



Education Module for Health Record Practice

Module 9

MANUAL FOR EDUCATORS

Prepared by: Linda Galocy (US), editor

IFHIMA Education Module 9: Manual for Educators (2012)

Table of Contents

Introduction	3
Unit 1 – Effective Teaching and Learning	5
Unit 2 – Defining Learning Objectives	14
Unit 3 – Creating Conditions for Learning	41
Unit 4 – Learning Resources	57
Unit 5 – Evaluation of Teaching and Assessment of Learning	62
Appendix	69
A. Feedback on Lecture Planning	

INTRODUCTION

The purpose of this manual is to offer health information practitioners who are currently teaching or plan to teach in a formal or an in-service training program the opportunity to develop effective teaching skills.

The overall objective of this manual is to provide practitioners from different countries the opportunity to study the application of modern methods in the teaching of medical/health record science and to subsequently apply these methods effectively to the education of health information personnel in their respective countries.

SPECIFIC OBJECTIVES

The specific objectives of this manual are to enable practitioners to:

- Analyze the goals and objectives of a program of study.
- Develop a detailed syllabus including educational objectives for a health information program.
- Plan and deliver lessons to health information students.
- Identify, prepare and use effective teaching materials and resources.
- Measure the achievement of educational objectives by students.
- Develop summative evaluations for students to complete.

This manual has two sections:

- Section one covers the development of teaching skills, and
- Section two covers a set of learning modules for basic health record practice.

Each section has been designed as a starting point and can be customized as needs develop and change.

Section one contains five units:

1. Effective Teaching and Learning
2. Defining learning objectives
3. Creating Conditions for Learning
4. Preparing Learning Resources
5. Evaluation of Teaching and Assessment of Learning

Some units have exercises with answers supplied at the end of the section.

Section two, the Learning Modules, contain six modules:

1. The Health Record
2. Patient Identification, Registration and the Master Patient Index
3. Record Identification Systems, Filing, and Retention of Health Records
4. Healthcare Statistics
5. Planning a Health Record Department
6. Administration and Management of the Health Record Department

Suggested readings are included in some units.

Each section of the manual can stand alone if required. They have been prepared as a guideline to offer educators and potential educators:

- An opportunity to gain further skills in the preparation, presentation and evaluation of an educational program for health information students, and
- Assistance with the development of basic teaching material for such a program.

UNIT 1 – EFFECTIVE TEACHING AND LEARNING

Before embarking into a teaching career or simply planning a lesson for a seminar it is necessary for one to obtain an understanding of education. This unit provides a focus and a discussion of education, defines the teaching and learning process and provides key points that are essential for any instructor to keep in mind before preparing a lecture, lesson, or an entire course.

OBJECTIVES

At the conclusion of this chapter you should be able to:

1. Obtain an understanding of the difficulty in defining education;
2. Identify the differences between training, education, instruction, and learning;
3. List the five (5) aims of education;
4. List the steps necessary to ensure teaching is effective;
5. Identify communication skills as discussed in this unit

DEFINING EDUCATION

If we believe that teaching and learning are part of the educational process then it is important to understand education and the educational process. One should understand the definition of education and the relationship between education and training and training and instruction.

From the time of Plato authors have defined “education” in many ways with words and phrases such as “moral emphasis”, “experience”, “systematic instruction”, “training indoctrination”, “development”, and “give intellectual and moral training to”. But what does all of this really mean?

A definition is a “statement of the meaning of a word or word group or a sign or symbol” (Definition, 2010). Once the name of an object is associated with a definition, the word can be used meaningfully. Another way of learning to distinguish between objects is by observing them regularly. Often, a certain shape, size and structure can be associated with a certain word which names the object in question. The task, however, is often difficult when attempting to explain the difference between objects to someone who has seen neither - we know exactly what each one looks like, but it is often difficult to put into words. To actually define education is difficult as it is something we cannot see and it has neither a shape nor size associated with it and no one definition provides a true image.

A good definition settles issues without raising others, but the definition of education always seems to raise at least as many issues as it settles. Many authors have also developed a definition of teaching, in association with education, but they also vary in some way. Peters proposes that in place of a definition of education the following 3 criteria be used:

1. Education implies the transmission of what is worthwhile to those who become committed to it. It requires something to be transmitted or passed on.
2. Education must involve knowledge and understanding and some sort of "cognitive perspective" which is not inert.
3. Education at least rules out some procedures of transmission on the grounds that they lack wittingness and voluntariness on the part of the learner.

Criteria are simply standards, not exact measures and therefore also leave questions to be asked. For example, Criterion 1 raises the question: Who decides what is worthwhile, and using the word "implies" suggests one characteristic of education, but leaves room for others to be included.

The second criterion is worded more definitively and categorically - the term **must** indicate that, unless the process involves knowledge and understanding and an overall view, it cannot qualify for the title "education".

The third criterion provides a standard of comparison for methods of transmission. It does not dogmatically state that there is any one method of passing on knowledge and values. Nor does it state that indoctrination shall not be an educational method of passing on knowledge.

So far, this has not answered the question of "What is education"? Perhaps the best answer is that education is a process which must have both content and a method. The content is "knowledge" and "what is worthwhile" (values) and the method must allow the learner to understand what is being taught. By establishing criteria we come to discover "essential" characteristics of education - something of what it is, and something of what it **is not**. Although it is essential for us to have clear ideas about what constitutes education, we do not automatically ensure that education will be equally beneficial to all those committed to it.

At this point it can be concluded that there is no one definition of education. The next question to ask is "what is training?" and "what is the difference between "training" and "education"?" Training is said to be a narrower and more specific idea than education and training may be educational, but it can never be education. The term training, however, implies "exercising" and "repetition". "Training" is for something, that is, a definite end or purpose. We do not merely "train" but train for; it also implies the acquisition of a skill.

Training is also closely associated with instruction. When talking about the educational process it is natural to talk about teaching. When educators discuss instruction we think of training (e.g. Physical training instructor). A definition of training is "an act, process or method of one that trains, the skill, knowledge or experience acquired by one that trains, the state of being trained" (Training, 2010). Training involves repetition. By repeating the application of skills learned an educator can be assured of proper training of students.

There is a narrowing down process as one moves from education to training to instruction. A definition of instruction is "to give knowledge to, to provide with authoritative information or advice, or to give an order or command to" (Instruct, 2010).

What then is the relationship between education and training? Is teaching an art not a skill?

To train someone how to teach is not enough. Teacher training lies within teacher education just as training lies within education. Education will include training but training can never be equated with education, and it can never be the larger concept which contains education.

There is a close connection between the aims of education and the content of education. The content of education is the curriculum - what we say about aims will serve as a bridge between "education" and "curriculum".

The following aims of education give direction and provide a framework for our thinking:

- To provide men and women with the minimum of skills necessary for them to take their place in society and to seek further knowledge.
- To provide men and women with vocational training that will enable them to be self-supporting.
- To awaken an interest in and a taste for knowledge.
- To encourage people to think critically.
- To put people in touch with and train them to appreciate the cultural and moral achievements of mankind.

EFFECTIVE TEACHING AND LEARNING

We use the term effective teaching and learning but what does it really mean? We know that teaching is a term used to describe a wide range of activities used to bring about learning, and learning is the acquisition of knowledge and skills or changes in behaviour patterns of a learner.

Effective teaching brings about a change or changes in a student's knowledge, skills and attitudes as desired by the educator. That is, the teaching has effectively achieved

the stated objective. Learning is effective when the students have understood and absorbed the knowledge, skills and attitudes imparted by the educator and are able to recall them when needed.

For teaching and learning to be effective, clear and measurable objectives need to be written. Teaching must be suited to the knowledge, skills and attitudes possessed by the students at the start of the teaching/ learning process. That is, prior to teaching a group of students, their existing knowledge, skills and attitudes must be determined. The methods and rate of teaching must also be suited to the students' learning abilities.

Steps to be taken to ensure that teaching and learning are as effective as possible include:

1. Setting learning objectives.
 - a. It is essential that each learning objective is unambiguous and clearly worded. It should state exactly what is to be learned. The formulation of such objectives will enable the educator to select exactly what the students need to be taught and the students to know exactly what they are required to know.
2. Sequencing of learning.
 - a. The precise learning objectives needing to be achieved by the students are defined, and the knowledge/ skills/attitudes possessed by the students at the outset of the teaching process are assessed. It is then necessary for the educator to design the learning process in a series of logical steps or stages, geared to the students' learning abilities. Each step or stage should lead to the achievement by the student of the next enabling objective, and ultimately to the successful achievement of the overall objective.
3. Creating conditions for learning.
 - a. Once the learning objectives have been developed, the next step is to create the conditions of learning to ensure students learn what they need to know. That is, the type of teaching methods best suited to achieve the learning objectives.
4. Preparing learning resources.
 - a. This step involves assessing the available resources and choosing the appropriate teaching materials and resources which will assist with the achievement of the learning objectives.
5. Evaluation of teaching and assessment of learning.
 - a. The final step is to plan a course evaluation and develop reliable and valid assessments to measure student learning. That is, assess whether the teaching/learning processes have succeeded and if course objectives have been met.

For teaching and learning to be effective it is necessary that what is to be taught is precisely defined for both educator and student, that the teaching is structured in steps

to suit the learners, and feedback is obtained to ensure teaching/learning processes have succeeded and course objectives have been met.

COMMUNICATION

As discussed previously, the educator's task is to bring about learning. This can be achieved in many ways, for example, by the use of lectures, lessons, seminars, tutorials, or discussion groups. All such methods involve educator to student interaction or student to student interaction. This communication can take place in a classroom with a group of students or online through use of communication tools on the computer. Regardless of the method of communication the educator must have an understanding of the processes of communication and be able to control communication in the classroom or online. How then should we communicate?

A. Means of Communication

It is important that the educator be aware of, and use, the five channels of communication. These are sight, sound, smell, touch and taste. The most appropriate should be selected when planning to teach. The use of more than one method such as using a Power Point presentation or writing on a chalkboard as well as oral instruction will help the learning process.

It is also essential to understand non-verbal communication. Signs made, consciously or not, are of enormous importance. Signs such as body movements, smiles and gestures, are all means of communication. The educator must collect information from his pupils' non-verbal communication, and be aware of his own use of this medium. The eyes are extremely useful in this connection; good eye contact with a class will help communication considerably.

The educator should have an understanding of the principles and processes of communication and learning. As many barriers to communication should be removed as possible to allow for a constructive and a productive classroom environment.

When teaching online it is essential for the educator to set rules of behavior and communication up front. The minimal amount of interaction required should be stated, rules of internet etiquette should be shared with the students, and deadlines for communication to occur should also be set. The online environment promotes student to student as well as student to educator interaction but it should be up to the educator to set the tone and minimum requirements for communication for students to follow.

B. Barriers to Communication

There are several factors which can inhibit the educator's communication. These include:

1. **Nervousness.** Many educators, even experienced ones, are apprehensive, and this gives rise to behaviour which can distract, or annoy students. This behaviour may include looking at and/or talking to the top corner of the room, watching the chalkboard, juggling with chalk, nervous walking, looking out of the window. Such mannerisms should be identified and eliminated.
2. **Vocabulary.** The educator must be careful to use words which can be understood by the student. New words must be explained immediately, and frequent checks made on comprehension.
3. **Voice.** Speed of speech must be appropriate for the class and subject matter being taught. Speech should be neither too fast nor too slow. The articulation of words should be clear, pronunciation should not be idiosyncratic, and the voice should rise and fall appropriately.
4. **Presentation.** A confusing presentation by the educator can inhibit learning. The subject matter and the lesson must be thoroughly prepared, with appropriate aids to communication.
5. **Technology.** In an online environment technology is often a factor inhibiting communication. Students who do not have high-speed internet access, microphones on computers, or who are unfamiliar with instant messaging will struggle within this environment. It is important that the educator supply technological specifications to ensure all students meet the minimum requirements before they enroll in a course.

- **Spoken Communication**

Understanding spoken words is not a passive process. A student takes time to select the information they feel is important, analyze it, accept or reject it, and then act. It has been proven repeatedly that different people are likely to select and retain different aspects of the same information. Each student in a class may, therefore, arrive at a different interpretation and understanding of the material presented.

- **Written Communication**

Like the spoken word understanding written words is also not a passive process. It is important for the educator to provide very clear expectations on what is appropriate in the online environment as it is very easy for anyone to misinterpret a written statement. It is important for the educator to continually monitor student to student interaction to ensure appropriate and respectful communication. The educator should be prepared to moderate any potential disrespectful or inappropriate conversation between students so as to ensure a positive learning environment.

- **Visual Communication**

Seeing is an active process. Information channeled through the eye is also prone to distortion, and optical illusions are common. Different people see different things when looking at the same scene.

- **Personal Characteristics**

If all communication is prone to distortion because people select differing bits of information, it is useful to consider the kinds of personal factors which will influence a student's perception. These include age; attitudes toward the educator; the subject being taught; peer group, family; training/educational organization; previous learning; life experiences, school and work; internal stress; his/her own and others' expectations; and motivation.

- **Motivation**

Broadly speaking, students cannot be made to learn against their will. They have to want to learn. The motives for learning vary and cover fear and punishment at one end of the scale, to delight in acquiring knowledge at the other. Whatever the motivation, it is a pre-condition for learning. The student who is strongly motivated will learn no matter how hard the subject content may be, or how great the difficulties to be surmounted. The challenge for the educator is to inspire motivation in the unmotivated student, or sustain the motivation of the poorly motivated student in the face of difficulties, bearing in mind that repeated failure can result in despondency and despair, which can choke any positive effort to learn.

The methods of motivating students are as various as the individual students. These methods include relating subject matter to the students' practical interests, inspiring interest by the quality of the teaching, and by the enthusiasm of the educator, inspiring interest through challenge, achievement and desire to do well. Being properly motivated means not only knowing what one wants to do, but also having a compelling desire to do it. Lesson objectives that clearly describe what the student will be able to do at the end of instruction arouse interest, and challenge the student. Additionally, when the objectives are achieved they produce in the student the stimulation which is engendered by success. "Nothing succeeds like success" and nothing succeeds in motivating the student more than continuous and frequent success along the way. The use of the systems approach is a means to this end. It provides the enabling objectives which, when systematically and continuously presented, sustain the students' interest throughout the lesson, and when achieved, provide the encouragement of success.

Desire for a qualification is often the prime motivation of students. However, it is

only when this prime motivation is reinforced, or replaced, by the enjoyment of the learning process, and when the student has learned to develop his own standards against which he can compare his achievements as he develops that the educator will have succeeded in the teaching task.

The educator must at all times respect the student as a unique, worthwhile, human being and not just one of the groups. Each student must know that the educator's ambition is to get him/her to learn and to succeed.

- **The Environment**

Communication can also be influenced by the physical environment of the classroom. Learning will be hampered if the room is too hot or too cold, humid, badly ventilated, drafty, or noisy. All students should be seated comfortably, with a good view of the educator and visual aids, and adequate space in which to work. The traditional classroom layout with rows of desks will enforce certain patterns of communication. Such an arrangement would, for example, be inappropriate for a discussion group, and the educator must rearrange the seating to fit with the learning objectives for each session.

- **Assimilation**

Assimilation requires that interest be aroused, sustained, and the students motivated to learn, while at the same time avoiding saturation and fatigue. The educator has to make the subject matter meaningful and relevant, giving each topic a recognizable and logical structure, which leads from the simple to the complex, and presents the material in suitably graded steps without overloading the student. The student can only assimilate what has been experienced. Mere verbalism is not sufficient for this purpose and the student must be allowed to exercise, as far as possible, the full range-of-senses. The educator must therefore, capture and hold the students' senses so that the lesson becomes a real and memorable experience.

- **Retention**

The ability to retain information is dependent upon the impact of an experience upon the recipient. The eyes are the most effective gateway to the brain and an educator can best aid retention by making use of this fact. That is, by using visual aids possessing vividness, color, layout or an element of surprise, and by providing stimulating classroom demonstrations and practical work to the maximum possible extent. Recall also aids retention, and oral questioning and written exercises which require the students to recall past work, should be frequently used.

- **Feedback**

It is essential to monitor learning and to check how each student has received and interpreted the material presented. The educator must devise learning situations which provide continuous feedback to both educator and student.

Failure to do this will result in ineffective communication and make it more difficult for the student to learn and impossible for the educator to assess the effectiveness of his or her teaching.

In summary, to be effective it is necessary that what is to be learned is precisely defined by both educator and student. The teaching method to be used must be selected to enable all students to reach the required level to meet the stated objectives of the course.

REFERENCES:

Definition. (2010). Retrieved June 5, 2010, from Merriam-Webster online dictionary:

<http://www.merriam-webster.com/dictionary/definition>.

Instruct. (2010). Retrieved May 23, 2010, from Merriam-Webster online:

<http://www.merriam-webster.com/dictionary/instruct>.

Training. (2010). Retrieved May 23, 2010, from Merriam-Webster online:

<http://www.merriam-webster.com/dictionary/instruct>.

World Health Organization. Notes prepared for Workshop for Teachers of Health and Health record Science, New Delhi, March, 1979.

UNIT 2 – Defining Learning Objectives

The first step in determining what to teach is to analyse the perceived requirements of the end product of the teaching/learning process. That is, one needs to discover:

- the minimum knowledge, skills and attitudes to be achieved by all students who successfully complete the course, and
- the minimum of knowledge, skills and attitudes required at the beginning of the course so that the students may successfully undertake the course.

In other words, analyse what students need to know to become efficient practitioners, and assess what they already know prior to undertaking the course (Ewan, 1984)

OBJECTIVES

At the conclusion of this unit you should be able to:

1. Determine course requirements by writing a detailed job description and completing a task analysis;
2. Specify course objectives in terms of what the students should be able to do after completing the learning process;
3. Determine course content required to enable the students to attain the stated objectives.

What to Teach

Many educators do not have to decide what to teach since they may already have a pre-existing syllabus. However, all educators should know why they are teaching a subject and at what level the subject should be taught. In addition, a syllabus usually only contains an outline of a subject and educators need to decide what topics to cover in more detail in each teaching session.

When determining what to teach the educator must be able to define the content of a lesson or an entire course. The educator must determine:

- a) The **aim** of the course, which should be stated in general terms, indicating what it is hoped will be achieved;
- b) **Objectives** of the course, which are statements indicating what students should be able to do as a result of the learning opportunities presented;
- c) **Content** of the course, which refers to the subject matter that will be covered to enable the students to attain the objectives;
- d) **Assessment**, describing how the educator will measure the outcome of the teaching/learning process. That is, how the student will be assessed to find out

whether the teaching/learning process has been effective.

Definitions

Some definitions we should look at before proceeding are:

- a) A course is usually taken to mean any program or series of planned units related to each other.
- b) A syllabus is a statement of the objectives to be covered by a course of study.
- c) A curriculum is a course of study or a plan of learning.
- d) A learning opportunity is a planned and controlled relationship between students, educators, materials, equipment and the environment in which it is hoped that learning will take place.
- e) Course aims are long term goals, usually expressed in fairly general terms.
- f) Course objectives are more detailed than the course aims and should indicate the measurable performance students must achieve to successfully complete the course.
- g) Lesson objectives are clear and precise statements of the performance, expressed in behavioural terms, which the students are required to achieve in order to attain the course aims.
- h) Enabling objectives are the component knowledge, skills and attitudes that the student must acquire in order to achieve the lesson objectives.

Remember that learning should be relevant to the future needs of the students. That is, learning that will facilitate effective performance by the students in their subsequent professional roles.

When developing a course, educators need to:

1. clearly establish what they are trying to achieve with their students, then
2. decide how they hope to do it, and finally
3. consider to what extent they have been successful in their attempts.

CURRICULUM DEVELOPMENT

a) Stages of Development

The planning of learning opportunities which are intended to bring about certain changes in the students, and the extent to which these changes have taken place, is what is meant by curriculum development. The four stages of development are:

1. Careful examination of the objectives of teaching. This requires the drawing on of all available sources of knowledge and informed judgment.
2. The development of methods and materials which are judged most likely to achieve the objectives agreed upon.
3. The assessment of the extent to which the methods and materials selected

will achieve the objectives.

4. Feedback of the experience gained is necessary in order to provide a starting point for further study. For example:
 - Curriculum process
 - Objectives
 - Methods & materials
 - Feedback
 - Assessment

b) Where to Start

You have been asked to develop a curriculum for a new course in Health Information Management and now you need to determine where you should you start?

We have already said that there are two main factors to be considered when deciding what to teach (Ewan, 1984). These factors are:

- What students must know or be able to do at the completion of the course, and
- What the students already know.

The first step is to determine what the students must learn. That is all the things a student must know to be a competent practitioner. In addition you may want to include other things which are "useful to learn" and perhaps "nice to learn".

To find out what the student must learn the steps are to:

- Write a detailed entry-level role job description for the Health Information practitioner.
- Conduct a task analysis for the role of the Health Information practitioner.
- Determine course objectives.
- Write a statement of content that will enable students to understand what it is they will need to do in order to achieve the stated objectives.

c) Writing a Job Description

A job description defines the standards for a job, aids in evaluating job worth, both internally and externally, clarifies the purpose and essential functions of a position and informs the creation of training and development plans. According to DePaul University (US) "A well written job description describes the main elements of a job and is not a detailed listing of specifications. It provides guidance on the general nature and level of the work being performed. It describes the duties as they currently exist" (2007).

A job description should include 3 main items:

- General summary – this should be a brief paragraph describing the purpose of the position and the level of work to be performed.
- Principal duties and responsibilities – this should be a list of 5-7 essential functions that would be the most important in order to be successful in the position.
- Other applicable knowledge, skills, and abilities – This includes the education and experience preferred in order to perform the principal duties and responsibilities and required certifications.

A sample job description is as follows:

Job title: Health Information Manager

General description: Administer the health record services of the health care facility, including the development, planning, implementation, evaluation and control of health record systems and services

Principal Duties and Responsibilities:

The primary function of the Health Information Manager is the organization and administration of patient information systems within the health care facility. Activities and responsibilities include administration of the health record services department, development, planning, implementing and controlling health record systems and services, administering other areas of patient information services, consulting and advising on patient health information systems, ensure achievement of accreditation standards, protect health information from unauthorised access and produce health information for authorized access, provide in-service training for staff and supervision of students, retrieve, collect, compile and analyse data for internal and external statistical and reporting purposes and for use in patient care, clinical and health service research, evaluation and education, represent the health information department on hospital committees, and performs other duties as assigned.

Minimal acceptable qualifications

Include credentials and education as desired in this section here. Also include any other experience desired such as typing/keyboarding skills, level of computer proficiency desired, etc.

d) Conducting a Task Analysis

A task analysis is the process of gathering information on all aspects of a specific task. Each activity listed in the job description can be broken down into specific tasks which the health information manager must perform and therefore things that the student must

learn. For example, the activity "administer the health record services of the healthcare facility" can be broken down into the following tasks:

- select, direct and supervise staff
- organize the workflow within the health information/health record department
- responsible for all areas of the health information/health record department
- prepare a departmental budget
- evaluate, select and order equipment
- plan the work space and storage areas
- document the activities of the department and
- maintain a policy and procedure manual

Remember that by conducting a task analysis you are analyzing a job in order to decide on the appropriate content for an educational program. In some cases you may need to take each task and break them down further into more specific parts to enable you to identify the knowledge, skills and attitudes required to do the task.

When you have completed your task analysis you should be ready to determine and write detailed course objectives.

Determining Learning Objectives

As mentioned previously, teaching is directed towards outcome. The educator engages in certain activities in order to bring about changes/learning in his students, and must, therefore, know what changes he is trying to achieve. The specifications of what the student must be able to do after instruction, are usually expressed as objectives.

Objectives have three components:

1. Performance: A definition of exactly what the student must be able to do to demonstrate that he has acquired the specific behaviour.
2. Conditions: A statement prescribing the conditions under which the student must demonstrate the specified behaviour.
3. Standards: A statement setting the performance standard against which student behaviour must be judged.

e) Principles for Developing Instructional Objectives

In considering the use of instructional objectives, it is most helpful to note four principles related to the development of objectives. These are:

1. a well-stated instructional objective has as its subject, the learner

2. a well-stated instructional objective has a verb that describes behaviour or performance to be observed
3. included in the objective is a statement describing the conditions under which the student will perform what is learned
4. included is a statement concerned with the standard of performance required of the student who is said to have achieved the objective

Remember that the specification of course objectives is a precise statement of the knowledge, skills and attitudes which all students must attain by the end of the course.

Before proceeding it is important to define knowledge, skills, and attitudes.

- i. Knowledge (cognitive learning) deals with thinking and can range from simple recall of facts to higher-order logical and scientific reasoning.
- ii. Skills (psychomotor learning) deals with the ability to coordinate muscular movements and can range from skills involving a single movement such as pressing a control switch to higher-order skills such as high-speed keyboarding.
- iii. Attitudes (affective learning) deal with feelings and can range from simple awareness of problems to a whole philosophy of life.

You do not have to divide everything into knowledge, skills and attitudes, but you should consider what knowledge, skills and attitudes are involved when analyzing a task.

Once you have analysed the tasks, you will be able to determine what content you will need to cover. Content is often written in terms of learning objectives. Learning objectives enable you to communicate to students and others what the students need to know.

It is important to remember that you should always write learning objectives as **what the student should be able to do** or TSSBAT. For example:

At the conclusion of this course the student should be able to:
Write learning objectives in terms of performance and conditions for lessons or topics listed in an existing syllabus.

Remember to preface all objectives with TSSBAT.

The following points summarize what we mean by learning objectives:

- A learning objective describes an intended outcome of a lesson or part of a lesson. The topics listed in a syllabus usually do no more than provide a summary of its content.
- A learning objective must state in performance or behavioural terms, exactly what the learner will be doing when demonstrating his achievement of the objective.
- The objectives for a lesson may consist of several specific statements. The

objectives for an entire course syllabus will consist of many specific statements.

- The objective that is most usefully stated is the one that, without ambiguity, communicates the instructional intent of the educator.

Three types of learning

According to Benjamin Bloom there are three types of learning:

- Cognitive: mental skills or knowledge
- Affective: growth in feelings or emotional areas or attitude
- Psychomotor: manual or physical skills

“These domains can be thought of as categories. Trainers or educators often refer to these three domains as KSA (Knowledge, Skills, and Attitude). This taxonomy of learning behaviors can be thought of as "the goals of the training process." That is, after the training session, the learner should have acquired new skills, knowledge, and/or attitudes” (Clark, 2009).

Learning objectives should begin with an action verb that describes the behaviour or performance expected from the student. After the action verb comes the subject content that the student is expected to learn.

Consider the following three learning objectives.

The student should be able to:

1. State the difference between ratio, rate and a proportion
2. Draw a population pyramid
3. Display receptiveness to ideas/opinions of others in a group situation.

The three action verbs "state", "draw", and "display" correspond to the three types of learning: knowledge, skills and attitudes.

Many verbs are imprecise and open to a range of interpretations. Others are more precise, less open to misinterpretation, and therefore more suitable for stating learning objectives. For example, although it is not wrong to use words such as "understand" or "recognise" when you are writing objectives, these verbs are not sufficiently explicit to be useful until you indicate how you intend to sample or test what the student understands and what he/she should be able to recognise. That is, what the student will be doing when he is demonstrating that he "understands" or "recognises".

Words associated with the three types of learning domains as suggested in Bloom's
IFHIMA Education Module 9: Manual for Educators (2012)

Taxonomy [1956] include:

1. Words associated with the Cognitive Domain include:

Knowledge	Comprehension	Application
defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states	comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives Examples, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates	applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses

Analysis	Synthesis	Evaluation
analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates	categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes	appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports

This domain involves the knowledge and development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. Each of these categories is listed starting from the simplest behavior to the most complex. The categories can be thought of as degrees of difficulties. That is, the first one must be mastered before the next one can take place. (Clark, 2009)

2. Words associated with the affective domain include:

Receiving phenomena	Responding to phenomena	Valuing	Organization	Internalizing values
asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies,	answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices,	completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports,	adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes,	acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes,

uses	presents, reads, recites, reports, selects, tells, writes	selects, shares, studies, works	identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes	qualifies, questions, revises, serves, solves, verifies
------	--	------------------------------------	--	--

“The affective domain (Krathwohl, Bloom, Masia, 1973) includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories are listed from the simplest behavior to the most complex” (Clark, 2009)

3. Words associated with the Psychomotor Domain include:

Perception	Set	Guided response	Mechanism	Complex overt response	Adaptation	Origination
chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects	begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers	copies, traces, follows, react, reproduce, responds	assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches	assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches NOTE: The Key Words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance	adapts, alters, changes, rearranges, reorganizes, revises, varies	arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates

				is quicker, better, more accurate, etc		
--	--	--	--	---	--	--

“The psychomotor domain (Simpson, 1972) includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The seven major categories are listed from the simplest behavior to the most complex” (Clark, 2009).

f) Subject outline

Finally, when developing a curriculum you should prepare a subject outline along the following lines:

Subject title; Hours; Pre-requisite (prior knowledge of student); Co-requisite (what should be taught at the same time); General aim of the subject; Specific objectives; Content; presentation;. Assessment; Textbooks to be used; References to be used

A subject outline could look like this:

SUBJECT: HEALTH RECORD MANAGEMENT **HOURS:** 60 hours; 2 hours per week for Semester I; 2 hours per week for Semester II; **PRE-REQUISISTE:** Nil **CO-REQUISITES:** Nil **GENERAL AIM:** This subject introduces the student to the concepts of a health information system by means of an integrated study of the nature of information and health record management. The theory of information systems is complemented by practical implementation in both manual and computerized environments.

SPECIFIC OBJECTIVES: At the conclusion of this subject the student should be able to:

1. explain the basic concepts of an information system and the nature of medical information;
2. determine the roles and responsibilities of health record departments and hospital committees in maintaining the quality of health records;
3. analyze privacy and confidentiality issues relating to health care delivery in a hospital;
4. perform the technical functions of health record procedures and describe how they relate to serving the needs of the health care facility and the patient;
5. determine the value and uses of the health record and the requirements for a complete health record;
6. compute hospital statistics from daily bed census figures, using the appropriate formula

7. discriminate between a structured and unstructured health record

CONTENT:

1. Introduction to information systems concepts and components of an information system;
2. distinction between data capture and collection;
3. development of the health record during the medical care process;
4. quality in health recording/documentation; record structures including source oriented, problem oriented documentation;
5. the health record as an information system; electronic health record systems;
6. patient identification and master patient index;
7. record numbering and filing systems; record control;
8. record retention and storage;
9. discharge analysis;
10. hospital census and hospital statistics;
11. privacy, security, confidentiality and release of information

PRESENTATION: Lectures and small group tutorials

ASSESSMENT:

One 1500 word essay assignment	20%
One x 2 hour exam each semester	80%

TEXTBOOKS TO BE USED:

Burch, John G., Strater, Felix R., and Grudnitski, *Information systems: Theory and practice (2nd Ed.)*, New York: John Wiley & Sons.

Huffman, Edna K. (1981). *Health record Management (7th Ed)*. Berwyn, IL: Physicians Record Company.

REFERENCES TO BE USED:

Place, Irene, Hyslop, David J. (1982). *Records Management: Controlling Business Information*. Virginia: Preston Publishing Co. Inc.

Waters, K.A., Murphy, G.K. (1979). *Health records in Health Information*. Germantown: Aspen Systems Corporation.

SUMMARY

Remember, the process for defining the content of a course for health information practitioners is as follows (Ewan, 1984):

1. Analyse the work situation and determine the needs
2. Define the general functions of the health information practitioner
3. Write a job description for the health information manager
4. Break down the activities relating to the job description into specific tasks
5. Determine the knowledge, skills and attitudes necessary to perform the tasks
6. Write learning objectives based on the determined knowledge, skills and attitudes, and
7. Determine the content needed to achieve the stated learning objectives

REFERENCES:

Bloom, B.S. et al. (1956). *Taxonomy of Educational Objectives: The Classification of Education Goals*. New York: Longmans Green.

Clark, D. (2009, May 26). *Bloom's taxonomy of learning domains*. Retrieved June 1, 2010, from Big Dog & Little Dog Performance Juxtaposition:
<http://www.nwlink.com/~donclark/hrd/bloom.html>

DePaul University. (2007). *Writing job descriptions*. Retrieved May 31, 2010, from Office of Human Resources:
<http://hr.depaul.edu/ContributionFolder/Documents/Compensation/WritingJobDescriptions.pdf>.

Ewan, C.E. (1984). *Teaching Skills Development Manual: A Guide for Teachers of Health Workers*. Sydney: University of NSW, School of Medical Education.

UNIT 2 EXERCISES

INSTRUCTIONS

1. Work at your own pace.
2. Put a checkmark by your choice of answers or write your answers in the spaces provided.
3. Always give your own answer before looking up answers
4. Correct any mistakes after checking your answers

EXERCISE 1 - WRITING LEARNING OBJECTIVES

A. INTRODUCTION

At present, the contents of our courses are usually controlled by means of a syllabus which is issued in a traditional format, i.e. a list of the topics to be "covered" during the course. It is important, therefore, if that primary aim is to be met, that when writing the syllabus and subsequently the lesson plans care should be exercised to ensure that they are written in such a way that the effectiveness of the course is guaranteed for every student.

Look at the example shown below of a traditional syllabus:

Lecture/ Practice - Electrical units and trade, electrical measurement, and technology

This lecture will discuss the units of current EMF resistance and power and their relationship to one another, calculation of circuit resistance and symbol representation, and the use of instruments for the measurement of current voltage and resistance.

This is supposed to indicate the performance of a student. Many questions arise here:

- a) Which units and relationships are concerned, and is the trainee to define them, list them, and state their derivation or what?
- b) What calculations must the trainee be able to make, given what information and, if appropriate, what equipment; how many must he make, in what period of time, and how many must he get correct?
- c) Which instruments must the trained man be able to use, to what accuracy, and under what conditions?

If the student is to be able to perform effectively the tasks for which he is being taught, the instructor must have available a clear statement of what the student must be able to

do, the conditions under which he will be expected to do it and the standard to which he must do it. The traditional syllabus provided in this example does not provide this information and the questions posed in sub paragraphs a) to c) above are indicative of the difficulties involved in attempting to interpret statements of course content contained in traditional syllabi.

Reference for this section:

From notes prepared by WHO for a Workshop for Teachers of Health and Health record Science, New Delhi, 1979.

B. OBJECTIVES

Only by writing syllabi as objectives will the difficulties be resolved. With this in mind, this exercise has the following:

1. Given a number of statements of training objectives and the labels "Performance", "Conditions" and "Standards", the reader should be able to label the main parts of all the statements and identify which parts are missing in any statement which is not complete.
2. The reader should be able to state without error the two requirements of the performance words in a good objective and identify acceptable words from a given list.
3. Given extracts from attempts at objectively written syllabi the reader should be able to identify those with acceptable performance elements.
4. Given extracts from existing syllabi the reader should be able to write lesson objectives stated in performance terms.

Here is an example of a lesson objective:

The student must be able to list all the steps required to prepare a discharge list for distribution to service departments.

This is a statement of what a student must do (the **performance** required to show that he has learned, i.e. he has to draw up a list). Thus a lesson objective must contain a performance element. In the previous example where the student must list the steps, as an educator you would probably ask some questions as follows:

- a) In what environment will the performance take place?
- b) Are reference documents to be used?
- c) Can the student receive any assistance from other personnel?

SELF TEST QUESTIONS

In answering the above questions it is seen that the lesson objective is not as precise as

it could be, since we have not stipulated under what **conditions** he has to do it.

Question 1) A lesson objective must state _____ as well as performance.

We can also ask further questions as follows:

- a) How long is he given to draw up his list? i.e. standards of time
- b) Are errors acceptable? i.e. standards of accuracy
- c) Must the steps be in a particular sequence? i.e. standards specified in reference documents

Question 2) These further statements are standards of performance required by the job. Hence to make an objective complete we must also include: _____

Question 3) State the three essential elements of a good learning objective:

- a) _____
- b) _____
- c) _____

Because of the importance of the three elements and to make it easier to write we prefer to put the objectives into three columns.

PERFORMANCE	CONDITIONS	STANDARDS
List all the steps required to prepare a discharge list for distribution to service departments	Without reference to notes or any other source of material	In the correct sequence as described in the procedure manual without error

Question 4) Let us now consider another lesson objective:

Given a dinner menu select and set out correctly the cutlery and glasses for 40 places within 40 minutes.

Sort this objective it into its 3 elements, placing them in the columns below.

PERFORMANCE	CONDITIONS	STANDARDS
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Question 5) now you should have attained the performance specified in the first objective of this exercise, i.e. label the parts of a lesson objective. See if you can identify the elements present in the two incomplete objectives below.

Read them through, and then write out the parts of the objective on the table below.

1. Given 10 different quadratic equations, with no reference for aid, the student should calculate the value of the unknowns.
2. The student should measure voltages to an accuracy of within + 2%

PERFORMANCE	CONDITIONS	STANDARDS
_____	_____	_____
_____	_____	_____

Let's see how we can apply this objective approach to an extract from a traditional syllabus shown below:

The overhead visual aids tutorial projector

This can be re-written as a lesson objective to read as:

PERFORMANCE	CONDITIONS	STANDARDS
He must operate the Overhead projector	in a classroom with students present	correctly

Question 6) you have just seen in the previous frame how an extract of an existing syllabus has been expanded into a complete lesson objective with the three elements of _____, conditions and standards.

Question 7) we will focus our attention during the rest of this exercise to this performance element which describes what the student must be able to _____ to show that he has learned.

Question 8) Look at the performance element of these 2 objectives:

- a) He must operate the instructional media
- b) He must state the uses of the instructional media

The words "operate" and "state" tell us what the student must do, not just "to understand" or "have knowledge" of the operation and characteristics. The point is the student must carry out the action of operating and stating. Thus the verb, "operate", describes what is expected of the students' performance.

Look at the following two groups of verbs and notice the difference. One of the groups might be used in the specification of performance. Suppose you specify that the learner will be able:

A to know to perceive

to understand
to appreciate
to recognize
to remember
to be acquainted with
to be familiar with

to have knowledge of
to be aware of
to realize
to comprehend
to sympathize with
to be conscious of

B
to write
to recite
to identify
to build
to find
to file
to weigh

to list
to conduct
to select
to raise
to solve
to construct

Question 9) which of these two groups ought to be used in writing an objective?

A _____ or B _____

Consider the description "to understand" in group A. It in fact means very little. This does not mean that understanding is unimportant. What you as a writer of objectives must do, is decide what you want to observe the student doing as evidence that he "understands".

Question 10) put a checkmark in the box marked YES if you think the given verb could be used in an objective, and in the box marked NO if you think that it could not, that is if it indicates a thought process.

	YES	NO
a) Appreciate	_____	_____
b) Identify	_____	_____
c) Fit	_____	_____
d) Remember	_____	_____
e) Lift	_____	_____
f) Select	_____	_____

g) Comprehend _____

Question 11) It has already been pointed out that an objective will need to include a statement of the standard a student must achieve. It is important for the instructor to be able to measure whether or not the student has reached that standard.

The problem of ensuring that the action described is one that is measurable is a particularly difficult one. For example, let's look at the performance "to describe". This action is observable but is it measurable? _____ (yes/no)

Question 12) Consider the case of one particular syllabus where the student is required to "know, understand, appreciate, or be conversant with". None of these performance words illustrates an action which is at all observable. Thus we must at least find a word which illustrates an observable performance, which is as near as possible to the required performance. Would the words "explain", "discuss", and "describe" be better choices? _____ (yes/no)

For some knowledge and, almost certainly, all attitudinal training (e.g. liberal studies, leadership and management) it is difficult to write objectives containing performance words, illustrating action which is both measurable and observable. Here we should at least seek observable performance for the lesson objectives.

Remember in education we are aiming for the students' acquisition of knowledge, skills and attitudes. It may help to think of these as three separate categories and choose verbs which would fit them. The knowledge verbs will not be too difficult to find providing that you avoid the trap of describing a thought process.

Question 13) Consider the words "list", "identify" and "state" These are acceptable in objectives because they are both _____ and _____.

The Skills area is more difficult and may require some definition of the verb used, e.g. "operate" means "to control physically".

In the knowledge and skills categories there are many verbs which describe actions which are both observable and measurable.

It is the attitude category which creates most difficulty. The guiding rule must be if you use a verb that is observable but not measurable be certain that you are describing an activity in the attitude category; if you are not, change the verb.

Here are a few points relating to writing attitudinal objectives:

When teaching medical statistics to health information students you will be concerned with increasing their knowledge - knowledge ranging from recall of facts to ability to

solve problems. On the other hand, the skills you will expect them to acquire will be few: these may include ability to assemble data in tables, draw graphs and bar diagrams, use a simple electronic calculating machine and fill in forms, such as the standard death certificate, neatly and accurately. You will not find it difficult to write performance objectives for most of the knowledge and skills you expect your students to display by the end of your course. What you will have difficulty with is the writing of objectives to describe the observable and measurable actions you expect them to display in relation to the changes in attitudes you hope to bring about. Yet the changing of students' attitudes towards the relevance of statistics to health care, and towards the interpretation of medical and particularly clinical evidence in the light of statistical concepts, is an important, and some would say the most important task facing the educator of medical statistics.

How difficult it is to write explicit attitudinal objectives is well illustrated by the following example, taken from a course on medical statistics:

The student should be able to appreciate the role of biological variability in medicine.

This may be a worthy attitudinal objective, but it fails to communicate. No one, least of all the student, will have any clear idea about what the person who formulated it intended to teach or what change in attitudes his students would be expected to demonstrate as the result of his teaching. This would be made a little clearer if it read:

The student should be able to state what is meant by biological, instrumental and observer variability in clinical medicine and give two examples of each taken from among the biochemical laboratory measurements commonly requested by hospital physicians.

"To appreciate the role of" describes nothing that is observable, let alone measurable; "to explain" (or "discuss" or "describe") is more explicit - the expected behaviour can at least be observed, although it may be difficult to measure. To ask the student to state what is meant by the different types of variability and to give two examples of each from a defined area of medicine makes the objective much more explicit and at least in part measurable.

The following questions are statements from attempts at objectively written syllabi. Indicate by a tick in the YES/NO boxes, those with acceptable performance elements.

Question 14) in each case "the students should" statement should be understood to precede the performance elements.

	Yes	NO
a) Be able to classify a disease process	_____	_____
b) Be able to compute the gross death rate	_____	_____
c) Know the correct formula for the calculation of	_____	_____

- | | | |
|---|-------|-------|
| an infection rate | | |
| d) Be able to state the five uses of hospital statistics | _____ | _____ |
| e) Understand the meaning of informed consent | _____ | _____ |
| f) Be aware of the safety procedure to be adopted during fire exercise | _____ | _____ |
| g) List the three components of a learning objective | _____ | _____ |
| h) Differentiate between correctly and incorrectly expressed objectives | _____ | _____ |

How well did you do?

If you had less than 1 error proceed to the next question.

If you had more than 1 error go back to question 13.

Question 15) Which of the following learning objectives, are stated in performance or behavioural terms? Put a tick in the Yes or No column against each example.

- | | Yes | NO |
|--|-------|-------|
| a) to know how to compute the standard deviation | _____ | _____ |
| b) to understand and describe the concept of biological variability | _____ | _____ |
| c) to apply the chi-square test to a given set of data | _____ | _____ |
| d) to write down the formula for the standard deviation | _____ | _____ |
| e) to recognize the misapplication of statistical principles or methods in medical publications | _____ | _____ |
| f) to list in logical order the steps to be taken in the computation of the standard error of the difference between two proportions | _____ | _____ |
| g) to explain the uses of the t test | _____ | _____ |

Question 16) As mentioned previously, some verbs are much more suitable than others in the formulation of learning objectives. Which of the following are suitable and which less suitable?

- | | Suitable | Less Suitable |
|------------------|----------|---------------|
| a) to know | _____ | _____ |
| b) to compute | _____ | _____ |
| c) to list | _____ | _____ |
| d) to understand | _____ | _____ |
| e) to appreciate | _____ | _____ |
| f) to identify | _____ | _____ |
| g) to realize | _____ | _____ |

h) to construct	_____	_____
i) to assemble	_____	_____
j) to be aware of	_____	_____
k) to calculate	_____	_____
l) to specify	_____	_____
m) to tabulate	_____	_____
n) to discuss	_____	_____
o) to use	_____	_____
p) to describe	_____	_____
q) to name	_____	_____
r) to make	_____	_____
s) to operate	_____	_____
t) to be familiar with	_____	_____

Check your answers against the answers given on page 36.

Question 17) Now see if you can categorize correctly the following verbs all commonly used in learning objectives, according to whether they are concerned with measuring knowledge, skills, or attitudes. Place a checkmark in the correct column for each verb. Some will have more than one answer.

	Knowledge	Skills	Attitudes
a) assemble	_____	_____	_____
b) compute	_____	_____	_____
c) categorize	_____	_____	_____
d) construct	_____	_____	_____
e) calculate	_____	_____	_____
f) define	_____	_____	_____
g) discuss	_____	_____	_____
h) draw	_____	_____	_____
i) describe	_____	_____	_____
j) explain	_____	_____	_____
k) identify	_____	_____	_____
l) list	_____	_____	_____
m) make	_____	_____	_____
n) recognize	_____	_____	_____
o) state	_____	_____	_____
p) specify	_____	_____	_____

Check your answers against the answers given on page 37.

ANSWERS TO EXERCISE 1 QUESTIONS

Question 1) CONDITIONS

Question 2) STANDARDS

Question 3) a) PERFORMANCE b) CONDITIONS c) STANDARDS

Question 4)

PERFORMANCE	CONDITIONS	STANDARDS
Select and set out the cutlery and Glasses	given a menu minutes _____	correctly 40 places 40 minutes

Question 5)

PERFORMANCE	CONDITIONS	STANDARDS
given 10 different	with no reference to aid	calculate the value of unknowns

Measure voltages	_____	accuracy within +2%
------------------	-------	---------------------

Question 6) PERFORMANCE

Questions 7) DO

Question 8) ACTION

Question 9) Group A describes thought processes which no one can see. Group B describes actions. These are performances that are observable.

Question 10) Yes examples, b, c, e and f are "observable".

Question 11) we think you will agree that it is difficult to measure a description, because there is no valid or reliable means of doing it.

Question 12) Yes they would be, even if they are difficult to measure. If your answer was NO, please return to Q.11 and read again.

Question 13) OBSERVABLE AND MEASURABLE

Question 14.

	Yes	No
a) Be able to classify a disease process	x	_____
b) Be able to compute the gross death rate	x	_____
c) Know the correct formula for the calculation of an infection rate	x	_____
d) Be able to state the five uses of hospital statistics	x	_____
e) Understand the meaning of informed consent	_____	x
f) Be aware of the safety procedure to be adopted during fire exercise	_____	x
g) List the three components of a learning objective	x	_____
h) Differentiate between correctly and incorrectly expressed objectives	x	_____

Question 15

	Yes	NO
a) to know how to compute the standard deviation	x	_____
b) to understand and describe the concept of biological variability	x	_____
c) to apply the chi-square test to a given set of data	x	_____
d) to write down the formula for the standard deviation	x	_____
e) to recognize the misapplication of statistical principles or methods in medical publications	x	_____
f) to list in logical order the steps to be taken in the computation of the standard error of the difference between two proportions	x	_____
g) to explain the uses of the t test	x	_____

Question 16

	Suitable	Less Suitable
a) to know	x	_____
b) to compute	x	_____
c) to list	x	_____
d) to understand	_____	x
e) to appreciate	_____	x
f) to identify	x	_____
g) to realize	_____	x
h) to construct	x	_____
i) to assemble	x	_____
j) to be aware of	_____	x
k) to calculate	x	_____
l) to specify	x	_____
m) to tabulate	x	_____
n) to discuss	x	_____
o) to use	x	_____
p) to describe	x	_____
q) to name	x	_____
r) to make	x	_____
s) to operate	x	_____
t) to be familiar with	_____	x

Question 17

	Knowledge	Skills	Attitudes
a) assemble	_____	x	_____
b) compute	x	_____	_____
c) categorize	x	_____	_____
d) construct	x	x	_____
e) calculate	x	_____	_____
f) define	x	_____	_____
g) discuss	_____	_____	x
h) draw	x	x	x
i) describe	x	_____	_____
j) explain	x	x	x
k) identify	x	x	x
l) list	x	_____	x
m) make	x	x	x
n) recognize	x	_____	_____
o) state	x	x	x
p) specify	x	x	x

UNIT 2 - EXERCISE 2 - DEVELOPING LEARNING OBJECTIVES

Write at least 3 learning objectives using the following guide.

SUBJECT: Master Patient Index

Content Limits: (Knowledge, skill, attitude, and specific subject matter limits)

Given (what conditions will student work with, or respond to?)

The student should (observable performance or product showing his performance, i.e. state, write, construct, etc.)

Performance standards (How well? Quantitative and/or qualitative minimum standards for acceptable performance)

UNIT 2 - EXERCISE 3 - EXERCISE IN COURSE SYLLABUS WRITING

This exercise should be undertaken in a group situation.

INTRODUCTION

The objectives of this group exercise are to:

1. provide practice in stating a course aim clearly and precisely,
2. analyze an existing course syllabus and restate a section of it in the form of a list of course objectives,
3. arrange the objectives into a logical teaching sequence,
4. define the lesson objectives required for the attainment of the course objectives (including standards to be attained and the conditions of attainment of each objective),
5. allot lesson objectives to the necessary number of lessons required for their attainment and arranging the lessons in an appropriate sequence.

TASK

The group is to analyse an existing course syllabus and all related examination papers. In light of the subject knowledge and teaching experience of group members, they should then be able to:

- a) Define the aim of the course syllabus
- b) Re-write a section of the syllabus in the form of a list of course objectives
- c) Arrange the course objectives in logical teaching order
- d) Derive lesson objectives, with conditions and standards, from the course objectives
- e) Allot the lesson objectives to the number of lessons needed to cover the selected section of the syllabus.

PROCEDURE

1. Each group will elect a chairman who will be responsible for chairing meetings, allotting tasks to group members and submitting the group's solutions at the end of the session. At the first meeting each group will agree on the division of work between members, the way it will be carried out, and the procedure for presenting it. As quickly as possible thereafter group members will produce a list of course objectives for which they are responsible. These objectives should be discussed at a group meeting and agreed upon or revised as necessary. When the group has agreed on the completely rewritten section of the syllabus as a comprehensive list of course objectives, work on the formulation of objectives for each lesson may proceed.

2. To prepare the lesson objectives, the course objectives should first be arranged in a logically sequenced learning order. Having agreed on the length and number of lessons for the course, each objective may then be allotted to one or more lessons, because it is from the course objectives that the objectives for each lesson (the lesson objectives) are derived. In some cases the course objectives, as written, may be acceptable as the lesson objectives, but usually it will be found that the lesson objectives will be amended and become expanded versions of the course objectives.

3. The group chairmen will meet to consider how the results of the exercise might be consolidated to produce one basic syllabus.

UNIT 3 – Creating Conditions for Learning

Once you have decided on the material that the students must know and which parts represents knowledge, skills and attitudes, the next step is to decide how to create conditions which will help the students learn what they must know. Every student learns best when taught at their own level of working competence, with tasks that are challenging and with procedures and materials that are of the highest interest. In other words, there are differences among students which affect their learning. Some students learn best by reading and others by doing. Therefore, when planning teaching sessions, it is important to keep in mind the variations in personality, level of education, preferences, and background knowledge of students.

OBJECTIVES

At the conclusion of this unit you should be able to:

1. Create the appropriate conditions in your classes to enable your students to effectively learn the knowledge, skills and attitudes required to achieve their learning objectives.

Conditions of learning

Two categories of conditions for learning have been identified, (Ewan, 1984). These are:

- a) Environmental, and
 - b) Personal
- a. Environmental conditions include physical facilities, educator style, resources available, attitudes of the class to the subject and to the learning itself.

Physical factors include the physical environment such as adequate lighting, ventilation, seating, temperature, and external noise control. Teaching materials and resources such as handouts, pictures, models, chalkboards, whiteboards and overhead projectors often enhance the presentation of an effective teaching session.

Behavioral factors include such things as the educator's personality. If the students find their teacher unapproachable or distant, they will be hesitant to participate in class. If they feel uncomfortable with the teacher, students tend to withdraw from any interaction.

There is always room for relaxation in a classroom while at the same time

maintaining a good working atmosphere. Such relaxation will allow for questions, discussions and minor diversions from the topic to explore unexpected comments or suggestions.

It is important to treat students as individuals whenever class sizes permit. Being positive about a student's response, even if it is incorrect, is important. If an incorrect answer is given the educator should take time to assist the student in reaching the correct answer. Praise should also be given for work well done. Harsh criticism should be avoided as students will be more inclined to offer comments if they know the educator will listen and not criticize if they are wrong. Students, however, must be told when they are wrong, but such criticism should be constructive, not destructive. A quiet explanation of where he/she went wrong and how the mistake can be corrected gives the student the opportunity to learn from the mistake. Personal insults should be avoided.

- b. Personal conditions include motivation which is often considered to be the most important condition for learning. We all know that students must want to learn. We have all been students at some time or another and we should be aware of the many contributing factors relating to lack of motivation and disinterest.

In many cases students are motivated to pass examinations and are not motivated to learn anything which is may not appear on an exam. It is important, therefore, for the educator to help students see the relevance of what they are learning. They should be sufficiently motivated by a desire to learn in order to become a competent practitioner. This motivation should be encouraged by the educator. Ewan (1984) describes two kinds of motivation:

1. External motivation which is achieved in the form of exams, assignments and other forms of formal assessment, and
2. Internal motivation which occurs when students have an interest in learning and have personal goals to achieve.

The educators' task is to create conditions of learning in which students' internal motivation is recognized and encouraged to develop. Educators should also see that sources of external motivation are kept in their right perspective.

Conditions of learning knowledge

An educator's job has three (3) main purposes (Ewan, 1984):

1. presenting information in such a way that it is easy for students to retain information,
2. presenting information in such a way that students are able to store it for future use,

3. providing opportunities for students to strengthen their learning by using it to perform tasks or information out

The conditions of learning for knowledge, skills, and attitudes are slightly different but their basic principles are the same.

a) Input

It is important to present information in a way that students can understand. Facts should be presented in a way that students can easily understand and must be relevant to the students' learning needs.

b) Process and Storage

Information should be readily recalled. That is, the student must be able to store the information in such a way that facts can be retrieved when needed. When new material is being presented the use of examples or reminding students of previous learning will assist the student with storing the new information for easy recall.

c) Output/performance

Information learned and stored must be used to perform tasks or solve problems. Students should be given practice in applying knowledge to situations similar to those they will meet when they join the workforce. They should also be given the opportunity to apply their knowledge to situations which are not familiar or typical. The introduction of new and unusual problems enables students to work beyond simple recall. They need to analyse a problem and think through a range of possible solutions until they come to one which will effectively solve the given problems.

Conditions of learning skills

Skills are tasks which students learn to do by practice. The same three areas, input, process/storage and output/performance apply here (Ewan, 1984).

a) Input

Students must know what they are expected to do. This can be achieved by demonstration, films, videos or role play. If a skill has several components, the students must be taught each component step by step. They should master each step before moving on to the next one.

b) Process and Storage

Students must be given the opportunity to practice the skill being taught. It is important to provide students with the opportunity to practice professional skills in a real-life situation or in a simulation exercise. For example, if you are teaching terminal digit filing you should have a "practice filing area". The students could practice filing in this simulated file before being sent to a real life situation in a hospital.

c) Output/performance

Students must be told how well they are performing, that is, given feedback. Remember our discussion in Unit 1. Students must be told if they are performing a task incorrectly to enable them to correct their mistake before proceeding to other tasks.

Conditions of learning attitudes

“Attitudes are usually defined as a disposition or tendency to respond positively or negatively towards a certain thing (idea, object, person, and situation). They encompass, or are closely related to, our opinions and beliefs and are based upon our experiences. As far as instruction is concerned, a great deal of learning involves acquiring or changing attitudes” (Kearsley, 2010).

It is important to expose students to good role models of desired behaviour during their training. They should also be given an opportunity to try out their new attitudes and judge their effectiveness. This can be achieved by providing a practical placement in a hospital or other health care facility.

METHODS OF TEACHING

Conditions of learning are only part of the answer on how to teach a particular subject. The other part lies in the selection of teaching methods. Some common teaching methods are listed below:

- Lecture
- Seminar
- Group discussion
- Buzz groups - Groups of 2-6 members who discuss issues or problems for a short period
- Demonstrations - The educator performs some operation
- Role Play
- Tutorial
- Simulation and Games

The Lecture

The lecture is probably the quickest and most economical method of presenting information to a large number of people at one time and is a widely used teaching method in higher education establishments. Although an economical teaching method, the lecture is an inefficient one because there is usually no feedback from the students during the lecture, and the lecturer cannot tell whether the students are and retaining any information. If, therefore, the maximum teaching value is to be gained from lecturing, it is essential that each lecture should be very carefully prepared and presented.

Lecture Preparation

Thomas H. Staton in his book "How to Instruct Successfully" suggests that when preparing a lecture the educator should remember that he is dealing with people and use the letters of the word "PEOPLE" as a prompt for the steps in preparing a lecture, in the following manner:

- P - PINPOINT the exact purpose of the lecture by defining the overall objective and the precise enabling objectives.
- E - EXAMINE the backgrounds, existing knowledge, and needs of the students who will attend the lecture, so that the information to be presented to them is at their level, is not too complicated for their understanding, does not cover the ground already covered by someone else, and will be presented to them in words which they will all understand, i.e. technical jargon and technical terms must be explained if they will be unfamiliar to the students.
- O - ORIENTATE the talk to match the knowledge and interests of the students. Plan to present accurate, up-to-date and relevant information in an interesting manner. Decide what equipment will be necessary to deliver the lecture and make sure that it will be available in working order.
- P - PARTITION the lecture material into convenient sections so that the students' learning will be facilitated.
- L -LIMIT the lecture material to that which can be readily absorbed by the students in the time available. Decide how much time to spend on each objective and the important points to include in a hand-out to obviate or minimize the need for note-taking during the lecture.
- E - EXAMPLES should be used when appropriate to make the subject matter vivid and to stimulate the students' interest.

Structure of the Lecture

A lecture should have an introduction, a development section and a conclusion. The introduction should briefly review previous work or refer to previous lectures. The introduction should arouse the students' interest and get them motivated them to learn while stating the objective(s) of the lecture.

The development section is the main part of the lecture, and describes how the objectives can be attained. The subject matter should be presented in a logical order using any appropriate audiovisual aids both to enhance the students' understanding and to maintain their interest. The objectives should each be stated at the appropriate stage of the development section so that students are aware of what the lecturer is trying to teach.

The conclusion should consist of a re-capitulation of the main points of the lecture, the answering of questions and a short description of the subject of the next lecture in the series.

Suggested Lecture Plan

It is most important that a lecture be carefully timed to ensure that the subject matter can be taught in the time available. If in doubt, rehearse beforehand to make certain that it can. Such a plan will provide an instructor with time signals which will help adhere to the planned delivery programme. The following table is an example of a lecture plan for a one-hour lecture.

Timing	Teaching points	Aids
5 minutes	Introduction section	PowerPoint slide
15 minutes	Objective 1	PowerPoint slide, diagram, chart
15 minutes	Objective 2	PowerPoint slide, table
15 minutes	Objective 3	PowerPoint slide, math problem
10 minutes	Conclusion section/questions	Power Point slide

Final Preparations

Before the start of the lecture the lecturer should:

1. Check that the seating arrangements in the lecture room will enable all students to see and hear the lecturer.
2. Check that all the students will be able to see clearly all visual aids that will be used in the lecture.
3. Check that all teaching aids, demonstration equipment, etc. are available in the lecture room and are working properly.
4. Check that any hand-outs to be given to students are available before the start of the lecture.
5. Read through the lecture material to ensure that it will be fresh in memory at the start of the lecture.

Delivery of the Lecture

1. Voice and manner. The lecturer should:

- Make sure that they can be easily heard by everyone in the lecture room. If in doubt, ask those at the back.
 - Speak confidently and enthusiastically.
 - Speak slowly and clearly.
 - Avoid sounding monotonous by making frequent changes of pitch and volume.
2. Mannerisms. The lecturer should avoid distracting mannerisms such as addressing the lecture to the ceiling, constantly looking out a window, fiddling with money or keys in pockets, juggling with a piece of chalk, swaying from side to side, or any other distracting mannerism.
 3. Vocabulary. The lecturer should use the simplest possible vocabulary and certainly one that is sure to be understood by all of the audience. When it is necessary to use technical terms or jargon which are new to the audience, their meaning should be carefully explained.
 4. Timing. It is important that the lecturer adhere to planned timings. The effectiveness of a lecture is often nullified if the lecturer has to rush through later parts of it because he has overstepped the time allotted to earlier parts. Timings should be marked on the lesson plan or, if using a script, at the top of each page of the script and should keep a close eye on the time throughout the lecture.

Post-lecture

After the lecture the lecturer should try to obtain opinions of members of the audience about the effectiveness and/or strengths and weaknesses of the lecture, so that necessary improvements can be made before delivering the lecture again. A critical self-appraisal can be done to make note of the points which can be improved the next time the same lecture is delivered or for future lectures that will be presented.

The Lesson

The lesson consists of:

- Statement of lesson objective/s
- Assessment of knowledge, skills and attitudes of students
- Design of lesson plan
- Implementation of lesson
- Evaluation of achievement of lesson objective/s by students

Lesson preparation

Before giving a lesson, the educator must have adequate knowledge of the subject to be taught and must decide on the form and content of the lesson, taking into account the abilities and background of the students and the time available for the lesson.

Consideration should be given to the following:

- The overall objective/s of the lesson must be correlated with other subjects in the

course syllabus

- must be precisely and clearly defined in simple language
- must, when appropriate, state the standard to be achieved and the conditions
- must be attainable within the time allotted to the lesson

The enabling objective

An overall objective may be achieved in a series of steps, which are referred to as the enabling objectives. The attainment of the enabling objectives leads logically to the attainment of the overall lesson objective.

Selection of teaching material

The material to be used during the lesson:

- Should not be excessive
- Should be relevant to the objective/s of the lesson
- Should be suitable for the type of student being taught.

Arrangement of teaching material

The teaching material should be arranged in a logical sequence and should proceed from the known to the unknown and from the simple to the complex.

Design of a teaching plan

Having decided what to teach, a suitable plan for the teaching of each unit of the subject matter must be prepared. This should be designed by the educator to suit their own manner of teaching and is always amended as the result of experience and of feedback from students. There are a variety of ways of designing a teaching plan. One of the clearest ways is the columnar plan in which the plan is set out under column headings such as: Lesson number, Lesson length, Objectives, Audio-visual aids, in- class work, tests and homework. Having a plan is important to ensure proper attention has been paid to facilitate learning by the students. These include:

- a logical sequence
- efficient allocation of teaching time
- precise teaching objectives
- the choice of the best teaching methods
- appropriate questions and testing

Structure of the lesson

Similar to the structure of a lecture a lesson consists of an introduction, the development of the subject to be taught or the body of the lesson and the conclusion.

The introduction

The purpose of the introduction to a lesson is to lead the students into the new subject matter, arouse their interest, win their attention, and motivate them to learn. The introduction should be short and relevant and should inform the students of what they

are to be taught in the lesson; it should recall previous work on the subject and lead naturally to the statement of the objective/s of the lesson. It should provide an explanation of why the students need to learn the subject matter, and if this is possible, describe the practical applications of the subject matter or its relevance to current or historical events. There should be time to allow questioning of the students to enable the educator to determine their readiness for the new work.

The body of the lesson

The body of the lesson is broken down into a series of steps or the enabling objectives, which lead logically to the attainment of the overall lesson objective or objectives. These objectives must be given to the students at the outset so that they know what they are required to learn, and what the educator is trying to teach. The number of enabling objectives will depend on the complexity of the subject to be taught and the abilities of the students. Short steps command the students' attention, assist student participation, maintain students' interest, and enable the educator to ensure that nobody is being left behind.

Throughout the lesson, and at the end of each step in the lesson, the educator should question the students on the content to ensure they are learning. After the educator is satisfied that the students are comfortable with the content then you can move on to the next objective. Keep in mind that students learn through the eyes as well as the ears and that variety stimulates interest. Visual aids, models, actual pieces of equipment and practical demonstrations should be used whenever possible to reinforce teaching and learning. It is always a good idea to test visual aids before the lesson to make sure that they will work.

The conclusion

The conclusion of a lesson consists of recapitulation of its subject matter and testing to:

- Reinforce the subject matter taught in the lesson
- Discover whether all the students have learned what has been taught and,
- Measure the teacher's effectiveness.

During the conclusion, each enabling objective should be restated and followed by questioning; orally, rather than in writing, because written tests are extravagant of class time and, to be of real value, have to be marked individually. The students can then be told what will be in the next lessons in the series and the preparations they should complete prior to the next lesson.

After the lesson is over the educator should review his/her teaching critically to determine whether it was effective or if what can be improved. It is always a good idea to document specific thoughts or feedback as soon as possible after the lecture. It may be difficult to remember specific thoughts or ideas especially if there is a large amount of time before presenting the same material again.

Achievement of the lesson objective/objectives

It should never be forgotten that the educator is employed to teach all and not just the more able students, and that teaching ability is judged by an educator's ability to teach the less able rather than the bright. It may be found that by applying this principle, an educator does not complete a lesson planned in the time available, but it is far more important that all the students learn what has been taught rather than a portion of a class learned a lot and the remainder learned very little.

If it is not possible to complete a planned lesson in the time available, the educator should analyse the reasons for the failure. Perhaps some or all of the students lack the ability to undertake the course of study, in which case the initial selection of students should be improved; or the syllabus is too ambitious to be completed in the time available and should be amended or additional time allowed for its completion. Maybe the method of teaching needs to be improved. A good teacher is one willing to consider the possibility of improving his or her own teaching before considering other remedies.

Questions and questioning

Before completing this section on the lesson we should take a brief look at questions and questioning.

The purpose of questions during the introduction to a lesson is to:

- Discover how much the students know of the subject before introducing new material
- Revise/review what has been taught in a previous lesson so as to refresh the students' memories
- Arouse the interest of the students and hold their attention

The purpose of questions during the body of a lesson is to:

- Discover at each stage of a lesson whether all students are learning what is being taught, so that, if necessary, the stage of the lesson can be re-taught before proceeding to the next.
- Discover whether the subject is being taught at an appropriate rate.
- Discover whether the method of teaching is the right one for the particular class or whether the subject needs to be developed in a different way.
- Give the opportunity to the students to contribute information on the subject or to learn by themselves by observation and deduction rather than from listening.

The following DOs and DON'Ts in questioning will help in the development of questioning technique:

1. **Do not** allow mass answers or a student to answer who has not been asked to do so. Insist that only the student to whom the question is addressed is to answer it. If the answer is incorrect, praise the student for trying and address it to another student.

2. **Do not** be tempted to address the majority of questions to the brightest students. The test of your teaching is whether you can teach the slower ones. At each stage of a lesson a cross-section of the class, from slowest to brightest, should be questioned.
3. **Do not** automatically repeat every answer given by a student. Do so only if the answer may not have been heard by all the other students, if it is correct but badly expressed, or when the answer needs to be emphasized.
4. **Do not** ask questions which enable the students to guess the answers. If you think a student has guessed the correct answer, ask for reasons why it was given.
5. **Do** avoid asking questions to which the answer is obvious.
6. **Do** address questions to the whole class and then, after a short pause during which all students will have to think of the answer, name the student who is to answer.
7. **Do** ensure that all members of the class are questioned at some stage but avoid questioning in rotation so that no student knows whether or not he or she is going to be asked the question - this will keep them on their toes.
8. **Do** encourage the slowest students to answer questions by praise and a sympathetic manner.
9. **Do** give the brightest students the occasional difficult question to keep their interest and sharpen their intellects.
10. **Do** make sure that each question is phrased, without ambiguity, to elicit the answer required.
11. **Do** ensure that each question is fully answered by the concerned student; if the answer is incomplete, the teacher should probe or break up the question into parts to obtain the answer required, but must not complete the answer for the student.
12. **Do** teach on the assumption that if a student has not learned what has been taught, it is the educator who has failed. Snubbing, bullying and, worst of all, sarcasm, are the refuges of the bad teacher. If a student has not been able to give a correct answer to a question it is because he or she has not learned. It is the job of the teacher to discover the reason and to put it right.
13. **Do** try to pose questions which require the students to exercise their reasoning power and answer "Why, What, When, Who, Where and How".

Questions from students

From the point of view of the educator, questions from students demonstrate that their interest has been aroused and that they are ready to learn. It fosters communication between the educator and students and makes teaching a more exciting and enjoyable experience. In an ideal situation, it would not be necessary for the educator to question the students because any student who did not understand nor had a query would interrupt the teacher to ask a question. Unfortunately this is an unlikely situation. Ideally the educator should give the students every encouragement to ask questions. Educators must be on their guard against the danger of artfully posed questions which are designed to lead them away from the subject they are teaching, in these circumstances, they should either:

- manipulate the questions so as to make them relevant, or
- dismiss them as irrelevant, while at the same time appreciating that such questions originate from lack of interest in the subject of the lesson and that a greater effort must be made to inspire interest in it.

Remember that questions can serve a number of important functions:

- They can stimulate thought by raising the level of attention.
- They can motivate students by arousing their interest and curiosity.
- They can enable the lecturer to discover what the students know.
- They can enable the lecturer to check on the clarity of his/her presentation.

The essential part of planning a teaching session is to plan the questions to be asked along with planning the content.

The Seminar

A seminar may be defined as a discussion group in which each student can actively participate within the allotted time. The seminar is subject-oriented and sometimes requires the presentation of a short paper by one or more of the group at the beginning of the session which then forms the subject of the seminar discussion. The leader leads the group through the discussion and essentially helps to keep the group focused on the topic of discussion. The students are generally the group who asks questions of each other, provides examples when necessary, and controls the discussion topics.

Types of seminars

A seminar may be either student-centered or instructor-led.

In the student-centered seminar the educator or leader arranges beforehand for a member or members of the group to prepare a specified topic and make a short presentation that will then allow discussion to follow.

In the instructor-led seminar the instructor introduces the topic or topics and leads the subsequent discussion.

Suggestions for effective groups

According to McKeachie (2002) the following are suggestions to ensure effective groups:

1. Be sure everyone contributes to discussion and to tasks.
2. Don't jump to conclusions too quickly. Be sure that minority ideas are considered.
3. Don't assume consensus because no one has opposed an idea or offered an alternative. Check agreement with each group member verbally, not just by a note.
4. Set goals – immediate, intermediate, and long-term – but don't be afraid to change them as you progress.
5. Allocate tasks to be done. Be sure that each person knows what he or she is to do and what the deadline is. Check this before adjourning.
6. Be sure there is agreement on the time and place of the next meeting and on what you hope to accomplish.
7. Before ending a meeting, evaluate your group process. What might you try to do differently next time?

Keeping the above points in mind will help students and instructors stay on task, ensure everyone has a voice in the discussion, and allows for some evaluation which is very important in improving the seminar process.

The Leader

A good leader of a seminar is one who can both control the discussion and encourage participation by all members without appearing to take a major part in the discussion.

The leader should be:

- a clear and quick thinker
- a good listener
- able to express himself clearly and succinctly
- able to summarize a discussion point or a point of view
- be unbiased in the discussion
- be patient, tolerant and able to encourage the participation of all without offending
- be able to control the discussion and prevent it from going of course.

The leader should not be interested only in his own point of view or profess to know all the answers or expect everyone to agree with his opinions.

Planning and preparing a seminar

Before the start of the seminar the leader should:

1. Be knowledgeable of the subject matter.

2. Announce the topic for discussion sufficiently in advance of the time of the seminar to ensure that all its members have sufficient time to acquire the necessary knowledge of the subject.
3. Decide on the objective/s of the seminar.
4. Prepare his introduction to the discussion.
5. List headings to enable him to guide the discussion.
6. Arrange provision of any necessary equipment, prepare hand-outs, and arrange seating in such a way to allow a productive discussion.

Conducting a seminar

A suggested method of conducting a seminar is as follows:

1. The leader should introduce the topic to be discussed and state the objectives to be achieved; if applicable he should detail the headings under which the topic might conveniently be discussed.
2. After the introduction the topic can be presented by a group member or members reading a short paper or speaking on the subject for a few minutes followed by the discussion, or, if no paper is to be presented, the leader can start the discussion by posing a question to the group.
3. The leader should encourage the less forthcoming members of the seminar to contribute their opinions, disagreements, or ideas while at the same time making sure that no one is allowed to monopolize the discussion so that everyone in the group participates in the discussion.
4. The leader should lead the discussion when necessary to prevent it from bogging down or digressing from the subject, but should do so as unobtrusively as possible. He should also avoid lecturing to members of the group. When necessary, it is important to intervene in the discussion to ask individuals to clarify or summarize what they are trying to express. Finally, summarize the discussion at the end of each stage and at the end of the seminar, giving credit for any specially noteworthy contribution to the discussion

The types of questions which can assist in a productive discussion/seminar:

1. Leading questions put in such a way as to suggest specific answers will help to carry the discussion forward.
2. Factual questions designed to elicit facts necessary for the discussion.
3. Direct questions seeking a contribution from a particular individual.
4. Overhead questions directed to the whole group to move the discussion along.
5. Controversial questions designed to produce argument from a sharp division of views.
6. Provocative questions likely to provoke a strong reaction from most of the seminar participants.
7. Re-directed questions asked of the leader redirected to another member of the seminar.

Constraints on a Seminar

Constraints which can restrict the value of a seminar are:

1. Too many or too few members; insufficient members to allow a wide variety of views or too many members to enable all to contribute effectively.
2. Members of the seminar having insufficient knowledge of the subject under discussion to be able to make worthwhile contributions.
3. Inability of seminar members to express themselves adequately in speech.
4. Inability of seminar members to argue and/or discuss a subject rationally.
5. Inability of a seminar member or members to accept criticism or contradiction of their views without taking offence.
6. Poor leadership is the biggest constraint of all.

REFERENCES:

Ewan, C.E. (1984). *Teaching Skills Development Manual: A Guide for Teachers of Health Workers*. Sydney: University of NSW, School of Medical Education.

McKeachie, W. J. (2002). *McKeachie's teaching tips*. Boston: Houghton Mifflin Company.

World Health Organization. (1979). *Notes prepared for Workshop for Teachers of Health and Health record Science*. New Delhi.

Unit 3 – Exercise 1

The objectives of this practice lesson are to give participants of this exercise the opportunity to demonstrate the teaching techniques described in this manual.

1. Participants should be asked to deliver a 20-minute lesson on a topic of their choice to their fellow participants and leader.
2. The topic, its content and the demonstration of the techniques of teaching are all regarded as important. The length of the lesson, including questioning during and at the end of the lesson, will be strictly limited to 20 minutes.
3. A classroom should be prepared and equipped with the necessary equipment the participant will require to complete this teaching assignment.
4. Time should be allocated for the preparation of teaching material for the practice lesson, and tutors should be available to advise as required.
5. At the end of each practice lesson the strengths and weaknesses of each teaching performance should be discussed by the tutors and the individuals presenting the lesson.

Unit 3 – Exercise 2

A second practice lesson should be prepared and delivered by each participant using feedback from the previous exercise to improve presentation where necessary. This second lesson should be 50 minutes and should resemble as closely as possible a real situation.

UNIT 4 – Learning Resources

When we speak of learning resources, we refer to resources as people, facilities or materials that are used to assist in carrying out the teaching plan. This unit will deal with the use of resources such as handouts and Power Point. There will also be discussion of other uses of technology in teaching for face-to-face and distance learning.

OBJECTIVES

At the conclusion of this unit you should be able to:

1. Assess the available resources and
2. Choose and prepare the most appropriate to accomplish the learning objectives.

CONCEPTUAL FRAMEWORK FOR SELECTION AND USE OF INSTRUCTIONAL MATERIALS

Basic premises to be considered in selecting and using instructional materials are:

- a) Learners tend to function like an information processing system during the process of learning.
- b) Learning materials represent various forms of stored information.
- c) A primary function of instruction is to assist learners to access, process, store and retrieve relevant subject matter.
- d) A primary function of an educator is to select and employ the most appropriate information storage/retrieval vehicle (resources) that will expedite a learner's attempts to access, store and retrieve subject matter relevant to their achievement of desired instructional outcomes, which are the course objectives.
- e) Resources are considered as "aids to the learner" and not "teaching aids".
- f) The more control the learner has over the presentation of information the more likely they will be able to access and store, in a retrievable form, desired subject matter.
- g) Instructional equipment and materials should be selected to maximize the learners' control over the presentation of the subject matter stored in the resources used.

Material and technology for instruction should be selected on the basis of its potential for implementing the learner's acquisition and retention of the behaviour called for by a stated objective. It should provide a set of stimuli in such a way that will best produce the responses called for by the stated objective. In other words, instructional material should be selected or designed to give learners the opportunity to identify and practice the stimulus/response relationship(s) specified by the instructional objectives.

It is important to also consider what technology is available to the instructor, the comfort level one has with the available technology, instructional goals for the stated objectives to be accomplished, and what is the background and preparation of students and their attitudes towards use of technology. According to McKeachie (2002) some questions to ask are:

1. What do you expect students to learn from the lesson?
2. What skills and knowledge do you want them to acquire by the end of the lesson?
3. What teaching strategies (lecture, discussion, group work, and case studies) will best help students achieve these goals?
4. Will the students readily accept the technology chosen?

HANDOUTS AND PRINTED NOTES

Handouts and printed notes are useful for topics where there are no suitable texts or references available to the students (Ewan, 1984). Handouts are usually printed material handed out during classes and could include:

- abstracts or full transcripts of lecture notes
- lists or definitions of important parts of a lecture
- graphs or diagrams used during a lecture
- key points of a lecture
- course or lecture objectives

The most useful types of handouts are ones which provide an outline of the lecture and some stimulus, e.g. questions, to help students organize their note taking and thinking during class.

CHALKBOARDS AND WHITEBOARDS

The use of a chalkboard or whiteboard is usually spontaneous and therefore does not require preparation time. This is extremely useful when you wish to emphasize a particular point or list student responses to a question.

POWER POINT

The most common misuse of the Power Point (PPT) is to use it to present too much information in too short a time. This is called "information overload". Therefore, when planning to use PPT it should be used in a way that will enhance teaching.

- a) Suggested planning sequence
 - i. Objectives: what do you want students to be able to do after viewing the slides?
 - a. Ask yourself the following questions: What is the purpose of each slide? Is it to introduce a topic, consolidate information or review subject matter?
 - ii. Purpose: Are the slides meant to introduce information, review, practice, prompt, assist with problem solving, provide a basis for discussion or taking notes?

- iii. Analyze: Is the material suitable for a PPT presentation?
- b) Points to keep in mind for creating PPT presentations
 1. Use fonts 24 points or larger
 2. Use dark type and light background
 3. Use the slide as a guide rather than reading directly from it
 4. Always face the audience
 5. Distribute or allow students to download a copy of the slides prior to the presentation
 6. Keep the room lights on and avoid showing slides in a dark room for more than 15 minutes at a time
 7. Avoid putting students in a passive mode of receiving information by combining the slide presentation with chalkboard/whiteboard use or any other learning activities
 8. Have a backup plan in case of a power or equipment failure

SCRIPTING AND RECORDING AUDIO

Audio is another useful resource used as a teaching aid especially with the increased use of webinars, podcasts, and other forms of media being used in distance education. Points to keep in mind when making an audio recording are:

- a) Voice quality
 - i) Use a conversational tone
 - ii) Vary the tone of voice frequently
 - iii) Enunciate clearly
 - iv) Speak fairly rapidly, but don't appear to be rushing. Pace the dialogue well. The pause can often be an effective way of keeping the interest of the listener
 - v) Avoid "uh's" and other distracting speech habits
 - vi) It is sometimes a good idea to use different voices, e.g. for one section use a female voice and for another, a male voice
 - vii) Use of key words. Emphasizing the right words can effectively communicate the meaning and leads to greater flow and rapidity. Using the wrong emphasis can completely change the meaning.
- b) Content of the recording
 - viii) Repetition can be achieved by the student through a replay of the podcast or other media fairly easily. Therefore, repetition by the narrator is unnecessary.
 - ix) Specially recorded sounds, voices of outstanding people, or short dialogues when used functionally provide variation and add realism to the information.
 - x) Don't extend a lesson needlessly
 - xi) Make sure critical points are clarified. A brief statement often can provide the immediate reinforcement necessary to help the student proceed confidently.

SUMMARY

The best resources are those which you have chosen because they will help students to learn what they must know. Remember, resources must:

- A. be appropriate to the level of the students' knowledge and the type of learning
- B. present the message clearly and be free from distracting and irrelevant detail
- C. encourage student participation in class rather than passive receiving of information
- D. be well produced, accurate, readable and/or understandable and educationally sound
- E. enable you to use them with confidence to add to the effectiveness of your teaching and to the effectiveness of student learning
- F. be accessible to all students in order for it to provide any benefit.

REFERENCES:

Ewan, C.E. (1984). *Teaching skills development manual: A guide for teachers of health workers*. Sydney: University of N.S.W., School of Medical Education.

Kemp, J.E. (1980). *Planning and producing audiovisual materials* (4th Ed). New York: Harper & Row.

McKeachie, W. J. (2002). *McKeachie's teaching tips*. Boston: Houghton Mifflin Company.

UNIT 5 – EVALUATION OF TEACHING AND ASSESSMENT OF LEARNING

This unit will introduce the various evaluation methods and testing available to ensure students have met the objectives set for them. While there is neither exact method nor preferred method of testing it is important for educators to understand the types of assessments available and determine the best method suited for themselves as well as the class.

OBJECTIVES

At the conclusion of this unit you should be able to:

1. describe the essential qualities for an effective evaluation of teaching and learning
2. explain the purposes of examinations and tests
3. consider the various kinds of tests available to the educator

EVALUATION

Evaluation is the procedure by which the results of a student's encounter with a learning situation are collected and analysed so that the teaching may be improved for the benefit of future and present students.

Subjective and Objective Evaluation

- a) The subjective evaluation of an activity or object is an evaluation which is reliant upon the personal view, thought or feeling of the evaluator. Because it is subject to the emotional state of the evaluator and not relevant factual evidence, subjective evaluation should never be used as a basis for educational decisions.
- b) Objective evaluation is one based upon relevant facts, free from personal feelings or personal opinion. It is this type of evaluation that alone provides rational grounds for action.

Reliability and Validity of Tests

- A reliable test is one which gives consistent results.
- A valid test is one which demonstrably measures what it was intended to measure
- A test cannot be valid unless it is reliable but it can be reliable without being valid.

A perfectly reliable test would yield the same results no matter who graded it or if the same student took the same test more than once. No test is likely to be perfect, but objective type tests, which measure clearly defined educational objectives, are far more

reliable than tests that are dependent upon the subjective judgment of an examiner or are based on subjectively interpreted fields of enquiry. A test which requires a student to describe how to compute the variance is not a valid test of whether a student could in fact compute it; it is only a valid test of his ability to describe how to do it. The only valid test would be to have the student perform the task.

In short, a valid test is a test which accurately measures the performance precisely described in the educational objective to be achieved by the student as a result of instruction.

Criterion-Referenced and Norm-Referenced Tests

A criterion-referenced test determines whether a student has attained each of the educational objectives set for course. A criterion-referenced test measure what a student should know and tells us what they don't know. A norm-referenced test measures the relative success of students; the results of this test compare student with student. Norm-referenced tests are used to classify students.

Student Assessment

Student assessment is the determining of a student's knowledge, skills and attitudes at a particular time so that his change in behaviour over a period of instruction may be measured. This assessment may lead to the diagnostic appraisal of his individual strengths and weaknesses and his individual needs may be discovered. These assessment tests would be criterion-referenced based.

Criteria for Effective Teaching

Teaching effectiveness can be evaluated by an observer or by the educator himself but in both cases the evaluation must be objective if it is to be worthwhile. It is particularly important that the educator learn to evaluate his own effectiveness objectively because, for the greater part of his career, he will not have the benefit of independent internal evaluation.

Some questions which the educator should ask himself in order to determine the effectiveness of his teaching are:

- a) Was the interest of the class aroused?
- b) Was the subject made relevant and were the students motivated to learn?
- c) Were the objectives of the instruction made clear to the students?
- d) Was new work linked with previous or complementary instruction?
- e) Were appropriate teaching methods used?
- f) Were appropriate audio/visual aids used?
- g) Was the material presented in a logical order?
- h) Was the presentation of the lesson developed progressively?
- i) Was sufficient time allotted to each section of the lesson?
- j) Were the students tested to ensure that the lesson material had been

assimilated?

- k) Were the students tested to ensure that the lesson material had been understood?
- l) Were students asked relevant and appropriate questions and were the class properly sampled?
- m) Was student participation properly controlled?
- n) Were the students encouraged to learn by the educator's manner?
- o) Was the delivery clear and fluent, and was the diction good?
- p) Were the students inspired?
- q) Did all the students learn what was taught?

Of the above criteria, by far the most important is (q) "Did all the students learn what was taught?"

No matter what the teaching method, the educator should be continuously asking this question and monitoring the effectiveness of teaching by using this criterion. The method of obtaining the answer to the question is by effectively questioning the students to discover whether they are learning. This method of monitoring results is known as feedback; without feedback the effective control of any system, human or mechanical, is impossible. Feedback enables the educator to monitor individual student progress, and so be able to assess the effectiveness of the teaching in meeting the course objectives. It is an essential feature of the systems approach to teaching and enables the educator to initiate remedial action immediately if it is necessary.

Assessment and Grading

While the chief function of evaluation is to improve the effectiveness of teaching strategies used by the educator, the function of assessment can be twofold: it can be conducted for grading purposes and for the evaluation of the effectiveness of teaching. It can serve either purpose on its own or both purposes at the same time, but to be effective it must be done continuously.

Feedback to Students on Test Results

Assessment provides the student with evidence of the standard he has reached so that he may learn his own strengths and weaknesses. By providing the student with this evidence his/her interest is maintained. He/she is given an incentive to learn which in turn assists the learning process, and he/she is encouraged to correct deficiencies. The more immediate the feedback the greater its effectiveness, it should therefore be made available to the student as soon as possible after he has performed. To derive maximum benefit it should be provided continuously throughout the lesson and the course. Feedback from the end of course examinations is by itself too delayed for it to be effective for either the student or the educator.

Types of Tests Available to the Educator

Oral questioning

Oral questioning of the student is the most rapid and effective method of providing feedback for both educator and student and is much easier to use than written tests. Only by selectively questioning a sample of the students in a class, always including some of the slowest learners, is it possible to ensure that all the students have assimilated what has been taught at each stage of a lesson. To obtain maximum effectiveness, questions should be addressed to the class as a whole, and after a suitable pause to enable all the students to think out the answer, the educator should select the student who is to answer the question. Questions should not be addressed to the class as a whole so that they are answered only by those who think they know, and such generalized class questions as "Does everybody understand that?" should be avoided because the brighter students will affirm that they do, whilst the slower may be ashamed to say that they do not. It is important too, that questions be phrased clearly, in simple language, and in a manner which will encourage students to attempt an answer. Each question should have been thought out in advance with the specific object of testing essential knowledge at each stage.

Short written tests

The short written test provides feedback from every student in the class and practice in written expression and presentation, which may be one of the enabling objectives. There are, however, considerable disadvantages to this method of obtaining feedback. These are:

- the limited number of questions that can be answered in the allotted time
- the delay between student performance and its assessment by the return of graded work, and
- the uncertainty whether the students interest in the returned work will be extended beyond an interest in the mark awarded

If written tests are given during class time, the loss of class learning time to a procedure of doubtful worth must be considered.

Essay-type tests

Examination questions requiring essay-type answers not only test the students' knowledge of a subject, but also test their ability to organize their material in logical order and to express it clearly and competently in writing. They are of value when it is as important to assess the students' ability to express themselves in writing as it is to assess their knowledge of the subject. Examination papers requiring essay type answers can only test knowledge of a small part of the syllabus. Assessment of the answers to the questions is subjective and the assessment of the worth of an answer can differ widely between examiners. Students with good memories or who have been fortunate in their revision may achieve higher marks than less fortunate students possessing greater knowledge. The same examination papers should not be used time and time again.

Objective tests

An objective test consists of a series of questions each of which has a predetermined correct answer so that subjective judgment on the part of the grader is eliminated. The use of an objective test in an examination enables knowledge of the whole syllabus to be assessed. Answers to objective test questions are short, often requiring only one word or the deletion of the wrong answer. Because of this, the students who can express themselves clearly in writing, do not have an unfair advantage over those who cannot. The objective test can be administered to successive classes without alteration and marked quickly by hand or by machine.

There are no optional questions in an objective test and so direct comparison of students is more valid and reliable than with essay type tests. However, they do not test a student's ability to organize their material or express themselves in writing.

Objective tests require a great deal more effort to design than do essay type tests if they are to test knowledge over the whole of a subject syllabus, obviate successful guessing, be unambiguous, and accurately assess the extent of each student's knowledge. Their design is a lengthy process and necessitates the building up of a bank of validated questions of different degrees of difficulty from which selections can be made for different examinations.

Types of Objective Test Items

There are a number of different types of objective items of which the following are the most common:

i) Multiple choice item

A multiple choice item is one that consists of a stem and usually four or more common choices; one of which is correct (key) while the others are incorrect (distracters). The item stem usually takes the form of a question or an incomplete statement. The correct answer must be clearly acceptable to the students but each distracter must be plausible enough to appeal to those who are uncertain of the correct answer.

EXAMPLE

The neonatal death rate is the number of deaths:

- 1) Under 7 days of age per 1000 total births
- 2) Under 28 days of age per 1000 live births
- 3) Under 7 days of age per 1000 live births
- 4) Under 28 days of age per 1000 total births

ii) True-false item

A true-false item consists of a statement which the student has to decide is either true or false.

EXAMPLE

Delete either the word "true" or the word "false" after each of the following statements to indicate whether they are correct or not.

- A. With a normal distribution 95% of the observations lie within two standard deviations of the mean.
True or False
- B. Incidence and prevalence are synonymous.
True or False

iii) Open-ended or completion item

The open-ended or completion item consists of an incomplete statement which the student has to complete correctly.

EXAMPLE

Supply the word or words that correctly complete the following statements:

- 1) The infant mortality rate is the number of _____ per 1000.
- 2) The formula for calculating the mean is _____.

COLLECTING FEEDBACK ON YOUR OWN TEACHING PERFORMANCE AND ITS EFFECT ON STUDENT LEARNING

It is difficult for us to improve our teaching unless we have access to information about the courses we teach and the instructional method(s) we use. When we do have such feedback available, we can use it to modify our behaviour in order to achieve our academic aims. Some of the ways in which we can gather the necessary information are outlined below:

- A. Establish a student liaison committee to meet you once a week to discuss the course. This is useful in large classes, especially if you pick students from different parts of the room.
- B. Sample students' lecture notes. Students may be having problems with note taking, or information may not be received.
- C. Invite a colleague to attend a class, having first given him some idea of what you want the session to achieve; so that he can help you judge how far you are succeeding.
- D. Have a lecture or two video-taped or audio-taped so that you can play it back and assess your own performance - perhaps inviting a colleague to comment on it.
- E. Try a simple questionnaire. Ask a few specific questions to a random sample. For instance, a sample of students can be asked to write down on a blank index card, the main problem they are having with the course so far.
- F. Use a questionnaire at the beginning of the year to find out something about the students taking the course - why they have enrolled for it, prior experience, special interests, preferences in teaching techniques or methods of assessment.

- G. Get the students to rate the course and your teaching style using a proposed set of questions or a rating sheet.
- H. Give a somewhat shortened version of the usual lecture followed by questions on student knowledge or understanding of the area covered by the lecture. This will provide feedback to the students, as well as to you, on how much they have gained.
- I. Give a more formal multiple choice test at the end of the lecture, with students displaying responses on numbered cards.
- J. Develop a climate in the lecture where students feel that they can initiate questions.

A sample teacher evaluation form can be found in appendix A.

* These points have been adapted from papers prepared by the University of Queensland's Tertiary Education Institute and the Higher Education Research and Advisory Centre, the University of Tasmania.

REFERENCES:

World Health Organization. (1979). Notes prepared for Workshop for Teachers of Health and Health record Science. New Delhi.

APPENDIX A:

SAMPLE EVALUATION/FEEDBACK ON LECTURE PLANNING

PLANNING FOR THIS LECTURE INDICATES:

	Yes	No
The purpose of the lecture was provided.		
The relationship with the rest of the program is obvious to the observer.		
The objectives of the lecture were stated.		
Techniques to be used for arousal and motivation worked well or need work: list examples if necessary.		
Information was organized in a logical sequence		
Identification of key terms, concepts, ideas were emphasized		
Verbal and visual illustrations were given to the students		
Expected responses from students:		
--- Did the lecturer ask questions of the students?		
--- Were students provided handouts/worksheets?		
--- Did students take notes?		
--- Was there any student-to-student interaction?		
Was there an opportunity for student questions?		
Was technology used appropriately to meet the stated objectives?		

Copyright © 2012 by the International Federation of Health Information Management Associations.

The compilation of information contained in these modules is the property of IFHIMA, which reserves all rights thereto, including copyrights. Neither the modules nor any parts thereof may be altered, republished, resold, or duplicated, for commercial or any other purposes