthly test, terminal tests or yearly promotion tests. Without these tests, learners would be reluctant to make time for private study and some would be less likely to listen attentively in class, no matter how lively and interesting the teaching maybe.

Although the tests are for verification of the efforts put in by teachers and learners, they should not be given in excess if they are too many students begin to work solely to pass examinations. This view is unfortunately dreaded by many teachers

especially those handling final year examination classes. They teach with the view of giving their students a better chance to pass public examinations. An educator can, call this an "examination system". This involves too much testing.

There should be much softer reasons for teaching students assessment other than taking and passing examination. An ideal situation is where sufficient number of tests are given to encourage the learner to study and pay attention but not too many that they become excessively examination conscious.

It is the experienced and skilful teacher who knows when the right balance has been achieved. In practice teachers give too few rather than too many tests. Classes are too large that marking tests in addition to other teaching duties is a formidable task.

Reading #14

Read the following materials on principles of effective assessment.

> Principles of Effective Assessment
> http://en.wikibooks.org/wik/socialandculturalfoundations . Date 16/11/07

Comment on the 5 main principles of effective assessment; determine how each of them has been achieved in your own country. Suggest how your country can improve on each principle of assessment. Explain 30-40 words.

Practicality
Validity
Reliability
Authenticity
Wash back effect

Learning Tip

Assessment main principals are five:

1. Practicality: consider the time constraint, cost, administration, evaluation procedures
2. Validity: an assessment that measures what it intends to achievement of objectives, content taught, skills acquired and knowledge.
3. Reliability: determines the consistency of an assessment and the student's results.
4. Authencity: the test should be applicable to learner's real world tasks.
5. Washback effect: the influence of teaching and learning positive or negative.

Forms of Assessment

Assessment is a process which:

- Provides information on individual students experience and achievement.
- Identifies what students know, understands.
- Provide information to guide future learning.

A teacher, an examiner or indeed the student himself/herself cam measure this assessment. Assessment is often equated with tests and examinations. A test is a particular situation set for the purpose of making an assessment, while an examination is large – scale test, or combination of several tests and other assessment procedures.

Formative/Continuous Assessment

Formative assessment is integral with the learning and takes place throughout learning. Formative assessment gives the teacher and the learner feedback, information about whether the learning objectives are being attained. It also provides information on areas of weaknesses and strengths.

Summative/External Assessment

The examination boards offer external examinations. Summative is concerned with the final summing up. This type of assessment often comes at the end of the course or a school/college career. The judgments it makes are for the learner. Usually the concern is to differentiate between students so that a selection can be made. Parents, employers and the public attach great importance to it in general. Public expects external assessment to provide various kinds of information e.g. provides ranking and selection criterion for employers, for higher and further education and in the eyes of the community, provides validation of the education system and generally recognized qualifications. A college's or school's success in the assessment stakes may also influence prospective parents.

There are three main reasons why assessment is necessary for;

- Diagnosis
- Guidance
- Reporting

Diagnosis

This process helps to gain accurate understanding of a person by analyzing the observable and measurable behaviour of a student. Diagnosis is mainly student-centered and is concerned with gathering information from a wide rang of student characterizes, analyzing the observed factors or problems to determine strengths and weaknesses. In a classroom situation, progress is monitored to find out how he/she is assimilating what is being taught. It serves as means of determining which learner's programme. Diagnosis should not only identify strength and weaknesses are noted, specific remedial strategies should be instituted. For students with positive aptitude, diagnosis should serve as basis for developing their unrecognized abilities. Diagnosis can indirectly apply to the teachers and the curriculum as well.

Guidance

Test results are used to assist the learners make decisions about their future whether it concerns choice of subject or course or career. Through a series of oral questions, paper-pencil tests, manipulative skill tests, individualized instructions, assignments, projects etc. the learner needs and difficulties and take remedial measures. The assessor may also use the test results to spot the talents of those learners who may require who may require more challenging assignments.

Reporting

To examine without reporting the results to relevant audience is a waste of time, energy, and money. Reporting is the communication of significant and relevant information on the individual student's experience and achievements. An examining system allows policy makers to focus public attention on what students are learning and what it is that facilitates or hinders their learning.

Learning Tip

The main reasons of assessing are diagnosis guidance and reporting of both the learning and the teaching process. This could be done during formative and summative assessment.

TYPES OF TESTS

Reading # 15

Read the article below and determine the different types of tests. Write short notes on each of them guided by the titles below.

> Instructional Systems Design.
> http://www.nwlink.com/~donclark/hrd/sat3.html

Read The Section On Develop Tests

- Criterion referenced tests
- Performance test
- Attitude test

Learning Tip

Criterion referenced: evaluate the cognitive domains the recall of facts, procedures, and concepts.

Performance tests: evaluate the psychomotor domain physical movement, coordination and motor skills.

Attitude test: evaluates the effective domains which deal with emotions, feeling, values and appreciation.

N.B   Attitude is not observable the representative behaviour is measured by observing if the learner is working well with others, keeps time, observes school rules

As a teacher sets questions or even ask the learners questions in class they must pay attention to all the domains. In the next activities we will explore Bloom's taxonomy this time on key words used in questioning and their implication in testing.

ASSESSING SKILLS AND ABILITIES

On its own, adequate coverage of the content of the course is not sufficient to ensure that assessment is valid. The content of the course is important and much time was spent before and during the development of the syllabus – to determine the most appropriate material for conclusion, but the course is much more than a detailed syllabus, lesson notes, and information for students. The content of the course provides the context in which they develop as a result of working with

the material. If assessment is to be valid it must specify them in categories, which can be recognized.

This is done by using a simplified and modified version of the educational objectives specified in Bloom's Taxonomy of Educational Objectives.

Application of Bloom's Taxonomy in Assessment and Evaluation

Reading # 3

Read Bloom's Taxonomy again this time pay attention to the verbs, these will be used to formulate test items in the next activity.

> Bloom's Taxonomy's Model Questions and Key Words
> http://www.utexas.edu/student/lsc/handouts/1414.html

> Task Oriented Question Construction Wheel Based on Bloom's Taxonomy http://www.stedwards.edu/cte/bwheel.htm

I hope you noted down the main key words as the ones indicated in section below note down the implication of each word

Key Words in Questions

In classroom tests and external examinations certain key words are used more frequently to introduce or specify questions than others. The table below shows some of these terms and their implications.

KEY WORDS	IMPLICATIONS
Define	Requires learners to give an accurate description of the subject in question
Outline	List the main key points in a logical way
Compare/contrast	Learners identify similarities and differences
Illustrate	Learners give examples of facts, concepts, principles or generalizations
Explain	Learners are expected to simplify and illustrate the topic in question
Trace	The description of steps or stages of the phenomena in question.
Discuss	Learners consider different aspects of the topic argue analyze them critically by presenting different points of view on the subject in question.

Use these common key words to formulate questions from your teaching subject area. You could also add to the list of key words.

Different questions also test different domains of learning as you noted down in the readings. The table below shows what domains different questions involve and their implications.

No.	Question involving	Implication and relevant examples
1	Memory	Recall of facts previously acquired by learners, e.g. What is the capital of Kenya?
2	Organization	The ability to relate two or more variables, e.g. What happens when an acid reacts with a metal?
3	Cause	Identifying independent and dependent variables, e.g. What is the effect of light on the rate of photosynthesis?
4	Evaluation	Analyze critically characteristics of phenomena, e.g. Critically examine the effects of drug abuse on the productivity of a country?
5	Inference	Predict and draw conclusions from a given situation? E.g. Describe the effect of increasing altitude on a mountain climber's breathing rate?
6	Translation	Apply information to a situation e.g. How has global warming affected the weather and the vegetation in your country?
7	Comparison	Ability to identify similarities and differences e.g. Compare and contrast the governance of a democratic and a dictatorial leader.
8	Analysis	Examining events objects to reveal their characteristics or properties e.g. Discuss the factors that lead to the second world war?
9	Interpretation	Ability to draw a balanced point of view from a set of facts, e.g. How has gender inequality contributed to poverty? Cite examples supported by relevant data.

These categories will only become meaningful when associated with particular questions in an assessment meanwhile; these points should be noted with regard to the list of abilities:

- They are arranged in a hierarchy – that is the intellectual demands which are made on students increase in complexity from knowledge to evaluation the ability to analyze and evaluate and unfamiliar passage from literature requires more complex thinking than does the solution of a routine problem of defining.
- The ability in the hierarchy usually requires an element of those lower than it. For example the ability to comment on an unfamiliar method of extracting a metal will require both knowledge and comprehensives of the general methods which are used to extract metals. It follows that if the objectives of the course include the development of all these abilities the students must be given a chance to display them in examinations and any other forms of assessment if the assessment is to be valid.

- Activities or methods of teaching and learning. The assessment situation should not be radically different from the teaching/ learning situations. Students who have been engaged in certain activities during the course should find themselves in similar activities during their assessment. If this is not so, given the pressure of examination success which exists, the examination will tend to give rise to other, and possibly less desirable teaching methods

A comprehensive evaluation of the results of schooling should include examples from the three domains of educational objectives. These are;

- Cognitive domain
- Affective domain
- Psychomotor domain

Read these in articles again this time focus on the domains. Note the key words which were used to describe the learning objectives, learning activities are going to be used to measure whether they have been achieved.

This time test your memory and fill six key words for each domain by category without referring to the reading

i) COGNITIVE

Objectives refer to the intellectual results of schooling. Improvement in the learners intellectual structure, increase in knowledge his ability to reason rather than just remember.

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ii) AFFECTIVE

Objectives refer to his/her emotional education i.e. acquiring certain desirable attitude, interests and appreciation.

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-
-
-
-
-

iii). PSYCHOMOTOR

Objectives refer to physical manipulative skills learnt at school.

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-
-
-
-

Go back to activity one and cross check the correct order and words for each domain.

All the three domains can be described figuratively as referring to;

- The head – Cognitive
- The heart – Affective
- The body – psychomotor

Most books on education put emphasis on affective domain than either cognitive or psychomotor. Conversely, the emphasis in educational measurement has up to now been on cognitive skills followed by the psychomotor skills. The affective domain has hardly been formally evaluated.

This is true of developing countries where misguided enthusiasm for the white-collar jobs has resulted in lack of attention to the affective objectives of education. The results are that the schools and colleges have produced thousands of highly lettered graduates most of whom are hardly educated in the real sense of the word. This will have serious consequences on the developing countries in the future.

2.2 KINDS OF TESTS

Read through the articles below and identify the different types of tests. You will refer to these reading as you formulate your own questions.

Reading # 19   Test (Student Assessment)

ESSAY TESTS

Characteristics

- Essay tests require a student to organize and express herself in her own words.
- Essay tests consist of few questions which require lengthy answers.
- The quality of an essay test depends on the skill of the person setting and

    marking the examination.
- Essay test are relatively easy to prepare and hard to mark very accurately.
- Essay test permit bluffing. If the person marking the essay test answers has a skill in reading essays, and the grade awarded will be equivalent to the student's performance.

Limitations

- Poor content sampling: essay questions usually do not all cover the same content, in other words, students answer questions on different contents. To avoid theproblem of poor content sampling, it is better for the teacher to set several questions requiring short answers and covering a wider area.
- Low reader reliability: some students do better on some questions and poorly on others. This risk could be minimized by careful construction of the questions and also setting up specific scoring procedures.
- The student does not always understand what the question is asking and therefore is not sure how to respond. This problem could be minimized by the examinerwriting the question so that the student's task is defined as completely and specifically as possible.

Guidelines

- Try as far as possible to restrict the subject matter to be covered by the question.
- Define the learner's task as completely and as clearly as possible.
- Try to provide generous time limits for the test.

- Always check the adequacy of the question by seeing if you and any other 'experts' can agree on an ideal answer.

Write 3 essays from your teaching subjects, one each from the cognitive, affective and psychomotor domains.

OBJECTIVE TESTS

Characteristics

- Objective tests require a learner to fill in a short answer, of one or two words, or choose among several available alternatives.
- Objective tests have more questions, and they take less time to answer than essay questions. Further, objective tests are in many ways more reliable.
- The quality of an objective test depends mainly on the skill of the person constructing the test.
- Objective tests are difficult and time consuming to prepare.
- Objective tests permit guessing. When blind guessing occurs in an objective test, it is not likely to result in a significant change in a student's position with respect to the standard he is expected to achieve.

Formats of Objective Questions.

A) Short answer Items: A short answer item is made up of a question or incomplete statement that the pupil has to answer with a word or a phrase. For example: The first President of the Republic of Senegal was called_____ _____

The limitation of short answer items is that they tend to cover only details and also reflect the student's familiarity with this kind of test, instead of the student understanding and application. In short answer items, word the item in such a manner that only one answer is correct.

Write 6 short answer questions from each of your teaching subjects identify what domains they fall into.

Matching: A matching test is made up of a list of statements and a list of response statements list. The purpose of doing this is to cut down the chances of guessing.

- Arrange the lists in some meaningful order, such as chronological or alphabetical order.

- You have to provide in your instructions for the test the basis on which the Matching is to be done.

Write 2 examples of matching questions with 10 items each. Formulate them from your teaching subjects

B) True-False Items:

Characteristics

These are test items where the learner is asked to indicate whether a statement given is true or false.

The major advantage of true-false test items are:

- A true-false test can satisfactorily cover a large amount of subject matter in a short time.
- True-false questions are relatively easy to construct.
- They are particularly suitable for testing belief in popular misconceptions and superstitions.

Limitations

- They often measure trivial pieces of information that are similar to many short answer items.
- The scores of students on a true-false test can be greatly influenced by good or Poor luck in guessing.
- True-false items are often ambiguous.
- The exposure of students to false items is definitely a poor method of learning.

Guidelines

- Attempt to use statements that are clearly true or false, without exceptions.
- Avoid the use of specific determiners such as 'all', 'always', and 'never.'
- Try to restrict each statement to a single idea.
- Use an approximately equal number of true and false items.
- Make an effort to avoid negative statements
- Avoid the exact wording of the textbook.

Write 12 examples of True/False items. How can you ensure they have high order questions?

C) Multiple Choice Test items: These are the most popular of the objective test. They consist of direct questions followed by two, three or four possible answers, of which only one is to be chosen as the correct or best answer.

The following are advantages of multiple choice test items:

- Multiple choice test items can measure a variety of knowledge skills including recall, understanding, applications and combinations of all three.
- Multiple choice test items are relatively efficient, that is, the results of the test are usually quickly available after the test because it is easy to mark.
- The difficulty level of the multiple choice test item can be controlled by changing the degree of homogeneity of the items listed. This is done by including simple or difficult questions.
- Multiple choice are less likely than true-false questions to produce score variations because of guessing.

Limitations

- They usually ask trivial, ambiguous questions that may handicap the really able student.
- They are not easy to construct, in that they take a lot of time on the part of the teacher.
- There is a tendency for teachers to write multiple choice test items that demandonly factual knowledge.

Guideline

- Choose relevant, important topics from which to develop the items.
- Write the stem first, try to make it as short as possible and use clear, simple language. (The stem is the part of the question which introduces the items between which the student is asked to choose.)
- Try to make all the distracters equally plausible to well prepared student, butobviously wrong to well prepared students. The word 'distracters' refers to those words or sentences that are not correct answers. These are listed together with the correct answer so as to confuse a student who is not well prepared for the multi-choice test.
- Make all the alternatives about equal in length.
- Place the correct answer equally often in each position.
- Arrange the responses in a logical order.
- Make sure all responses fit grammatically with the stem. If only grammatical way, you are providing a clue for the student who is guessing.
- Phrases such as 'None of these' should be avoided as a distracter in best-answer choices.

Formulate 6 examples multiple choice questions they should fall into one of the three cognitive domains.

i).   Read specifically about the **practical** and **oral** examinations and write down: their characteristics, limitations and guidelines of formulating them in 200-250 words for each of them.

Which subjects are commonly tested this way?

Learning Tip

There are different types of questions: essay, objectives such as short answers, matching, true-false and multiple choices, practical and oral

4.3   FORMULATING TESTS

Planning for the Test

Before plunging directly into test item writing, a plan should be constructed. Without an advance plan, some test items will be over represented while others may stay untouched. Often, it is easier to build test items on some topics than on others. These easier topics tend to get over-represented. It is also easier to build test items that require the recall of simple facts, rather than items calling for critical evaluation, integration of different facts, or application of principles to new situations. A good test or evaluation plan has a descriptive scheme that states what the learners may or may not do while taking the test. It includes behavioral objectives, content topics, the distribution of test items, and what the learner's test performance really means.

Discuss the properties of a good testing instrument in 400-500 words. Refer to the articles below for this activity.

Reading # 15

Instructional Systems Design.
http://www.nwlink.com/~donclark/hrd/sat3.html

Reading # 16

Evaluation Phases
HTML Document

Table of Specifications

The principle behind any kind of testing is that the test items (question) should not be written until the objective and content areas to be measured are identified. The emphasis to be placed on each is decided using blue print or table of specifications.

The basic purpose of a table of specifications is to ensure that all intended outcomes are measured and the test includes the appropriate number of items for each measured outcome. A table of specification is a two-way table with one axis being a topic/content outline and the other axis being a behaviour/skill desired according to Bloom's Taxonomy. The cognitive skills required to be tasked, should be stated in terms of action verbs.

The procedure for designing and using a table of specification is to

- Decide on the type and number of questions the question paper should have.
- Decide on which aspects or parts of the syllabus the test will cover.
- Decide on what skills will be tested and the percentage weighing according to the level of the course on which the test is being developed.
- Decide on what percentage weighting will be allocated to the various aspects of the syllabus.
- Balance the number of questions and skills to be tested and the distribution of questions from all parts of the syllabus (sampling).

Read the article entitled evaluation phase's specifically on item analysis.

Reading 16   Evaluation Phases
                  HTML Document

Tables of examination specification

TOPIC ABILITY	1	2	3	4	5	6	7	8	9	10
1. Knowledge										
2. Comprehension										
3. Analysis										
4.										
5. Synthesis										
6. Evaluation										

4.4   MARKING EXAMS

The type of test or examination determines the technique of marking answers.

- Answers to select-type of objective test/examinations may be by ticking, ticking and underlining, encircling or crossing off certain responses on a specially prepared answer sheets.
- Alternatively, ticking, underlining, encircling or crossing off certain responses on especially prepared answer sheets can give answers to such test items.
- The latter is commonly used in secondary schools. The teacher or the examiner prepares unused test paper by ticking, underlining or encircling correct answers.
- This becomes the master sheet or the key. It is essential that the teacher/examiner check this key carefully with other colleagues in order to ensure that all the answers are correct. This consultation is done before the test goes into print.
- No matter how expert the examiner, experience shows that small errors and misconception can occur this may adversely affect the value of the questioned items.
- The learner's answers can be marked by companying them with responses in the key or making scheme.
- Two schools of thought prevail in marking is of essay type examinations and practical.

"General impression method"

"Detailed scheme method"

In the "general impression method" the teacher/examiner reads through the answer, the general expression on how it fits an ideal answer in the mind and opinion of the examiner and thereafter award marks out of the maximum assigned for that question.

This general scheme technique assumes that:

- There is an accepted body of knowledge, which will form the answer to the question.
- The teacher/examiner has a good command of this body of knowledge and can identify it in the student's answers.
- The teachers impression of the answer is unaffected by the previous knowledge or lack of it, with particular reference to the topic under question.
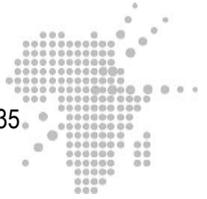
- The three are consolidated by consultation among various experts but the marking of this type remains subjective and the marks obtained are not reliable.

The detailed scheme technique;

- In the most public examinations and diploma training colleges, this method is   suitable and "detailed scheme method" is adopted.
- Examiner assigns marks in proportion to these major points.
- Before beginning to use the scheme, it should be discussed with colleges and moderated accordingly. This ensures the marking scheme is comprehensive.
- As far as possible, the major marking points relevant to the question have been included in the marking scheme.
- Such points are given their proper relative weighting
- In a practical type of question of the examination/test, the teacher or examiner performs the activities in the practical test and makes a marking scheme before giving the students the practical examination.
- This ensures that all the skills are expressed and there is no problem with the apparatus and chemicals or specimens to be handled by the learners when handling the paper.
- The marking scheme should be verified by the members of the departments before using it for marking.
- After the examination is marked, there is interpretation of marks and their moderation

All exams questions must be prepared with a marking scheme accompanying each question before the exam is administered.

Questions

Go back to all the questions you set in the activity on types of test and prepare a marking scheme for each one. Give 1 mark for each point.

Discuss the mistakes a teacher is likely to make when marking students scripts. Suggest ways of being objective during marking draw your answers from past experience. You can discuss these issues with colleagues as you seek possible solutions to the issues you raise. Explain in 400-600 words.

4.5   GRADING AND REPORTING

Assigning students grades is an important component of teaching and many schools issue progress reports at mid-term, end-term or both.

Reading # 20

Read the article on grading and reporting. Use the information from it to write about the weighting of exams and the different types of grades.

Grading and reporting
http://en.wikibooks.org/wiki/

.

i)   Explain how various assignments and assessments are weighted in 100-120 words.

ii)   Describe the different categories of grading in 200-300 words

iii)   The results below are grades of a form three class in a Mathematics class. The marks are out of 100%

10	30	40	10	25	15	45
50	65	70	17	16	21	24
08	06	30	50	12	14	32

a)   What is the mean score?
b)   Draw a scatter graph to determine the distribution of the scores
c)   Explain in 100-150 words how the teacher can use these grades to prepare lessons to suit the learners

HINT

Your mean showed that most of the learners have below 40% and the scatter graph shows that most grades are on the lower scale with only 4 above 50%. Identify the questions they failed by doing a question performance analysis and identify the students who have performed poorly. As you plan the revision lesson re-teach the concepts that learners found difficult and group the learners so as to address the individual differences. Be innovative and consider different teaching approaches that are learner-centered. Re-test the learners by giving an exercise on the concepts you taught them.

Learning Tip

Assigning grades is an important component of teaching for issue of reports to parents /guardian and record keeping. Weighting of assignments, homework quizzes progress assessments may combine achievement, effort, growth, attitude, participation and test scores.

Grading could be letter grading A, B, C, pass or fail system, a check list proficient, partial proficient, needs improvement and numerical grades

4.6   EVALUATION

Testing of the learning and training outcomes are done through measurement and evaluation. Evaluation has to do with judgment and description. The science of subjecting learners or trainees to specific tasks and then evaluating and measuring the outcomes, in order to identify the learners or trainees attributes under specific conditions is called psychometrics. Learning is evaluated in the three domains.

- The intellectual or cognitive domain
- The physical or manipulative or psychomotor domain
- The effective domain or the domain of the feeling and aesthetics.

Measurement and evaluation involve two types of tasks:

a)   Timed tasks referred to as 'pencil and paper' examinations and include:

 i.   Written examinations
 ii. Performance/practical examinations
 iii. Oral and aural examinations

b)   Unlimited tasks, which cover:

 i.   Course-work practical undertaken during the teaching/training session.
 ii. Project work undertaken by individual or groups of trainees.

Interpretation of Marks

No matter how much effort is involved in planning, constructing, administering and marking examination/tests, it would all be wasted if enough thought were not given to the issue of interpreting the marks. Teachers have over years, handed down their colleagues a number of marks. The vast majority of these marks are misinterpreted and such have led to uncountable erroneous executive decisions.

The value of proper interpretation of marks cannot be over-emphasized. The physician has understood the meaning of temperature determined by a thermometer or blood pressure determined by stethoscope in relation to certain clinical characteristics in order to be able to diagnose the patients' condition. The same is true for the teacher and the marks obtained from the tests and examinations.

The information gathered from the marked examination is analyzed and evaluated and its worth is placed on each student's performance. This always involves making judgment. We judge or decide that something is good or bad, satisfactory or average in quality on the basis of information we have and the values we use in making our decisions.

Student Related Evaluation

Is a Student successful to go the next stage? This is the diagnostic function of evaluation.

Students who already posses considerable knowledge on a topic can do enrichment activities such as individual projects or supplemental reading. They can also act as aids assisting the teacher with those students who are having difficulties with the materials or who have missed some of the work or if circumstances permit the students who score sufficiently well on the present can go on to the next unit of work.

This function of evaluation diagnoses the students' level of understanding.

Reading # 18

Standardized and Other Formal Assessments
http://en.wikibooks.org/wiki/

Contemporary_Educational_Psychology/Chapter_11:_Standardized_and_
Other_Formal_Assessments

a)   Discuss these different categories of standardized tests in 200 words. Indicate when and how they are used during the discussion.

- Diagnostic
- Aptitude
- Scholastic

b   What is your opinion on the following issues of standardized tests? Explain in 150-1200 words for each of them

(i)   Standardized tests are biased.
(ii) Teachers teach to the test.
(iii) Students and teachers cheat on the standardized test.

c)   How does self evaluation of a teacher help the learner? Explain in 100-150 words.

Learning Tip

Standardized tests are used to:

Assess the student's progress

Diagnose the learner's strengths and weakness

Select students for specific programmes

Assist teachers in planning

Promote accountability

There are different types of standardized tests achievement tests (assess content areas), diagnostic tests (assess skills and abilities) and aptitude tests (predict the future).

TYPES OF EVALUATION

Formative Evaluation

The student feedback on their performance is very important.

Everybody would like to know how well he/she is doing and experiencing success is a strong motivation to continue our efforts to learn.

Even the evidence that we have not accomplished a task may cause us to try harder. Of course, continuous failure usually has negative effect and may lead to student's giving up and even dropping out of school.

Because education has such a strong effect on student action teachers must be especially conscious of how their evaluation activities affect the students.

Realistic feedback can serve to reinforce students on things they are doing well and show them where improvement is needed. Evaluation serves to shape student behaviour in a desired direction. Sometimes they do not know where they are going wrong.

Evaluation is designed to give students immediate feedback, therefore helps to form or shape the students learning, a continuous process that takes place throughout the instruction.

A means of reporting student progress is a form of evaluation that sums up and takes place at the end of the instruction.

In Secondary Schools, teachers are required to assign grades to all students at a given period e.g. every six weeks or end of term. This report card will now be used to extract the relevant information to the learner, teacher and guardian.

This is done by invoking an unknown but written scheme on the meaning of percentage marks.

Below 20	- Very poor
30%	- Poor
30% to 45%	- Weak
45% to 55%	- Average
55% to 70%	- Fair
70% to 80 %	- Good
Above 80%	- Very good

There is a great deal of impression in the way verbal descriptive terms have been used to interpret achievement.

- The section of the report that states that the student must repeat the class (failure) or move to the next class (normal promotion) or discontinue the course (very poor) holds the attention of the parent/guardian since the cost of education has risen.
- Such report should help parents/guardian to form a good mental image of the attainment levels and prospects of their children.
- The schools and colleges are therefore expected to render regular accounts to parents of the performance of their children using the type of language they will understand.

Summative Evaluation

Read about summative evaluation and summarize the information you get from reading 18 in 100-150 words.

Learning Tip

When the assessment and evaluation is done by teachers' the learner's results could show:

- Learners who show an upward trend, these ones are rewarded and reinforced.
- Learners who are steady, these ones are given a push to motivate them to move upwards.
- learners who show a downward trend are reinforced in a manner that they do not feel useless but can perform in other kinds of activities other than in academic field or given remedial classes.

XIV. Synthesis of the Module

Congratulations for completing this module pedagogy. This module has introduced you to pedagogy or the teaching methodology. These are the theoretical basis of learning, nature of the teachers and learners, planning for teaching and learning interpreting of the syllabus, scheming and lesson planning, preparing for micro-teaching , classroom organization, discipline and conflict resolution in a classroom and finally assessment and evaluation.

XV. Summative Evaluation of the module

1. a. Describe the factors that affect the validity tests in 150-200 words.

    b. In your opinion are the examinations offered in your country for Summative evaluation valid and reliable. Explain in 400-500 words.

2. Outline the different ways of introducing and concluding lessons in 500-600 words

3. Discuss in 300-400 words the issues or factors that influence the teacher's choice of teaching methods.

4. a. Enumerate the characteristics of a good question 100-150 words

    b. Discuss the roles that questions play in the teaching and learning process in 300-400   words

5. Critically examine the role of Bloom's Taxonomy in the writing of objectives, pedagogy and test preparation and evaluation of the learners in 500-600 words.

6. Explain in 400-450 words why it is important to consider the following characteristics of learners in selecting instructional strategies, content and resources.

    • Cognitive characteristics
    • Psychosocial characteristics
    • Physiological characteristics
    • Psychomotor characteristics

7. Explain why the process of developing objectives is one of the most critical activities in instructional design in 250-300 words.

8 Prepare a four week scheme of work from any of your elective teaching subjects

9. Prepare a 40 minute lesson from any of your elective teaching subjects refer to your syllabus and relevant reference books. Use the lesson plan format provided in the module.

11. Discuss the constructivist's theory of learning and its application in modern day teaching and learning in 900-1000 words.

12. What is micro-teaching? Discuss the main areas of a trainee teacher's apprai-sal process in 900-1000 words

13. Discuss the purpose of assessment and evaluation to both the teacher and the learner in 700-800 words

15. What are the roles of the learner and a teacher in a learner-centered classroom? Discuss in 700-800 words

16. What are the major challenges teacher's faces in keeping discipline in a classroom? How can they overcome them? Discuss in 800-1000 words.

17. Discuss the merits and demerits of different the kinds of tests in1000-1500words.

18. Discuss the guiding principles of formulating an effective assessment tool in 400-500 words.

19. Describe the different approaches to teaching in 1000-1500 words.

20. What challenges does a teacher face in creating a conducive classroom envi-ronment for learning? Explain in 500-600 words.

Go through this module again the answers to this summative evaluation are contained in the readings. It will also give you a chance to revise the contents contained in the module.

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