UNIVERSITY OF NAIROBI

COLLEGE OF EDUCATION AND EXTERNAL STUDIES

SCHOOL OF EDUCATION

In Collaboration With

CENTRE FOR OPEN AND DISTANCE LEARNING

TRAINING MANUAL IN PEDAGOGY

VOLUME ONE

Interactive Teaching Materials for University Lecturers and Professors in Pedagogy

.

Training Manual in Pedagogy – Volume One

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PREFACE AND INTRODUCTION

This is the first volume of this pedagogical training manual that has been published by the Centre for Open and Distance Learning in its endeavor to increase and enrich the efficiency in the teaching and learning processes of the University.

This training manual for Pedagogy is as a result of a writer's workshop which was organized by the Centre for Open and Distance Learning in the year 2011 at Multimedia University of Kenya. The participants of this workshop were experts on pedagogy and the main objective of the workshop was to develop a manual which can be used as a standard book for reference by academic staff or any other person who is involved or interested in teaching at the University or any other institution of higher learning.

It is hoped that with the publishing of this training manual on pedagogy, the processes of orientation and especially to new academic members of staff will be enhanced and enriched as this manual will contribute to that effort.

This training manual consist of thirteen lectures which have been arranged in a way that the reader is first introduced to pedagogy as a concept and taken through the processes of teaching and finally the reader is reminded about the relation between gender and pedagogy in higher education.

This manual has been written in simple and clear language that can be understood without difficulties. It has also borrowed heavily on open and distance learning style of writing in which various symbols have been used in addition to the text to make the reading enjoyable and also to drive the message home.

Each lecture consists of an introduction statement followed by the objectives and subject content of that lecture. In addition, a brief summary of the lecture is provided towards the end of the lecture and this is followed by reference.

Special thanks go to individual experts who have contributed to the content of this training manual, the School of Education, University of Nairobi and particularly the Department of Communication Technology which contributed the core of staff who have contributed to this manual.

We also wish to thank the management of University of Nairobi and the College of Education and External Studies for providing moral, financial and logistical support that culminated in the publication of this manual.

We hope that with the publication of this training manual, it will contribute a long way in revolutionizing the processes and practices of teaching in the University

Centre for Open and Distance Learning

28th May 2014

LECTURE ONE
INTRODUCTION TO PEDAGOGY

BY

PROF. OBONYO O. DIGOLO , PhD

Lecture Outline

- Definition of pedagogy
- Context of pedagogy
- Pedagogy and dimensions of education
- Principles of teaching
- Modes of teaching
- Functions of teaching

Introduction

In this introductory lecture we are going to define the term pedagogy, explain the context in which pedagogy occurs in the instructions of higher learning in Kenya and analyse the place of pedagogy in the process of formal, non formal and informal education. The lecture also clarifies the difference between face-to-face and distance teaching, and presents the traditionalist and the modernist views of education. We will also focus on the levels of teaching such as memory can be pitched. Furthermore special attention will be given to the principles of teaching such as preparedness, relevance readiness, need, response, transfer and ethics. We finally discuss functions of teaching and end with a summary of the lecture.

Objectives

At the end of the lecture you will be able to

1. Define the term pedagogy
2. Explain the context of pedagogy
3. Explain the principles of teaching
4. Describe the modes of teaching
5. Describe the levels of teaching
6. Discuss the functions of teaching

Definition of Pedagogy

Today we are going to start this lecture by clarifying the concept of pedagogy. What does the word pedagogy mean? There are two views about the term pedagogy. The first is the broad view in which pedagogy means the process of bringing up a person, usually a child while educating him or her to grow into an accepted, responsible and functional member of the society.

I wish to inform you that the term pedagogy was coined from a a Greek word ***pais*** (noun) which means child and again (verb) which means to lead. Put together the two words became pedagogy which means to lead a child and directing his or her growth. In ancient Greece it meant to lead a child into the limelight of knowledge and to acquire customs of the society.

The second view of pedagogy which is a more focused concept is that pedagogy is the process of teaching, especially the process of teaching that goes on in school classrooms and university lecture halls and laboratories.

Context of Pedagogy

After clarifying the meaning of the term pedagogy, let us look at the context in which it takes place. Effective teaching at the university depends largely on the peaceful atmosphere that prevails in the institution. If there is high tension on campus characterized by riots, demonstrations and destruction of property, teaching is negatively affected. On the other hand if peace prevails then there is steady teaching and coverage of courses as per the schedules.

As you may have noted the universities have been going through real hard financial times. The reduced funding for university education has affected not only teaching and learning but also areas such as students' feeding, health, recreation and library services which impact on performance in pedagogy. It is also very well argued that reluctance of the government to implement unit cost of each degree programmes such as dentistry, engineering, architecture, veterinary medicine, chemistry and human medicine have to drain the resources meant to improve degree programmes in the humanities and social sciences. I have noted that teaching departments in the Kenyan universities or the University of Nairobi which use laboratories workshops, theatres and studios operate in an environment that does not enhance quality teaching because of financial constraints. It has been difficult for academic staff to do more with reduced funding.

Activity 1.1

Discuss with your colleagues, how your department and thus the University of Nairobi can diversify sources of its income.

In the recent years you may have seen university enrollment growing at a very fast pace. This translates into making lecturers to teach larger classes than they handled before. When this is coupled with the problem of having students with wide spectrum of academic ability and backgrounds you can appreciate the difficulties of such lecturers getting compounded. You can see all these adversely affecting teaching.

As we stated earlier, universities in Kenya have faced reduced funding from the exchequer. In the face of the circumstances they have introduced survival tactics. One such tactic is income generation through teaching of the fee paying students, engaging in production, consultancy and research activities. You may also have noted that universities have been very stringent in spending in order to reduce cost in all areas of its life. Utilities such as water, electricity, health, transport and travels abroad have been carefully scrutinized as targets of reduced spending.

In addition to all these, all of us in the universities are required to be accountable to the public for funds that we receive through fulfilling the demands of service contracts that we have signed every year. We also become individually accountable to annual appraisal of performance of each of us. Subjecting lecturers and professors to appraisal by students has been seen as a further attempt to improve their teaching performance.

Activity 1.2

In your view, clearly explain what can be done to create an environment supportive of teaching role of the lecturers in the universities in Kenya.

Pedagogy and Dimensions of Education

You may have noticed that teaching is an activity that extends beyond the classroom, lecture halls, theatres and laboratories. Teaching that conventionally gets planned and prepared by the lecturer is known as formal teaching. It is usually conducted in the form of lectures, demonstrations, explanations, field studies, experiments case studies and projects depending on the subject and topic. You will note that this is the major concern of the employer and the students who are your clients.

There is yet a hidden activity of teaching that goes on and which you often tend to when you become patron of students associations, clubs, societies, organizer of public lecturers and visits

to places of study interest outside campuses. Preparing students to gain from such academics, professional and sometimes social activities entails a lot of teaching.

There is even a more hidden form of teaching known as non formal teaching in which students strive to learn from you without you being aware that you are indeed teaching. This is usually done through the process of role modelling, providing students with experiences in which they have to participate in solving problems by themselves or by simply subjecting them to observe situations and learn from them. Just think of how you have students struggle to observe and copy your speaking style, your handwriting how you walk your smartness in dress code and model you in many ways. This is informal teaching which you cannot ignore when teaching your students.

Take Note

Effecting teaching often enhances formal teaching, non-formal teaching and informal teaching and like three cooking stones they augment each other.

Models of Teaching

Teaching in higher education is currently being carried out by modes of delivery as follows:

- Face – to – face mode
- Distance teaching mode

Face – to – face teaching mode is the one in which the lecturer delivers the lecture, demonstration or explanations in front of students in a lecture hall or theatre. You as a lecturer stands in front and conducts the teaching to the listening and observant class. In distance teaching the lecturer is separated from students in terms of place and time. You may be stationed in Nairobi and deliver lectures to students at different stations in Kenya at the same time or at a different time using electronic broadcast, electronic mail, audio-visual methods and so forth.

Views on Teaching

There are two views which prevail today and which re-write correctly of interest to us. These are the traditionalist view and the modernist view. If you get to a teaching process in which the lecturer imparts knowledge, demonstrates a procedure, recites a poem in front of attentive students, he is teaching in the traditionalist view. In this view, teaching is seen as imparting, informing, explaining, sharing, reciting or drilling. The learners are usually the passive recipients of knowledge.

The modernist view holds that the lecturer is a facilitator of learning, guiding, encouraging and providing learning materials and tools. This is the view that is preferred by education these days.

Levels of Teaching

When preparing to teach it is worthwhile to pitch it at a certain level. You may pitch it at any of the following three levels:

- Memory
- Comprehension
- Reflection

Memory level teaching seeks to provide simple learning in which what is taught is supposed to be remembered and retrieved in the way they were taught. It deals with teaching about specific facts such as names, or principles for doing things.

Comprehension is a level of teaching which targets the understanding of what is taught. You should at this level cause understanding in the learners. They should understands processes, procedures, chain of events and relationships between occurrences.

In reflection the lecturer is involved in teaching critical thinking in which students are engaged in anticipatory reflection active reflection and intentional involvement in immediate practice situations. They are encouraged to recollect what is taught. This is the highest level of teaching

in which students are challenged to think critically about issues affecting lives and society in which they live.

Principles of Pedagogy

After covering levels of teaching let us now turn to the principles which act as guidelines for teaching. Apart from being the guidelines for the teaching process, principles also anchor the teaching act in a theory or theories. There are many principles of pedagogy , however , the salient ones which are frequently inferred are given here as follows:

i. Preparedness: teaching is based on thorough preparation and logical presentation.
ii. Relevance: Teaching is meaningful if the content is relevant and applicable to life situation.
iii. Readiness: Teaching is effective if the students are physically, mentally and emotionally ready. When their motivation level is high students are able to perform given tasks.
iv. Need: Teaching should meet the needs of students. It should fill a gap in the life of learners such as knowledge or skill gap.
v. Response: Teaching should involve learners to get them to actively participate and gain desired learning experience.
vi. Transfer: Teaching is useful if knowledge and skills it provides can be applied to solve a problem.
vii. Known to unknown: Teaching is effective if the process flows from the known to the unknown, from simplex to complex and from concrete to abstract and not vice versa.
viii. Ethical: Teaching is a value responsive activity which is by its nature ethical. It focuses on providing useful knowledge, skills and values that are cherished by the society as being good.

Function of Teaching

Teaching is an activity which you have seen being carried out many times in the past by those who taught you when you were a student. Perhaps you have also been teaching for some time. If you reflect carefully on these experiences, what do you think is the role of teaching?

Intext Question

What functions should teaching seek to fulfill?

The most commonly cited functions of teaching include enabling the learners to acquire:

- Knowledge
- Skills
- Values
- Ideals

The following are the functions of teaching:

- In most universities the function of lecturers is still to impart knowledge and skills, and in the long run to help students to develop attitudes, values and ideas.
- Teaching has an important role to clarify beliefs and attitudes help by people in the society which are not necessarily true. These could be outdated cultural beliefs, religious dogmas, incurable diseases or ideologies that are full of propaganda. Teaching has to put such erroneous messages into proper concepts and perspective.
- Teaching has a role to expose students to learning experiences by putting them in situations that bring about learning such as learning laboratories, operation theatres, art studios or field study trips.
- Teaching when organized for students to participate in groups especially in discussions, debates and group projects, develops team spirit and thus socializes the students.

Teaching enables students to think critically and look for solutions to problems. Problem solving ability is critical to students since it enables them to apply concepts to solve problems in real life situations.

In teaching students receive reinforcement for their efforts, recognition for good performance and feedback on their achievement.

Teaching provides a friendly atmosphere in which students enjoy emotional security to learners. Teaching is an activity that builds confidence and emotional stability in students. This is a major contribution since it gives students a place to feel at home.

Summary

In summary, you should state briefly what has been covered and not repeat the outline or objectives.

This unit has covered the following areas:-

Concept of pedagogy

Context of pedagogy

Modes of teaching

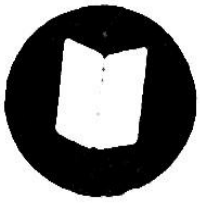
Levels of teaching

Principles of teaching

Functions of teaching

Activity 1.3

Discuss the purposes of pedagogy in education process



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LECTURE TWO

THE ROLE OF A UNIVERSITY LECTURER IN THE PROCESS OF EDUCATION

BY

PROF. GENEVIEVE WANJALA Ph.D

Lecture Outline

1.1 Introduction

1.2 Lecture Objectives

1.3 The University as a Learning Organization

1.3.1 Uniqueness of the African University

1.3.2 Universities' Unique Characteristics

1.3.2.1 The Organizational Learning Concept

1.3.2.2 The Organizational Learning Cycle

1.3.3 Mission ff The University Of Nairobi

1.3.3.1 The Role of the Lecturer

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1.4.1 The Lecturer as a Teacher

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1.4.2.3 To Add Value to Interaction with Students

1.4.3 The Lecturer as A Trainer

1.4.3.1 Human Resource Planning

1.4.3.2 Responsibility

1.5 The Research Assignment

1.5.1 What is Research?

1.5.2 Impact of Research on Teaching

1.5.2.1 Effects on Teacher-Student Relationship

1.5.3 Implications for the Lecturer

1.1 Introduction

This is the second of the lectures that form this package on training in pedagogical and andragogical skills for the University of Nairobi. In this lecture, we basically try to explain the context in which our skills in content delivery as lecturers are put to use. We examine the university from a sociological perspective as a learning organization with certain unique characteristics that differentiate it from both the Education sector and other sectors in national development. It is only after we have understood clearly what a university is that we can more clearly define our roles in it as lecturers.

1.2 Objectives

At the end of the lecture, the learner should be able to:

1. Differentiate between a university and other learning organizations.
2. Contextualize the university as a learning organization and recognize the role of the university in Human Resource Development (HRD).
3. Briefly describe the four (4) practical assignments that form the role of the university lecturer.
4. Show how the lecturer facilitates the development of the discipline and the students.
5. Discuss the lecturer's contribution to the achievement of the goals of the university and those of the society.

1.3 The University as a Learning Organization

1.3.1 Uniqueness of the African University

The uniqueness of African Universities as organizations can be appreciated only if we compare them with other kinds of organizations and institutions. In understanding how universities are different from other enterprises, we sharpen our comprehension of what they actually are and we also clarify what our role as lecturers in these institutions is. It is easy to be misled by superficial similarities and shared characteristics. For example, universities require prudent management to conserve limited resources. One might, therefore conclude that they should be operated according to business models. However, this would be misleading because it would reduce universities lecturers to mere sales people or debt collectors which they clearly are not.

Secondly, because they promote investigation and scholarship, universities share missions of Foundations. But, Foundations are staffed with philanthropists and social workers by and large. Is the university lecturer's role purely that of philanthropy and social work? I do not think so. Being a public institution, the University of Nairobi must respond to large and diffuse

constituencies and this might make one suppose that government bureaus might be trustworthy models for universities. Granted a university lecturer might play the role of a bureaucrat, a bureaucratic chief or even a diplomat. Nevertheless, I think the key role of the university lecturer is not any of these. Why, then don't we delineate the unique characteristics of the university, so that we can more easily understand the mail role of ourselves as lecturers?

1.3.2 Universities' Unique Characteristics

Universities are unique in the way that they combine basic missions with an imposing array of services and activities required by the Society. I am talking here about the activities of instruction and the advancement of scholarship. Universities are also organizationally unique because no one has absolute authority within the organization. Faculty members operate in over-lapping spheres of power and influence. In actual fact, there is a new sphere of influence – overlapping the others – which is now occupied by students. In addition, universities tend to encompass for many of their members not only the work associated aspects of their lives, but, the social and recreational aspects of their lives as well. Finally, the outputs of universities are largely un – measureable and so their effectiveness cannot be assessed easily. Furthermore, though legally created by society, universities have until recently stood quite apart from society in many ways. Thus, they are shielded to a considerable extent from external interference with the teaching and learning processes that take place within.

1.3.2.1 The Organizational Learning Concept

So, in order to assess the organizational learning capacity of the University and determine the role of the lecturer; we will resort to a methodological concept which has been developed by Dibella & Neris in 1998. The concept ideally combines a non-directive way of assessment with the identification of indicators for potential intervention. Thus, it is used for organizational settings which demand respect of autonomy and integrity on the one hand, and care for survival under diverse environmental conditions on the other. The concept can be summarized in Figure 1.

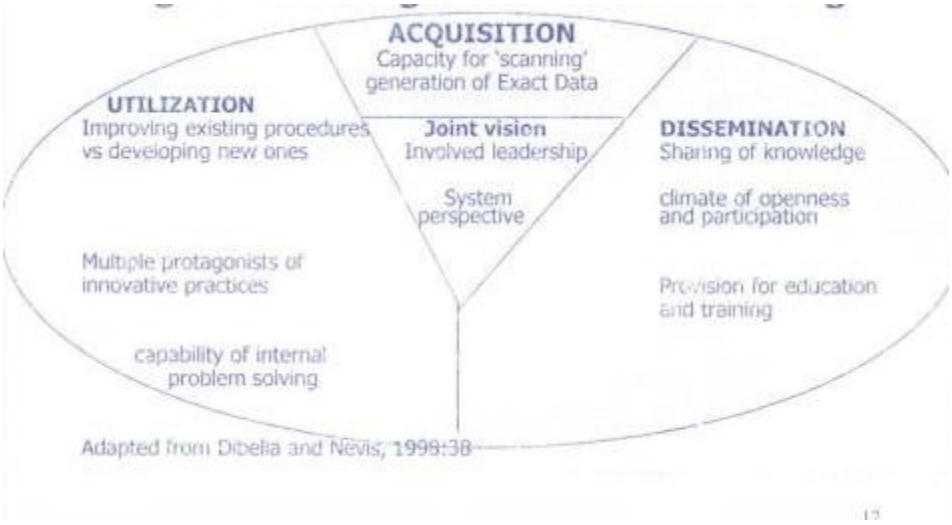


Figure 1 : The Organizational Learning Model

1.3.2.2 The Organizational Learning Cycle

The organizational learning cycle contains interlinked phases of ***acquisition, dissemination and utilization*** of information and knowledge. Each phase is related to particular learning orientations and facilitating factors which characterize the mode of learning as well as respective learning capabilities.

1.3.3 Mission of the University of Nairobi

I would like us to compare this model with the Mission of the University of Nairobi.

Activity

At this juncture, I would like you to state the Mission of the University of Nairobi. Please, look it up on the website of the University of Nairobi if you do not know it by heart. The website can be found at www.uonbi.ac.ke

According to the UON Strategic Plan 2008-2013 (later revised to run from 2013-2018) , the University of Nairobi intends to be a centre for learning and scholarship, preparing students for academic pursuits, professional development, enhanced personal lives, responsible global citizenship extending the frontiers of knowledge through research, creative works and

scholarship. In addition, the University intends to foster an intellectual culture that bridges theory with practice while contributing to enhancement of the quality of life. In essence, the University of Nairobi in its mission tries to exemplify Dibella's model. What then is your role as a Lecturer in this context?

1.3.3.1 The Role of the Lecturer

The Dibella model which is exemplified in the Mission of the University of Nairobi can be captured by four (4) practical assignments which form the role of the lecturer. These are:

1) Teaching
2) Research
3) Consultancy
4) Creating an ideal democratic community

Let us now turn our attention to these practical assignments, beginning with the Teaching Assignment. What does it entail and what are its implications for you?

1.4 The Teaching Assignment

The Teaching Assignment consists of transmitting known truths that have been preserved over the years. In transmitting known truths, you are helping students to acquire the requisite knowledge for intellectual and social development. This is actually the acquisition phase in the Dibella Model which the University of Nairobi in its mission refers to as "scholarship" Consequently, as a member of Faculty you are expected to take part in the growth of knowledge. This requires a division of material to be covered into subject matter which is further broken down into areas of specialization; a process that we technically refer to as 'curriculum development'

Activity

When is the last time that you participated in developing programmes in your Department or Faculty? Can you describe the process that you went through?

In addition, the promoting of the teaching and learning enterprise also requires that knowledge be presented in a Logical sequence leading to progressive sets of lectures. These lectures need an established meeting place where teacher and student come together over an extended period of time to engage in prescribed activities. What are the implications of this for you as a lecturer?

Implications

What this means in practical terms is that you as a lecturer need to actively engage in the preservation and growth of your discipline by:-

- Participating in the development of courses (units).
- Participating in revision of syllabi.
- Writing teaching and learning materials e.g. textbooks.

This way, you attempt to foster an intellectual culture that bridges theory and practice.

1.4.1 The Lecturer as a Teacher

In order to deal with a body of expanding knowledge, the teaching enterprise requires:-

- ✓ Continuity
- ✓ A fixed meeting place
- ✓ Close interaction between teacher (master) and student (scholar)
- ✓ Minimal distraction

Let us look at the implications of these requirements for you as a lecturer at the University of Nairobi.

1.4.2 Implications for the Lecturer

1.4.2.1 To Ensure Continuity

To ensure continuity, it is advisable for you to always draw up a course outline of the unit you are teaching at the beginning of the semester. The outline should be given to the Chairperson of Department or the Head of Section or in some cases the Course or Unit Coordinator This way , it is possible to check whether what you intend to teach is in-line with the scheme of work or the programme as approved by Senate.

Secondly, in every teaching encounter, you meet new students and go through new experiences which may add to your reservoir of knowledge. Knowledge gained from current experience can be used to enrich the content to be taught.

Thirdly, any new member of staff teaching the unit other than yourself can build onto your outline and find it easy to teach.

Finally, the practice of prior planning and building on each other's work can also enhance teamwork

1.4.2.2 To Minimize Distraction

To minimize distraction, you need to know what units will be taught, where and when. Agree with department/faculty on appropriate teaching assignments

Responsibility

In essence, this means that it is your responsibility to attend meetings called by the department and /faculty to programme for the semester or the /year. In addition, you also need to be physically present in university premises regularly. Distraction can also be caused by students' indiscipline. A regular presence of a member of faculty's presence may serve to militate against student indiscipline.

1.4.2.3 To Add Value to Interaction with Students

To add value to your interaction with students, you as a lecturer need to update your techniques for teaching by incorporating new technology in message delivery. It is true that the achievement of certain limited instructional objectives through teacher-less systems has become technically more feasible as a result of the continuous self instructional methods and of the adaptation of the mass media for educational purposes. Nevertheless, even where modern gadgetry has been brought in to improve the effectiveness of learning, we still find that in every educational institution, the direct personal contact between student and teacher remains the linchpin of the educational process.

Take note

In fact, the effect of the new technical devices in education has not been to abolish the role of the teacher but rather to assist it to evolve in a creative way from that of authoritative instruction to one of facilitation and guidance of the learning process.

So in essence, you as the lecturer have a crucial role to play in organizing and orchestrating the use of the media and learning aids to give the greatest educational benefits. Prepare thoroughly to teach ; have all items you require for a particular lecture.

1.4.3 The Lecturer as Trainer

Apart from imparting basic knowledge and developing people's intellectual faculties, the university lecturer is also engaged in the teaching of professionals in all applied areas. The Lecturer (more than any other teacher) must ensure that potential professionals develop practical skills that will enable them to function effectively as per the demands of their profession.

Activity

What is your profession?

What is the significance of your professional area to national

development?

1.4.3.1 Human Resource Planning

In all areas of Human Resource Development, it is imperative to make a distinction between the human capital that are already invested in the economy and the annual flows to this already accumulated stock. The flows represent additions to the stock to replace depletions in the human resource base caused by wastage either through natural attrition in the form of retirements, sackings or deaths. This wastage naturally leads to loss from the occupation or profession in question. Since this loss is likely to result in a gap in productivity, the loss must be filled through recruitment. Thus, Universities are key institutions in the planned staffing of the national (and county) economy with qualified specialists. **Therefore,** the lecturer is the linchpin in regulating the rate of human capital formation in any country, including Kenya.

1.4.3.2 Responsibility

What this means in practical terms is that you as a lecturer need to keep abreast of all new developments in your area of Specialization so as to avoid producing obsolete skills and to contribute positively to the achievement of Vision 2030.

Activity

Visit the Office of National Planning and ask to familiarize yourself with the statistical abstracts for your sector? What are the projected targets for this plan period and how can you contribute to their achievement?

1.5 The Research Assignment

In the University of Nairobi, one of the core businesses is Research. This means that as a lecturer one of your key functions must of necessity be research; but, what is research?

1.5.1 What is Research?

Some scholars view research as a serious academic activity with a set of objectives to explain, analyze and understand a problem or find solution to a problem. Further, research is creative work undertaken systematically to increase the stock of knowledge (including knowledge of humanity, culture, society) and the use of this stock of knowledge to devise new applications. For others, research can be any gathering of data, information and facts for the advancement of knowledge Whatever it is, we cannot dispute the fact that research does have an impact on teaching. What is this impact?

1.5.2 Impact of Research on Teaching

Research does have a positive impact on teaching, because it:

- ✓ Keeps the mind of the teacher sharp , and so
- ✓ Keeps his or her lectures fresh
- ✓ Keeps the students intellectually alert

However, teaching and research are missions with distinctive styles and different often contradictory requirements for organizational structure. In research,

- Ideas become more important than people.
- The lab and the library are more important than the faculty meeting.
- External funding is more important than internal budget allocation.
- Judgment of peers in one's field of specialization rather than the progress of the students becomes the critical measure of performance.

This shift in accent is bound to have some effect on the teaching enterprise and consequently on your role as a lecturer at the University of Nairobi.

1.5.2.1 Effects on Teacher-Student Relationship

As we have already noted, the shift in priority of the research professor is likely to have several effects on the teaching assignment. Let us look at some of these effects on the teacher-student relationship. In research:

- ✓ A more mature student is more useful and interesting than the freshman or fresh-woman. (S) he is more interesting as (s)he involves himself/herself either in learning the techniques of scholarly research or in working as an assistant to the professor.
- ✓ Therefore, a Graduate student becomes an asset while the undergraduate is more of a liability.
- ✓ Research can be undertaken as an individual pursuit or an institutional engagement. Yet Scholarship is generally speaking an individual enterprise. Thus, a scholar would prefer to work with assistants or co-workers on his or her research project than with Faculty who happen to teach in the same department.
- ✓ A Scholar is not dependent on the judgement of his or her colleagues concerning his or her research. (S)he would rather present his or her work to those in his or her field who can pass competent judgement.

1.5.3 Implications for the Lecturer

What this means in practical terms is that the Traditional instruments of conducting university business – that is , the Departmental or Faculty Meeting - become irrelevant for the Research Professor. As a matter of fact , the research professor goes to faculty meetings in times of crisis (mostly personal.) The research professor goes to faculty or departmental meetings primarily to ensure that (S)he gets a teaching schedule that does not interfere with his or her research activity.

In addition, the Research enterprise requires its own budget and the freedom to manage independently funds received from external agencies. This may mean that a conflict is created

between fiscal accountability measures expected by the donor agency and the procurement rules and regulatory framework of the University.

Having said this, I want to state that although you as a lecturer should and must engage in research, you have the responsibility to:-

- ✓ Secure funding for research activities
- ✓ Inform the Departmental Chair of the research activities that you are involved in and where they are taking place and who is funding them.
- ✓ Ensure that you follow the right procedures for getting permission to conduct research.
- ✓ Ensure that the students assigned to you for supervision are supervised well enough to complete their studies.
- ✓ Share or disseminate your research findings in appropriate fora which includes submitting articles for publication in the relevant discipline –based journals available
- ✓ Observe ethical practices while in the process of conducting research
- ✓ Take care not disrupt departmental programming

1.6 The Service and Consultancy Assignment

I think that this particular assignment relates to what Dibella in his model refers to as the utilization phase.

1.6.1 Within the University

Within the University system, this may mean that you as a lecturer are prepared to serve on the various committees that contribute to the effective functioning of the organization. Some of these committees could be the ones the University uses to scan the environment. Scanning targets in the University environment include

- The labour market
- Social and economic needs

- Funding sources
- Technological development
- Higher education policies

1.6.2 Within the Wider Society

The Service and Consultancy Assignment is not confined to the University and its committees. You may also be appointed to national committees that are set up by the National and County governments to ensure that Kenya as a nation acquires the desired status of a Newly Industrialized Country (NIC) as envisioned in its planning framework. This means that you will:

- ✓ Engage in public service to offer constructive guidance to society

Summary

In this lecture, we have tried to explain the role of the lecturer in the process of education. We have presented the university as a unique institution in the Education, Science & Technological Innovation sector of development. The uniqueness of African Universities as organizations can be appreciated only if we compare them with other kinds of organizations and institutions. In understanding how universities are different from other enterprises, we sharpen our comprehension of what they actually are and we also clarify what our roles are as lecturers in these institutions.

Activity

a) How many research projects have you been engaged in during the last five years?

b) How and where did the funding come from?

c) To what extent did you involve your students?

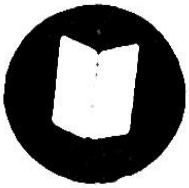
Activity

Take a good look at the course outline that you are currently using to teach and answer the following questions:

a) When was it written?

b) What new knowledge has been incorporated in the content?

c) How have you enabled the University to achieve its goals?



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LECTURE THREE

PROGRAMME DESIGN AT UNIVERSITY: A PRELUDE TO PEDAGOGY

BY

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LECTURE THREE : PROGRAMME DESIGN AT UNIVERSITY : A PRELUDE TO PEDAGOGY

Lecture Outline

1.1 INTRODUCTION

1.1.1 Lecture Overview

In this lecture, I present the argument that good pedagogical practices at the university cannot be sustained in the absence of an appropriate and well designed curriculum or programme of study. I agree with Burton & Keith who assert that learners in any educational institution are entitled to instruction based on adequate preparation and good presentation in terms of sufficient explanation and illustration. The lecture is divided into several sub-topics in which we shall introduce you to the background to programme and course design at the university level as well as the rationale for developing an appropriate curriculum. We shall also have a discussion on programme design in terms of curriculum planning and design; selection of content and how to assure quality in the university curriculum. Finally, we shall say something about interpretation of curriculum as exemplified in writing a course/unit outline in readiness for teaching

1.1.2 Preparation for Teaching

Preparation for teaching takes place at two levels:

1. Before the course (unit) begins
2. Before each teaching session

The first level is usually referred to as pre-course planning and is concerned with preparing the content of what will be taught at various educational institutions in their programmes. At this level , we are concerned with what knowledge is of most worth to learners ; what activities are most effective in enabling learners to acquire the requisite knowledge , skills , values , attitudes , facts and information ; what is the most appropriate way to organize these activities ; how do we know if learners have acquired this knowledge? To put it simply , we are concerned with :

- What to teach
- How to teach
- When to teach
- Who to teach

- What is the impact of teaching

Take note

A course of study in the university is composed of organizational methods and teaching techniques for communicating content material to learners and may be referred to as a curriculum. In this respect, a university can refer to its achieved medical curriculum; its available teacher education curriculum or its ideal architectural curriculum.

1.2 Objectives

By the end of the lecture, you should be able to:

1. Differentiate between a university curriculum , programme and unit
2. Describe the elements of a university curriculum.
3. Explain in detail the curriculum design process
4. Show how programme content at university can be selected and balanced.
5. Identify the criteria for selecting learning activities.
6. Acquire skills of writing a programme and course outline.

1.3 Characteristics and Definition Of Curriculum

In professional parlance, curriculum may be used in various situations to describe different if related things. In fact, Schubert (1986) posited many different images of curriculum; such as:

1.3.1 Curriculum as Subject Matter

This is the traditional image which involves combining of subject matter to form a body of content to be taught. Such content knowledge is a product of accumulated wisdom, particularly organised through the traditional academic disciplines. In the University of Nairobi, for instance, the curriculum is manifested in the course offered. A course is one unit of study; where a unit is the equivalent of 45 lecture hours for the undergraduate programmes and 60 lecture hours for some graduate programmes. Each of these units end with a written examination.

1.3.2 Curriculum as Experience

This is a more recent image in which curriculum is seen as a set of experiences that learners encounter in educational contexts. Most of these experiences have been purposively planned by means of the print media, but, many more experiences are encountered by learners in educational contexts. Some scholars refer to these unwritten experiences as the "**hidden curriculum" in** which learners acquire many forms of learning that were not planned, yet, which are usually highly significant. In this case, the lecturer becomes a facilitator to enhance the learners" personal growth.

1.3.3 Curriculum as Syllabus

The uninitiated sometimes confuse curriculum with syllabus. A syllabus is merely a list of content areas which are to be assessed. Sometimes the list is extended to include a number of objectives and learning activities. A curriculum on the other hand includes not only content, but also detailed statement of intent (aims, goals, objectives) and other key elements such as detailed learning activities and evaluation procedures. In this case, both syllabus and instruction are subsumed within the broader context of curriculum.

1.3.4 Curriculum as Intention

Some people see curriculum as a plan consisting of pre-determined statements of intent (aims, goals , objectives – what students should learn) and statements of intended learning outcomes (behaviour for students exiting the curriculum)

Take note

Clearly there are many ways of describing a curriculum , however , we can discern some features that are common to curricula ; such as :

- ✓ A formulated course of study designed for learners
- ✓ Conscious planning that attempts to determine learning outcomes
- ✓ Some form of structure to facilitate that learning

We now know that a curriculum consists of planned learning experiences offered within an educational institution; a programme represented as a document which includes experiences resulting from implementing that document. When a curriculum document is implemented in an institution with an educational programme, interaction takes place between the document, learners and instructors such that modification occurs and a curriculum emerges. Actually Print (1988) defines curriculum as ***all the planned learning opportunities offered to learners by the educational institution and those experiences learners encounter when the curriculum is implemented. It includes those activities that educators have devised for learners which are invariably implemented in the form of a written document and the process whereby teachers make decisions to implement those activities given interaction with context variables such as learners , resources , teachers and the learning environment.*** In any institution offering an educational programme, learners will acquire planned institutional learning as well as unplanned unintentional learning. Finally, we shall agree with Rowntree (1986) who defines a course (unit) as ***a planned sequence of learning experiences occupying several learning sessions and involving some form of assessment***

1.3.5 Levels of Programme Development

A university programme is the vehicle through which individual learners are provided with general education for intellectual and moral development as well as skills and professional training for employment. It is also the vehicle through which learners are encouraged to undertake research that will provide solutions to urgent problems. How? A university programme is exemplified in its curriculum. Consequently, the determination of a university

curriculum is a very serious undertaking. What has that got to do with me? You may ask. The answer is simple.

During your university teaching career, you will most likely be involved in curriculum development at various levels.

- The Faculty or School may want to introduce new programmes and you may be called upon to participate as a member of the team that determines the units to be offered under the new programme.
- Within the Faculty or School, new courses and units may be developed at the departmental level. You will also be required to take part as a member of the Department.
- Further down the line, it may become necessary to operate various aspects of some disciplines. Your participation as an expert or professional in your subject of specialization may be essential.

1.4 The Programme Development Process

1.4.1 The Curriculum Process

It is important for us to look at the curriculum process before moving onto programme development. The curriculum process can best be explained using the Stulbeck Model in Figure 3. 1.

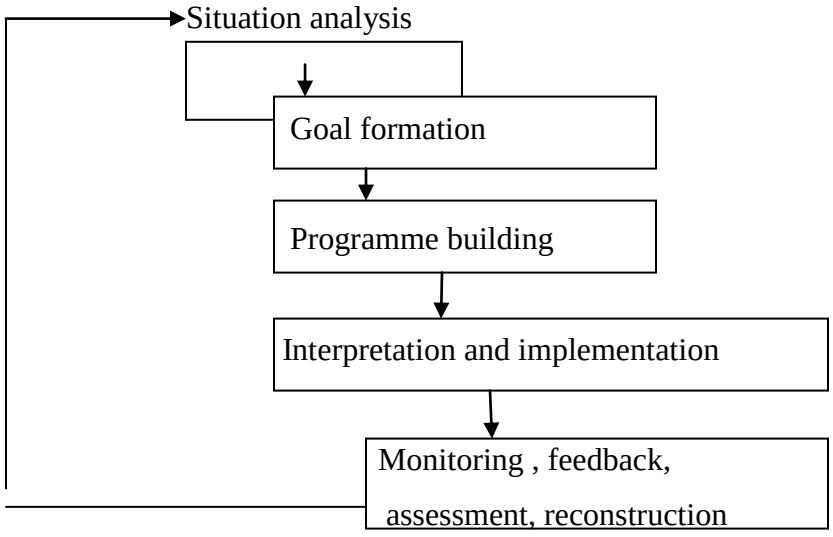


Figure 3.1: Stulbeck Model of the Curriculum Process

From this model we can see that the curriculum process basically entails five key elements. Irrespective of the level at which we are operating, the five elements are involved in some way. Let us look at every one of them; beginning with **situation analysis.** When we carry out a situation analysis, we are trying to understand the environment in which our programme shall operate. A situation analysis is of two kinds: **External and Internal.**

a) External Situation

Here we are concerned about

i) The social and cultural change of the society in which our students live and work. These changes form the values and assumptions of the country and become the basis of expectations that parents have of university education. They also form employer requirements for university graduates.

ii) There requirements of the educational system itself. The education sector in its policies places certain demands and pressures on universities as to what is viable and what becomes wastage.

iii) The discipline around which the programmes are organized. Continued research in the discipline will highlight areas that have evolved and consequently, what is relevant in terms of content.

iv) The potential contribution of lecturer support systems and the flow of resources into the university.

b) Internal Situation

For effective programme design,

i) It is important to gain a clear understanding of the learner who is the target of our programme. Since the ultimate aim of the university curriculum is to help the student to learn , it is imperative that we get to know our students in terms of;

- Their academic background and experience
- Their aptitudes and abilities
- Their age, gender and motivation
- Their learning styles and habits

ii) A student learns through interacting with the lecturer. Consequently, we also need to know the lecturers who are going to teach the curriculum in terms of their;
   - Values and attitudes
   - Preparedness for playing their roles effectively in terms of skills , knowledge and experiences
   - Strengths and weaknesses

iii) The student and the lecturer do not interact in a vacuum; they interact in an organization called a university. Consequently, we need to be cognizant of the mission, vision and core values which the university would like to be internalized and propagated through the curriculum. In addition, the university as an organization has certain structures which determine the expectations and norms that must be adhered to when developing academic programmes.

iv) There is the question of the infrastructure that is needed to design and implement a curriculum such as physical facilities, space, material resources and equipment.

The second key element of the curriculum process is **goal formation.** Goals are derived from situation analysis. A statement of goals embraces learners' and lecturers' actions as well as the kinds of outcomes which are anticipated.

Take note

Educational literature abounds with terms like aims, goals, specific objectives, criteria, standards; all these terms will be clarified under curriculum planning.

The third key element is **programme building also known as content derivation.**. Having decided on the desired outcomes of the programme and stipulated this in the form of objectives, we need to ask ourselves how these objectives will be fulfilled. In other words, what learning experiences must our students go through for our objectives to be achieved? Content derivation involves seeking answers to two questions:

i) What will you teach?
ii) How will you organize what you teach?

Apart from the design of teaching and learning activities, this element also deals with specification of teaching and learning resources needed to implement your curriculum such as texts, workshops, laboratories and places to do field work. The element also includes human resource development and role definition as well as timetabling and provisioning.

The fourth element is **interpretation and implementation** at which point we analyze relevant research and theory and use the analysis to forecast how best to implement that curriculum. In making decisions about how objectives will be achieved, we also have to decide on what teaching-learning methods and educational media to use.

The final element is **monitoring, feedback, assessment and reconstruction**. At this stage we are expected to design monitoring and communication systems as well as the preparation of assessment schedules. In programme design, evaluation is important for two reasons:

1. It enables us to determine the extent to which the objectives of the programme or unit have been achieved by our students
2. It provides us with feedback or information on the basis of which we can improve our programme or unit.

1.4.2 Curriculum Design

Curriculum design refers to the arrangement of the elements of a curriculum into a substantive entity. Programme or course design on the other hand is the planning and writing of a framework to guide the teaching and learning of a unit. From the researches carried out by scholars like Smith, Stanley and Shaves (1950) Taba (1962) Print (1988) and Wiles & Bondi (1989) we can identify four categories of curriculum designs. Let us look at them now.

1.4.2.1 Subject Centred Designs

Subject centered designs revolve around the teaching of an established body of content which has been derived from the accumulated wisdom of the academic discipline. Good examples are subject design used by the Kenya Institute of Curriculum Development (formerly KIE) for the secondary school level and academic discipline design used by universities.

Subject Design

- Is based on the classification and organization of subject matter into discrete groups which we call units
- Groupings are based on divisions of labour in research which has produced what we now know as physics , mathematics , chemistry , biology and others
- Emphasis is placed on acquisition of subject matter: knowledge and content is structured sequentially

Academic Discipline Design

- Basically a post World War 11 phenomenon gaining support in the 1960s and predicated on inherent organization of content.
- Emphasizes the role played by those distinct entities called academic disciplines which can be delineated in terms of knowledge, skills and values.
- To assist the learner acquire the knowledge, skills and values of the academic discipline numerous projects have been developed in which the principal thrust is for learners to understand the structure of the discipline. From those projects, learners get to know the relationship between key ideas, concepts and principles as well as the integration of skills and values associated with that discipline.

Take Note

Features common to subject centred designs

- ✓ Classification and organization of all content into subject or subject-like groupings.
- ✓ Subjects are clearly defined and distinguished Hierarchy of subject is commonly found according to their perceived value.
- ✓ Methodology implied and practiced is largely lecturer centred and expository in nature.

1.4.2.2 Learner Centred Designs

- Emphasize individual development
- Approach to organizing curriculum emerges from needs, interests and the purpose of students which are variable causing programmes to be modified many times upon interaction with students.

1.4.2.3 Problem Solving Designs

- Pre-planned designs which seek to provide learners with opportunities to resolve problems they are likely to encounter
- Emphasis is placed on group activities in which learners are required to reflect on themes touching on contemporary social problems ; themes of activities to meet needs as they are experienced
- A good example of a thematic design would be in biology where units are designed centred around specific areas of the environment (such as pollution and its effects on health)

1.4.2.4 Core Learning Designs

- The idea behind this type of design is that there is a set of common learning (knowledge, skills, and values) that should be provided to all learners in order for them to function effectively in society.

The issues in any core design include:

- What should be included in the core
- How large should the core be in terms of percentage in total content within the written curriculum
- What should be excluded from the core
- Is a core required of all learners?

1.4.3 The Programme Planning Phase

Programme planning is the process whereby we curriculum developers conceptualize and organize the features of the programme we wish to construct. It involves:

- ✓ A broad analysis of the curriculum's design (what it will look like)
- ✓ Organizing the sequencing of developmental tasks (how to construct the curriculum)
- ✓ Arranging for the process of implementation and evaluation

Programme intent provides direction for subsequent development by specifying the ends for learners to achieve. A statement of programme intent includes aim, goals and objectives to be achieved by learners as shown in Figure 3.2

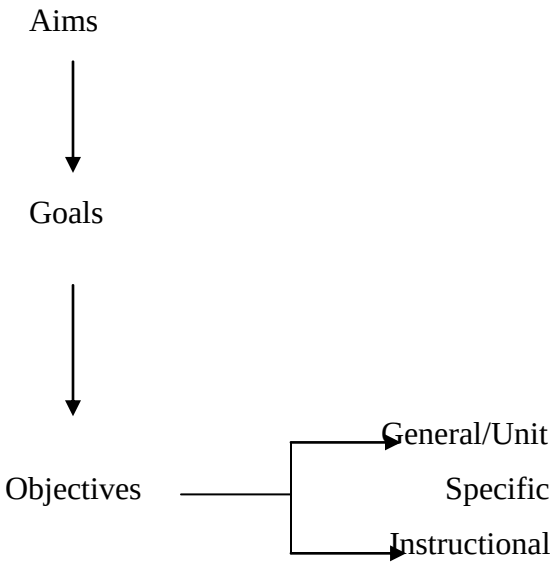


Figure 3.2:Programme Intent.

Adapted from print 1998

Rowntree (1986) defines an aim as a general statement of what you hope your programme or unit will achieve in terms of what you the lecturer will be presenting to the learner. Let us take an example from Chemistry.

Activity

1. Can you write down the aim of your chemistry programme for undergraduate students?
2. Can you also write down a goal of the same programme?

You will notice from your own programme that an aim puts emphasis on the programme and provides the basis of justifying your objectives. One aim or goal can actually lead to several objectives which as we can see from Figure 2 can be stated as **general programme objectives** or **specific instructional objectives.** Objectives give more information; they use sharper and more precise words to describe in greater detail intended learning outcomes of a programme or course unit. But, what is an objective? Objectives are:

- Specific sets of well defined activities which learners will be able to exhibit in order to demonstrate their achievement.
- Statements of competencies which successful learners will be able to demonstrate after completing the appropriate element of their learning programme
- Statements which attempt to describe in the clearest terms possible , exactly what a student will think , act or feel at the end of a learning experience (Davies , 1987)
- Statements, therefore, which describe the evidence one can look for to determine the extent to which desired and intended behaviours have been learnt by the student. Thus, they are usually expressed in behavioural terms from the students' point of view

Take note

An objectives based approach to a learning design is preferred by many professional educators and curriculum developers. Consequently , objectives serve three functions :

1. They define the general nature of the curriculum or programme and give an idea of the material that should be covered.
2. They allow consideration of which teaching and learning methods should be employed.
3. They are of primary assistance in planning the content and processes to be used in assessment.

Ideally objectives should be continually refined in the light of emerging knowledge of the target population of learners and their existing skills, abilities and competencies. I would like to reiterate that behavioural objectives are central to our work as lecturers, because they:

- Serve as very useful stimulus to think clearly about the whole programme
- Act as guidelines in the curriculum design process for the selection of:
    - ✓ Unit content and structure
    - ✓ Appropriate teaching and learning methods
    - ✓ Appropriate means for assessment and evaluation

1.5 Selecting Programme Content and Learning Activities

From the Sulbeck Model in Figure 1, we already know that content derivation involves asking two questions which we shall now attempt to answer.

1.5.1 What Will I Teach?

Answering this question requires you to survey your discipline in view of your objectives. You will, then, need to select the knowledge, skills and attitudes needed by your students to achieve your objectives. The criteria for selecting effective content for a curriculum includes:

1. Significance : how essential is the content to the discipline?

2. Validity : how accurate or true is the content?
3. Relevance : is the content worthwhile to society?
4. Utility : how useful is the content in adult functioning?
5. Learnability : can students actually acquire the content?
6. Interest : does the content have any intrinsic interest to the learners?

Once the selected content has met these criteria, you will then, identify the topics and sub-topics that should be included in your programme. You will then, identify the main tasks to be undertaken at specific points in time. This is sometimes referred to as horizontal organization or horizontal integration. The starting point is to ask questions about the nature and balance of the content. How much of each content area should learners cover in an hour, a semester or year? Is there a body of common content that all students should know? What content should be excluded from the curriculum and what is the role of elective content, if any?

Answering these questions helps you to define the **scope of curriculum content.** The scope of curriculum content determines the depth and breadth of content to be covered at any one time. It defines the range of content areas represented and the depth of treatment each area is accorded .In determining the scope of content, it is important to consider the following aspects:

c) Time: breadth actually represents time spent on a particular subject theme. It Provides the basis for timetabling.

Notion of core content: refers to the content that should be acquired as a result of the university experience. You need to ask yourself 'how much content should the core constitute?

Notion that universities should provide content to meet special needs and interests. This takes the form of electives or options to accommodate student interests and social contexts.

Integration: specializations through units is a fundamental purpose of the Programmes at university. It should not be overlooked.

Inclusion: what content should be excluded?

1.5.2 How Will I Organize What I Teach?

Answering this question basically requires you to decide how content will be arranged in order of priority. What criteria should determine the order of content? What should follow what and why? When should learners acquire certain content? Technically, this process is referred to as **sequencing of content.** Sequencing of curriculum content is the order in which content is broken down into manageable sections that can be presented to learners over a period of time. Rowntree (1986) and others have identified a number of principles and approaches that can be used in sequencing. These include:

a) Simple to Complex: this is the order that is traditionally found in the sciences where the sequence is seen as a progression from simple to super-ordinate structure.
b) Prerequisite Learning': this sequence is followed in subjects which consists largely of **''Laws and Principles'** such as Physics, Geometry and Language. For instance, to apply a law of motion in physics to a practical problem, you must first know the law.
c) Chronological Sequence: this applies to sequencing content according to the chronology of recorded events. It is important in disciplines which have the causal relationships between events such that to understand an event you need to understand what preceded it. A variant of this is the causal or cause-effect chain approach in which content is presented in a cause-and-effect order and learners work through the chain of causes and effects for some phenomenon until they can explain the final effect, which is the phenomenon.
d) Whole-to-part Learning: the rationale behind this approach is that understanding the whole makes possible the understanding of partial or constituent phenomena. In geography, for instance, learners first examine the globe; associated global concepts such as time, seasons; followed by specific local topics such as weather. Similarly, in biology, the student may learn about the whole animal before they learn about its parts.
e) Place-to-Place or Adjacent Places Approach: this is actually the spatial equivalent of the chronological approach; however, content presentation is from one place to an adjacent

place. For instance, in describing the structure of the human body, you start from the head, then, move on to the neck and work your way down to the genitals and the toes.

f) Increased Abstraction: this is based on the premise that one learns more effectively what is closer or more meaningful to the learner. Hence, we order content with our own experiences and proceed to more remote learnings. Some scholars prefer to call it ordering content from concrete to abstract and postulate that it is far more rewarding to understand concrete concepts. An example might be understanding distance on the ground before studying scale in technical drawings.

g) Spiral Sequencing: this comes from Brunner (1965) who postulated that learners should be exposed to the content's basic ideas repeatedly, thus, building on the basics until the whole range of learning has been acquired. In other words, when the **same topic is repeated over and over again as the unit develops, each time at a more** complex level, it allows knowledge, skills and attitudes or values to be re-inforced and extended.

Take note

Available literature on organizing content favours two key approaches:

a) Logical Organization which has to do with the way knowledge is organized within your discipline. Brunner (1960) calls this the underlying principles that give structure to the discipline.

b) Psychological Organization which has to do with how learning actually takes place in the minds of the learners. It is the students' preferred way of organizing content.

1.5.3 Organizing Learning Activities

Learning activities refer to those activities offered to learners in the teaching and learning situation which are designed to enable them to acquire the designated content and thereby achieve the stated objectives. They incorporate all teaching or instructional strategies planned by teachers as well as those methods by which students learn by themselves within the context of classroom or learning environments. In the curriculum, learning activities are integrally related to content and intent.

There are a variety of teaching-learning strategies ranging from lecture to independent study. The general rule is that:

- Learning activities should be congruent with the teaching-learning strategy chosen Wheeler (1967) adds that a learning activity should be used only if it facilitates the achievement of objectives.

Take note

For example, if our objective is to make students to understand the operation of scientific equipment such as a Bunsen Burner, then, interactive and expository methods would be appropriate; inquiry would not. On the other hand, if your students are required to operate a Pipette correctly and safely, then interactive, small group and individualized methods would be appropriate.

Learning activities must be selected for their appropriateness. Learning activities should also be selected if there is availability of needed resources at the required time.

- In selecting learning activities, one must also consider university policy as well as other resource constraints such as time.

1.6 Programme Adminstration

1.6.1 Undergraduate and Graduate Programmes

Initial development of a curriculum begins within the Department where the members of academic staff who are specialists in various disciplines are charged with the responsibility of developing units that are then put together to form a programme. Once a programme has been developed and written down on paper, it is, then, discussed at the **Departmental level**. From there, it is forwarded to the **Faculty or School Academic Board** by the Chairperson for further deliberations. The next level of deliberations is the **College Academic Board (CAB).**

1.6.1.1 Undergraduate Programmes

If the programme meets with the approval of these two Boards, and it is an undergraduate programme, it is then forwarded to the **Deans' Committee** after which it is then, taken to **Senate** for final discussion and approval.

1.6.1.2 Graduate Programmes

If it is a graduate programme, however, it will go to the Board of Postgraduate Studies from the College Academic Board, after which it will also be taken to Senate for the final deliberations and subsequent approval. After the approval of Senate, the programmes are taken back to the teaching units – that is, the Departments and Faculty or Schools – for implementation. This process is captured diagrammatically in Figure 3.3

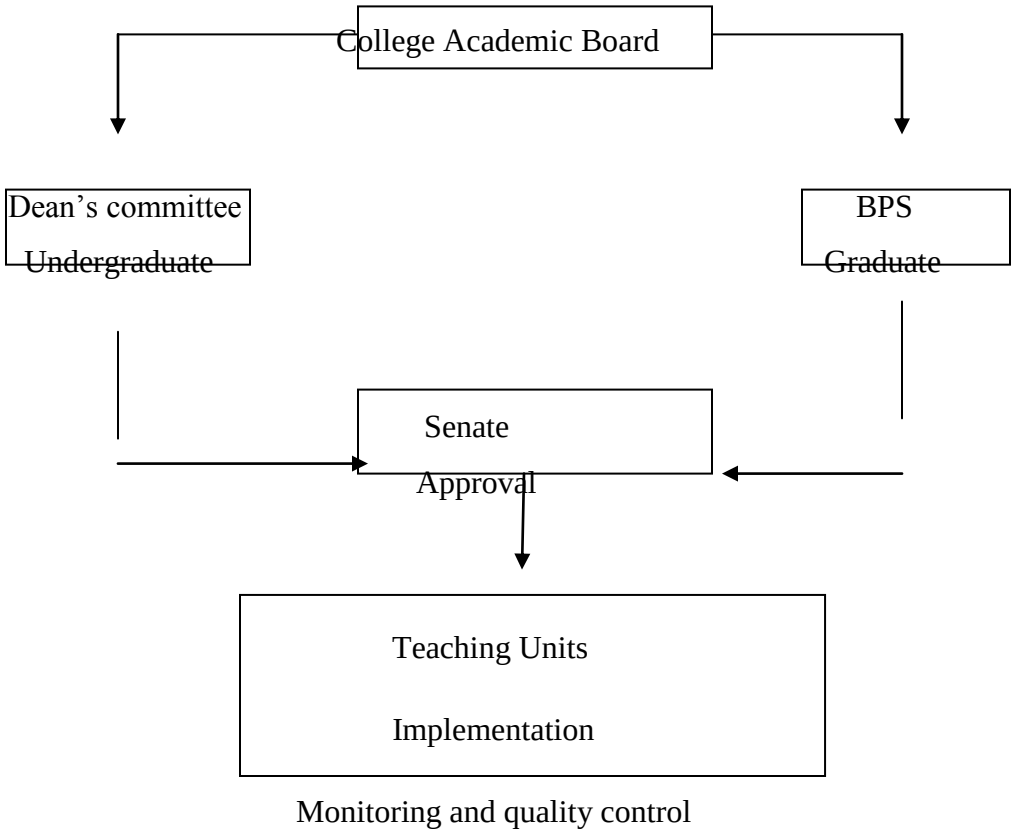


Figure 3.3: Programme Adminstration Process

1.6.2 Quality Assurance Mechanisms in the Programme

During the implementation process, various mechanisms are put in place for monitoring and quality control. In the University of Nairobi, this process of monitoring and ensuring that high standards are maintained has been done by external examiners in collaboration with internal examiners. Internal examiners are expected to adhere to the procedures laid down by the Quality Management System otherwise known as ISO Procedures. Some of the monitoring activities that external examiners are expected to perform include the following:

- Ensure content objectives are being met
- Ensure relevance of the various unit and programmes to the students and the society. In other words, ensure that the needs of the students and employers are being met.
- Identify knowledge , skills and attitude gaps in the topics covered
- Ensure both unit and programme content are up-to-date
- Ensure that the material covered is suitable and adequate for the level at which it is taught and examined
- Elicit evidence of either unit or programme deterioration
- Determine whether student performance shows unexpected variations and feed these data back to the departments so they use the data to revise and improve their curriculum.

1.6.3 Writing a Course Unit Outline

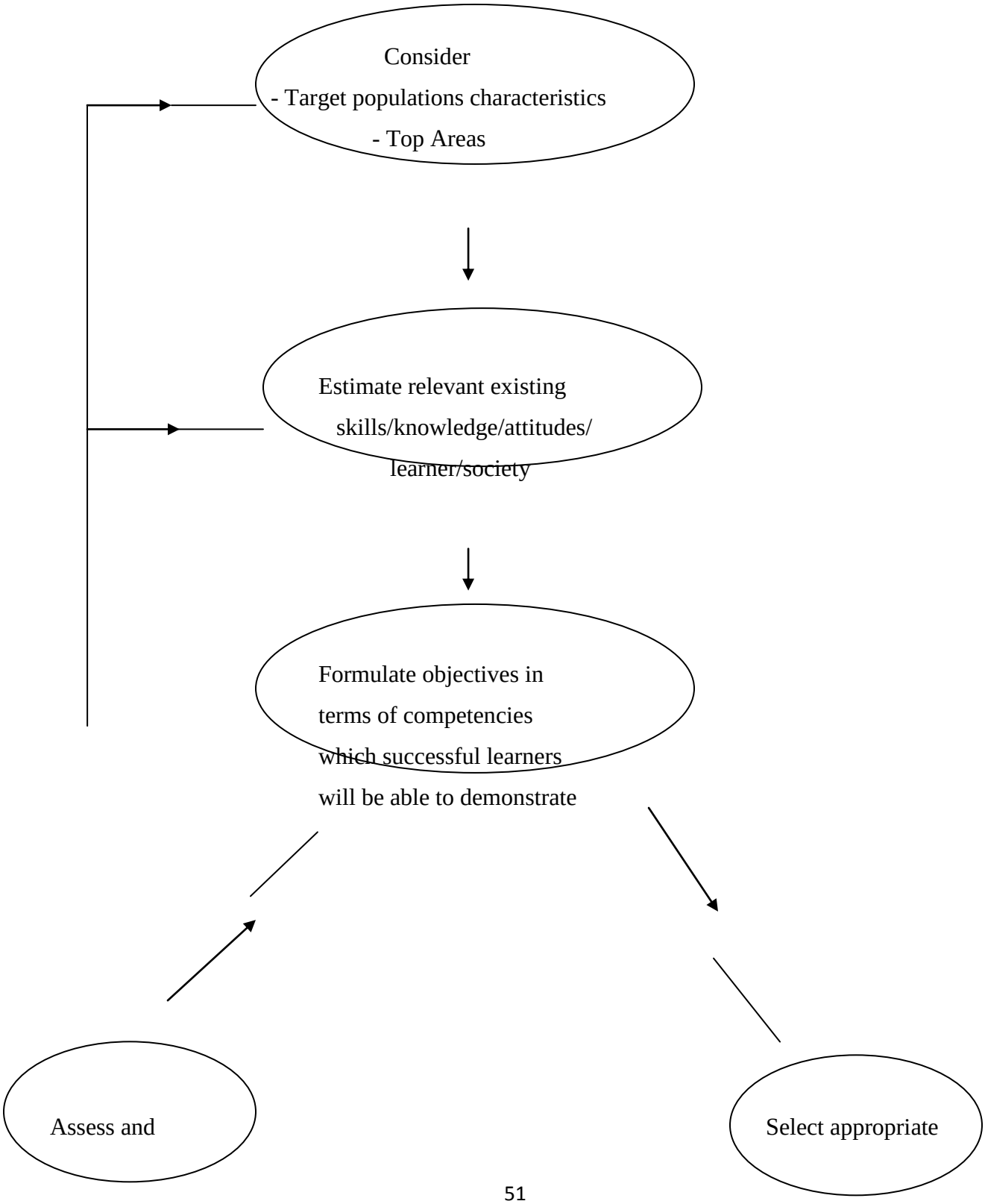
Once the programme has received senate approval, it goes back to the Departments and Schools for implementation. This is the point at which you as the lecturer are expected to interpret the approved curriculum and break it down in teacheable topics. You do this by writing a **Course Outline.** A course or unit outline is usually derived from the written curriculum. In writing an outline, you are putting down on paper your plans for the unit in terms of the objectives, content, teaching-learning methods and media, evaluation procedures and schedules and all other information you consider necessary for the learners to have. The outline helps you as a lecturer to plan your time; consequently, you can schedule learning activities well in advance. You can also acquire the necessary resources in good time. The students will also find the outline useful

because it sets out what the demands of the unit are and allows students to plan their work accordingly. A good outline should contain the following:

- The Unit Code and Title
- The Target Group
- The Name of the Lecturer
- Lecture Time and Venue
- Unit Objectives
- Unit topics and sub-topics
- Assessment Procedures
- Basic texts and the texts selected for further reading.

1.7 SUMMARY

In this session, we have learnt that professionalism in teaching at the university involves more than just planning and giving a series of lectures. It involves reflecting on and making decisions about our units and programmes long before we enter the lecture theatre. This means that , as lecturers , we need to get involved in the process of curriculum or programme design and development at various levels ; a process that can be summarized in Figure 3. 4.


Consider
- Target populations characteristics
- Top Areas
Estimate relevant existing
skills/knowledge/attitudes/
learner/society
Formulate objectives in
terms of competencies
which successful learners
will be able to demonstrate
Assess and
Select appropriate

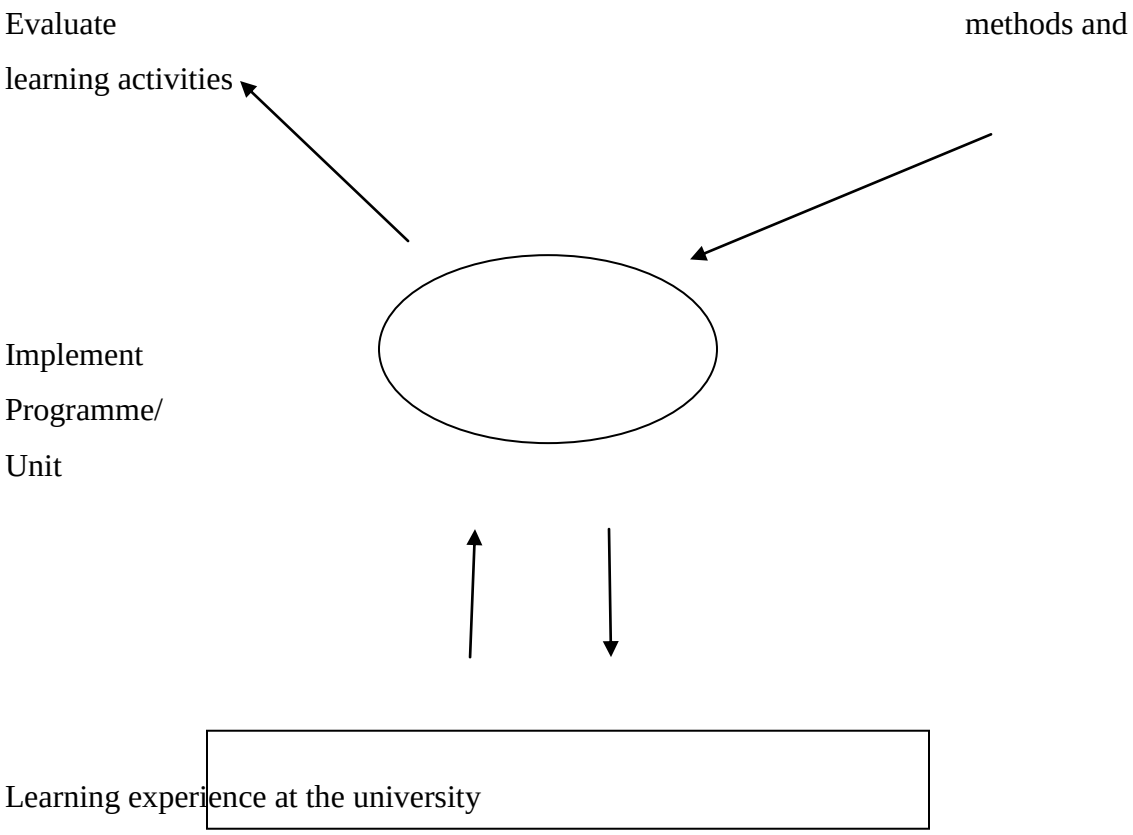


Figure 4:A System's Approach to Programme /Unit Design at the University.

1.8 Activities

Make a list of all the topics in your unit and answer the following questions :

1. Is the unit important in providing a grasp of the discipline?

2. Is the unit relevant to the University of Nairobi and Kenya as a whole? In what ways?

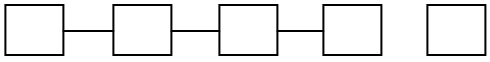
3. Is the unit of special interest to the students?

4. Are your students capable of learning the unit without difficulty?

5. Are you as a Biologist, Physicist, Mathematician (whatever) capable of handling it with ease? Does the unit interest you professionally?

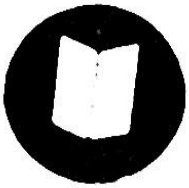
6. What resources are available for you to ensure effective coverage? (Library, Laboratory , Equipment , Audio-Visual Aids , Space and so on)

7. Think of the teaching-learning methods that you use in your units and estimate where they are in the following continuum



Lecturer centred Learner centred

8. Get hold of outlines of the units that you teach in the department. Do your outlines have all the necessary information required in a complete outline? Revise your outline if it needs to be improved.



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LECTURE FOUR

METHODOLOGY FOR SCIENCE TEACHING IN HIGHER EDUCATION INSTITUTIONS

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~~**LECTURE FOUR : METHODOLOGY FOR SCIENCE TEACHING AT UNIVERSITY**~~

Lecture Outline

1. Introduction
2. Objectives
3. Nature of science
4. Diversity of learners
5. Methods for teaching science
6. Summary
7. Activity
8. Suggestion for further reading

1.1 Introduction

This lecture explores the nature of science, diversity of learners in institutions of higher learning, and methods, strategies and techniques you can use during instruction in higher education institutions. It also covers work on inquiry approaches to science instruction. It is important for you to have thorough prior knowledge about the nature of science and diversity of learners as you prepare and plan to teach science. By so doing, you will be able to focus on all the themes (dimensions) of the nature of science during instruction. You are likely to have effective

instruction when you use a variety of teaching methods, strategies and techniques during lecture sessions.

1.2 Objectives

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

1. Apply the nature of science in teaching science.
2. Accommodate the diversity of learners during instruction.
3. Apply a variety of methods of teaching science during Lectures.
4. Apply your knowledge about the nature of science in teaching science.

1.3 Nature of Science

Teaching science must be consistent with the nature of science in order for the course content and methods to reflect how scientific knowledge is constructed and established… (Chiappetta, & Koballa, 2006). It is important for you to understand the nature of science when planning for instruction in science. What a lecturer does during a science instruction should reflect the nature of science in terms of science content and process. You must also appreciate other worldviews (such as African or Asian) about science that may differ from the western world's view of science (Chiappetta, & Koballa, 2006). In this regard, you should bear in mind that many students studying science in less industrialized countries may have some misconceptions about how scientists work in various parts of the world. Some of these student misconceptions in science are as a result of students' background and indigenous beliefs about science. Your understanding of your students' misconceptions will assist you to relate your teaching to students' context. Consequently , it is important that you understand the nature of science when planning for instruction in science. What a lecturer does during a science instruction should reflect all the themes of the nature of science.

As a lecturer , you must also appreciate other worldviews (such as African or Asian) about science that may differ from the western world's view of science (Chiappetta, & Koballa, 2006). In this regard, you should bear in mind that many students studying science in less industrialized countries may have some misconceptions about how scientists work in various parts of the world. Scientists design experiments and collect empirical data to test their hypotheses. Analysis of the empirical data assists the scientists to draw logical and rational conclusions about a problem under investigation. They , then present their findings and solutions to given scientific problems in the form of seminars or conference papers or published work for public consumption. Through such presentations, other scientists are able to critique their colleagues' work. The findings may confirm or disapprove claims made by colleagues in science. As more knowledge or new discoveries or compelling arguments are made using various scientific methods, earlier claims may be disapproved, falsified, or modified (Chiappetta, & Koballa, 2006).

It is argued that science instruction should incorporate, to various degrees, four themes or dimensions of science.

Take Note

The four themes (dimensions) of nature of science are:

1. Science as a body of knowledge;
2. Science as a way of investigating;
3. Science as a way of thinking; and
4. Science and interaction with technology and society

(Chiappetta, & Koballa, 2006).

1.3.1 Science as a Body of Knowledge

It is important for you to know that science as a body of knowledge is organized into various disciplines: astronomy, biology, biotechnology, chemistry, geology, physics, and space physics.

These disciplines contain unique information that has been put together in form of facts, concepts, principles, laws, hypotheses, theories and scientific models.

Take Note

Note that a concept is "an abstraction of events, objects, or phenomena that seem to have certain properties in common" while principles and laws may be seen as a general category of concepts (Chiappetta, & Koballa, 2006, p. 100). Theories in science are used to explain underlying patterns and forces. Chiappetta and Koballa argue further that theories do not become facts or laws but will always remain tentative statements until new evidence disapproves them or require them to be revised.

You should remember that in cases where some phenomena cannot be seen or observed directly, scientists use models to represent and make them comprehensible. Physical and mathematical models are frequently used to represent phenomena. Some examples of models that have been formulated from abstract ideas in science are the Bohr atom model, the double helix of the DNA model, the solar system, structural chemical formulas, and Krebs cycle. You also need to remember that scientific models are not exact "replicas of reality but working ideas that facilitate communication and guide research" (Chiappetta, & Koballa, 2006, p. 137). You should also bear in mind that use of models in teaching science may be problematic because they are not always perfect.

1.3.2 Science as a Way of Investigating

Science as a way of investigating involves many methods and approaches to scientific knowledge construction. Some scientists generate knowledge through experiments while others are theorists. However , as a lecturer , you need to pose theory-based questions to assist students to seek solutions to problems through conduction of experiments. Students, as investigators, can

also formulate hypotheses to be tested through experiments, observations and/or predictions (Chiappetta, & Koballa, 2006). Students' experimental results may support or confirm scientific ideas being tested or lead to modification of such ideas or concepts. It is worth noting that mathematics plays a very important role in providing "useful representations of nature for objects and phenomena that are out of our direct perceptual reach" (Chiappetta, & Koballa, 2006, p. 99). Use of formulae to explain a scientific phenomenon is common especially in the fields of physics and chemistry.

1.3.3 Science as a Way of Thinking

You should bear in mind that scientists attempt to find out more about what they believe to be true about the world. Through curiosity and relying heavily on their imagination, scientists are always exploring their environment as they attempt to answer the question, why? Various models of phenomena (e.g. on the atomic structure) in science have been arrived at through scientists' imaginations. Also note that we learn science through inductive and deductive reasoning. Through inductive reasoning that is based on all possible observations without prior knowledge about a phenomenon, scientists are able to put together scientific principles and facts to formulate explanations and theories in science.

Deductive reasoning on the other hand is widely used in making predictions in scientific phenomena, especially in the area of astronomy and theoretical physics (Chiappetta & Koballa, 2006). In the hypothetico-deductive approach, a scientist has prior knowledge about a certain theory which assists him/her to formulate a hypothesis to be tested through scientific investigations. In addition, scientists are continuously seeking ways to establish cause-and -effect relationships in scientific phenomena. For instance, one may ask the following questions:

Intext Question

1. What is the exact position of an electron in an atom?
2. Why are people who live in the highlands west of the rift valley in Kenya more prone to malaria attacks?
3. Why do lightning and thunderstorms occur frequently in some parts of Kenya and not other parts of Kenya?

Remember that scientists go about their work in an objective and open-minded manner. You should also be aware that in science, there is self-examination and skepticism as scientists revise their stances through scientific evidence and discussions.

Take Note

In Construction of scientific knowledge based on science as a way of thinking, we focus on reasoning, curiosity, imaginations, beliefs about science, cause-effect relationships, self-examination and skepticism, open-mindedness and objectivity.

(Chiappetta, & Koballa, 2006)

1.3.4 Science and Interaction with Society and Technology

Many developments in science have been achieved as a result of scientists' collaborative efforts, and through societal influence and availability of technology to assist in data collection and analysis in which various stakeholders play a major role in providing funds that are used in scientific research. Through provisions and interventions, more scientific knowledge is generated as science interacts with society and technology. Thus , you need to relate what you teach with what the learners come across in society not only in terms of knowledge but also technology. You should also make use of the advancements in technology in teaching science at higher levels of education. Against this background, you need to prepare your lecture materials well and plan to have effective communication with your students. Let your lecture objectives incorporate the nature of science to assist students visualize the relevance of college science to their every day experiences.

1.4 Diversity of Learners

Students in institutions of higher education are from different backgrounds in terms of culture, ethnicity and personal characteristics. According to Atwater and Riley (1993, p. 664), cultural diversity in science education may be seen as "a construct, a process, and an educational reform movement with the goal of providing equitable opportunities for culturally diverse student populations to learn quality science in schools, colleges, and universities". Diversity in student population is likely to pose many challenges to you when teaching science. Students' socio-economic and political upbringings influence students' achievements in science. Instructional media may also pose language barriers to students coming from different backgrounds when learning science. It is important that you are aware of your students' background so that you are able to equitably provide them with high-quality experiences in science (Chiappetta, & Koballa, 2006).

Science should be taught in such a way that it is accessible to all, regardless of gender, race, intellectual abilities, or physical/learning challenges. You should know that non-western cultures' view of science might be different from western/universalistic perspective of science as depicted in many science textbooks. Indigenous science knowledge and technology, especially in non western communities, is important in students' learning science in less industrialized countries in Africa. Knowledge of such indigenous science knowledge and technologies can assist you to plan well and be effective in presenting learning materials to college or university students in such countries. By so doing, the students are likely to make a connection between western view about science and what they come across in their immediate environment. This means that you need to know how to employ constructivist approaches and multiculturalism in science when teaching science. Remember that students, regardless of their background, are capable of studying and achieving well in science. For you to be an effective science lecturer, you need to accommodate learner diversity and be able to manage well your students' learning environments.

Take note

Knowledge about students' diversity is important in informing you on how best to address the students learning needs during instruction.

1.5 Methods of Teaching Science

There are a number of methods , strategies or techniques that can be used in teaching science in institutions of higher learning. These include :

i. Lecture method
ii. Discussion method
iii. Experimentation method
iv. Demonstration method
v. Panel of experts method
vi. Brainstorming method
vii. Instructional media method
viii. Case study method
ix. Role playing method
x. Report-back session method
xi. Worksheet/Survey method
xii. Index card Exercise method
xiii. Guest speaker method
xiv. Value clarification exercise method
xv. Inquiry-based method

Let us now explore every one of them

1.5.1 Lecture Method

The lecture is usually used during theory-based instructional sessions. In a lecture you present the science content to be learned in a direct and logical manner and are able to cover a lot of content. During a lecture, you are presumed to be the owner of the science knowledge to be passed on to students. A well planned lecture will contain various experiences which are likely to inspire students. Many lecture halls in institutions of higher learning, in less industrialized countries, have large student populations. In such situations, the lecture method is useful for large groups of students.

During a lecturing session, you should be able to reach all students and cover a great deal of content in the shortest time possible and often at a minimal cost (in terms of resources used). You may ask questions requiring high order thinking skills during a lecture. Such questions are likely to stimulate student thinking about the subject matter. As students respond to your questions, there is a possibility that the lecture may lead to an open discussion on the content being taught. To improve on your presentation, you can have a lecture with discussion. In some cases, you may present the content to be learned while involving students. You can involve students as the lecture progresses through questioning and answer techniques or you may pose questions at the end of a lecture for students to discuss.

You should prepare thoroughly for the questions to be used during a lecture session prior to the lecture discussions. During discussions, students have an opportunity to question your intentions or seek clarification on the concepts that may appear confusing. When you allow discussions within a lecture, students are able to challenge what is being learned as they construct new science content knowledge. This way, you are able to present to the students opportunities to understand the nature of science and be able to participate in generation of new science knowledge in their fields of specialization.

Use of lecture method has some limitations to science instruction. While you are able to cover a considerable amount of content during lecturing, it may not be possible for you to accurately gauge the extent to which the large numbers of students have understood the content. It will also be difficult for you to assess the achievement of the lecture objectives in large classes, especially when communication is one way (lecturer-centered) and students are passive listeners. The

situation may be worse if you are not good at presenting learning materials to the students. If you try to improve on the lecture method by involving students in discussions, you might not have adequate time for discussions within a lecture. The quality of these discussions is also likely to be limited by the type and quality of questions you will present and/or students during a lecture.

During your lecture preparation, you should make your lecture notes, worksheets and handouts in advance based on the university calendar course unit objectives. Advance preparation allows you to have easy flow of ideas during a lecture. Bear in mind that a well prepared lecture should have a clear introduction, content to be taught and summary of the main points of the lecture. For you to have an effective lecture, you also need to have clear diagrams, examples and anecdotes prepared in advance. In addition, achievement of a lecture session objectives requires advance planning for research questions that are likely to emanate from the lecture. However, this needs plenty of preparation time and a limit to the amount of content to be covered in a given time frame.

You need to plan well for your lecture introduction. The introduction given should be relevant, stimulating and capable of arousing learners' curiosity. You can do this by giving clear statements of the intended objectives. You should also employ appropriate questioning techniques to facilitate active learning during the lecture. You must plan for the questions to be used in advance. This will ensure that the questions are relevant and you are able to cater for individual differences among learners. In addition, as a lecturer in a less industrialized country you may find constructivist approaches to science teaching appropriate when conducting instruction. When you apply the constructivist approaches, you are able to view learners as to have come to the learning environment with prior science knowledge based on their immediate environments.

Many students in higher institutions of learning are likely to have some misconceptions about science that will need to be rectified during instruction or lecturing. Failure to do this is likely to lead to miscommunication between you and students. You should also be conversant with the examples to use during a lecture. The examples you give should not demean students in any way.

You should be conversant with your lecture development in relation to concepts, illustrations, examples, and cases you will consider during the instruction. You should develop your lecture in a way that you will ensure that concepts are handled from simple to complex ones or from the known to the unknown. It is important for you to handle one concept well before moving on to the next one. The time to use diagrams and other illustrations should be planned for. You need to place charts and other media in a strategic position without attracting the attention of learners. At the same time charts/media you require for instruction should be within reach for you to use when required during a lecture.

1.5.2 Discussion Method

In an institution of higher learning, you may involve the students in whole class or group discussions when covering a given content in a course unit. You should plan in advance the questions or issues that you would like your students to discuss in a given lecture. The questions should focus on the students' high order thinking skills in the content area you intend to cover. Ensure that the discussion is in line with the course objectives. As a lecturer, you should take time to formulate the discussion questions and estimate the time required for the discussions and feedback during the session. It is also your responsibility to plan in advance as to how the discussions will be conducted. During such discussions, your role needs to be clear to the participants. You have to plan carefully as to how the students will be guided during the discussion. In case of group discussions, specific questions or tasks you need to prepare for each group to answer.

A well planned discussion session will help the participants to exchange ideas and experiences from each other or groups. You may need to plan to show a film or video or an experience to the participants prior to the discussions. You can then give the participants an opportunity to analyze the presentations as they discuss a given science concept. Discussions that follow presentations of this nature are effective in making participants understand the various concepts to be learned. Involving students in class discussions makes them to have an opportunity to participate in an active learning process. Group discussions also have an advantage of having everyone to participate. However, bear in mind that some students are likely to feel comfortable when having

discussions in small groups. In addition, group discussions are also likely to make students reach a consensus on a given issue, something that you may find problematic in large classes.

Use of discussions during instruction may pose some challenges to you. Although it has been argued that everyone is likely to participate during group discussions, it is possible that some students may not have an opportunity to participate. There is also a possibility that some students may dominate in each group discussion. You may ask yourself the question, what number of students should I put in a group, especially in an institution with as many students as 500 in a class? To ensure effective learning during discussions, a group of less than 20 students might be ideal. You need to think carefully about the purpose of a group in the discussions. Ignoring such challenges, the discussions are likely to consume a lot of time and have participants getting off the discussion track.

1.5.3 Experimentation Method

Experimentation method is used to teach a science topic that can be taught using experiments. During the practical sessions, students will conduct scientific investigations on their own under your guidance. As a lecturer, you must have reasons as to why students should perform experiments when covering the subject content in the university calendar. The students need to be exposed to practical work in science in order to, among others:

1. Promote scientific methods of thought and inquiry,
2. Develop scientific process skills,
3. Promote the process of conducting research through investigations,
4. Assist learners to remember and understand scientific concepts and laws,
5. Arouse and sustain students' interest, attitudes, open-mind and curiosity in scientific studies,
6. Develop creative thinking and problem solving skills.

You are likely to organize and conduct student experiments using any of the following four possible ways:

1. Have all students involved in performing same class experiment exploring the same concept in science. The experiment can be done by individual students or in groups,
2. Have students perform different experiments exploring the same concept in science without rotation in the laboratory. You can have the students do the experiments individually or in groups.
3. Have students perform different experiments exploring the same concept in science through rotation in the laboratory. The students can conduct the experiments individually or in groups.
4. Have students perform different experiments in different stations at a time through rotation in the laboratory. You can have students do this at individual or group level.

For you to have effective instruction through experimentation, you need to prepare thoroughly for the laboratory sessions. Prior to conducting a practical session involving student experiments, you should:

1. Perform the experiments in advance to ensure that the required apparatus/equipment/specimen/materials or chemicals are available and in good condition for the class experiments. Use chemicals from same bottle(s) for the experiments you perform in advance and those to be done by students
2. Ensure that you are conversant with the use of the resources and be in a better position to assist students to obtain the required results during laboratory sessions
3. Ensure that the instructions on the student's worksheets, if applicable, are written in a non ambiguous language. For instance, instructions that require chemistry students to "add a few drops of…" or "add some drops…" or "add the alkali in excess…" are not only misleading but confuse students as to how much of the required chemical is to be added during the experiments
4. Practice to minimize on costs by having students perform small-scale experiments and be able to improvise apparatus/equipment during such practical sessions.
5. Remember that it is your responsibility to ensure that students observe safety precautions throughout the practical sessions.

1.5.4 Demonstration Method

This is a method of teaching science in which you will perform an experiment as students make observations and record the results. The difference between class experiments and demonstrations is that class experiments are performed by students under your guidance while demonstrations will be conducted by you or a more capable student as the rest of the students watch. You do a demonstration when you have inadequate or dangerous or delicate or expensive apparatus/equipment in the university laboratory for students to handle. You can also demonstrate to the students if you realize that students have not understood a given procedure or the students are not familiar with the apparatus/equipment. You can also use a demonstration to illustrate a given concept during a lecture session. You must ensure that the demonstration is going to be effective in facilitating learning of scientific concepts. You need to check on the resources for the demonstration in advance to ensure that they are available and in good condition to be used.

An effective demonstration will require you to organize students in a way that the set up of apparatus or demonstration object is visible to all of them during instruction and remember to involve the students in assisting to set up the apparatus, making observations and recording the results. During the demonstration, engage the students in making correct observations and recording of results through question and answer techniques.

1.5.5 Panel of Experts Method

When you incorporate a panel of experts in a teaching schedule, you will have the potential of breaking the monotony of having students being taught only by one person. The panel of experts approach will allow presentation of different and varied viewpoints on the topic(s) under discussion. In addition, the panel of experts is likely to generate a more intellectually stimulating discussion than would be the case in a one-person presentation. You can be innovative by including students on the panel of experts as a way of actively involving them in the teaching/learning process.

In general, when you plan to involve a panel of experts in your teaching sessions, you are likely to create variation in stimuli in your classes; and are likely to capture and sustain student attention and interest in subject matter. You need to note that use of panel of experts in your instructional sessions may pose some limitations. For instance, using a panel of experts might backfire if you do not take time to get good speakers. Remember that some people are capable of pulling crowds, mesmerizing them and/or causing mass hysteria.

If you include such personalities on the panel of experts, they are likely to overshadow the content or topic of discussion. In this regard, you are likely not to achieve the objectives of the lecture. So avoid having the subject or topic of discussion not flowing in a logical sequence. Should the panelists veer off the topic, you need to be tactful enough to steer the panel back on course. You need to prepare well for a session involving a panel of experts. You should carefully consider the topic of discussion, the experts to include in the panel, and how you are going to coordinate and guide the focus of the panel.

It would also be useful for you to inform the panel, in advance, on the topic of discussion, the expectations you have for the panel and the nature of students in your unit. Once the discussion commences, you should introduce and summarize the key ideas and concepts at strategic intervals throughout the discussion. Whenever you have a panel of experts in your teaching session, remember to recapitulate the key points at the end of the panel discussion.

1.5.6 Brainstorming Method

Use of brainstorming method during instruction can be of great importance when you are beginning a lecture in order to jump-start students' thinking about an issue you would like to address. Brainstorming allows think creatively and be able to generate new ideas in the topic under discussion. For instance you can use one idea to spark off other ideas you would like students to generate during the lecture. Brainstorming encourages full participation by all learners because all ideas are equally recorded. When you use brainstorming method to teach, you are able to draw on group's prior knowledge and experiences on the topic of discussion.

As you continue to use brainstorming method in teaching you are likely to create a spirit of congeniality in a learning environment. ensure that there is proper coordination in order to have

the brainstorming focused and managed within the stipulated time limit. There is also a possibility of having people with difficulty getting away from known reality. Thus , you need to facilitate your teaching well using the brainstorming method to avoid unnecessary criticism. You need to prepare well for the lecture and carefully select an issue for brainstorming. It is advisable to have a brainstorming session limited to less than ten (10) minutes in a given lecture. You need also to stimulate the group you are teaching with some ideas. After the brainstorming session, you should ensure that the ideas generated by students are consolidated and utilized to further the lecture objectives.

1.5.7 Instructional Media Method

You can use videotapes and films to teach your course unit. Videotapes/films are an interesting way of teaching content and raising issues about key concepts and ideas. When you use varied stimulus, you are likely to capture and sustain students' attention and keep a discussion going. Use of videotapes/films in your lectures can be a very professional approach to teaching. This requires you to facilitate videotape session well. You should bear in mind that use of videotapes or films in teaching is likely to generate more issues than you might be able to handle in a focused discussion.

The use of videotapes in teaching may sometimes not lead you into having a lively discussion in class. It is also possible that not all students will fully participate during the videotape sessions. As you prepare to teach using videotapes or films, you need to carefully choose the video/film clip in relation to the topic of discussion. You also need to preview the video and plan on areas of emphasis for discussion in class and ensure that the equipment you are to use during instruction are in good working condition before you set them up and cue the equipment to the portion you would want the students to view. You should pause the video/film at strategic points to elicit discussion from students and/or to explain any matters arising in relation to the lecture. Remember to prepare in advance questions that you will need to use after the video/film show in order for you to be effective in teaching using the instructional media method.

1.5.8 Case Study Method

A case study method is useful in developing students' analytic and problem solving skills. When you use a case study method in teaching, you and your students are able to explore solutions to complex issues that are presented in the case under consideration. Use of a case study during instruction has the advantage of having your students being able to apply the new knowledge and skills learned from the case. You should be aware that some students are likely not to see the relevance between the cases under study and their own situations. Therefore , provide enough information to the students and share your expectations to guide the students through case studies. By so doing, you are likely to achieve the expected results from the case study. You need to prepare well for instruction that involves case studies. You should carefully select and/or prepare the case studies that will meet the objectives of your lecture. You will need to clearly define some of the case studies in relation to your topic under discussion.

1.5.9 Role Playing Method

When you use role play during instruction, you will be able to dramatically introduce problem situations by providing opportunities for students to assume roles of others. Role play has the benefit of assisting students to appreciate another point of view (or the perspective of the other).
Role play method also allows students to explore solutions and opportunity to practice skills that you may want them to learn during the lecture.
Nevertheless , the use of role play method has some limitations especially where students are too self-conscious and/or too scared to participate freely in role plays. It is also not advisable to use role play when teaching a large class of students. During the preparation for a lecture involving role play, you should define a problem situation and roles clearly. You must give very clear instructions and assign roles to each student. Alternatively, you can let the students choose roles they would like to take part in and offer guidance at each step of the way. However , provide ample time for practice before the role play and for de-briefing after the role-play. You should also provide a checklist to assist students to either summarize key ideas and/or ask questions in need of further clarification.

1.5.10 Report- Back Method

Use of report-back sessions in teachings is excellent for large-group discussions where students can be encouraged to discuss role plays, case studies, and small group exercises. When you employ report-backs in your lectures, you are able to provide students a chance to reflect on their experiences and subject matter leading to enhanced learning. Bear in mind , though , that report-back sessions also do provide each group of students a chance to take responsibility for its role in the large-group or whole class discussion. Note that report-back sessions are likely to be repetitive if each small group of students ends up saying the same thing. This will require you to have adequate preparations for use of such sessions prior to the lecture.

When preparing for a lecture in which you will use the report-back method, you should plan for discussion activities in such a way that you will minimize repetition of key concepts and ideas from each group of students during the lecture. This might be accomplished by, for instance, you preparing different questions for each group of students to discuss during the lecture.

1.5.11 Worksheets/Surveys Method

Use of worksheets and surveys during teaching sessions can be an effective strategy to guide students searching for information on their own without being influenced by others. They can be a good tool for self-paced learning where students set their own goals and independently strive to achieve them. You should organize the lecture in such a way that individual thoughts gained during independent study time using worksheets or surveys are shared in a large group setting. By so doing, you are likely to validate each student's knowledge and research skills.

Worksheets and surveys can be time consuming and therefore you should only use them for short periods of time in a given semester. During your preparation for lectures, you need to determine the scope of the information to be learned through worksheets and surveys and prepare handouts accordingly. These handouts should guide students on what, how and where to research and find information. Nevertheless , you should guide students on what facts, and opinions to look for, where to do their (re)search –either in the library, through observation, or through interviewing people and how to report back their newly acquired information. In addition, you need to make

the students aware of how much time they will need to fill out the worksheets and surveys as well as for how long they will give their presentations.

1.5.12 Index Card Exercise Method

You can use index card exercises to enhance students' scientific literacy skills by encouraging them to read around a given topic(s). By so doing, you will be able to offer students opportunities to explore difficult and complex issues in an area of interest. It is possible to have some students being unwilling to do index card exercises. In such incidences, you need to know your students well and involve them in other activities based on a variety of methods of teaching.

During your preparation for a lecture involving index card exercises, you must identify topics that your students are familiar with before giving index card exercises to them. You may arrange topics on 3-by-5 inch index cards, and along with the topic title, list appropriate literature sources that are readily available to students. If you have a limited number of topics for a bigger class, you may duplicate cards with the same topic title. You must guide students during their information gathering experiences. As the students gain more experience and confidence with this procedure, you need to minimize your direction and guidance.

1.5.13 Guest Speaker Method

When you invite a guest speaker to give his or her expert opinion concerning a topic in your lecture session, the guest speaker personalizes the topic. The guest speaker method has the advantage of breaking down the student audience's stereotypes, if any, in regard to the topic of discussion. You should note that if the invited guest is not a good speaker, you are likely to have a flop in his or her speech. As you prepare to use a guest speaker method in your lecture, you should contact a speaker only after thoroughly researching him or her to assess his/her suitability for the topic.

You should plan and coordinate all activities related to the invited guest, including relaying pertinent information (such as the topic, the venue, the date and the time for the speech) to the speaker in good time. Ideally, you should provide the speaker two or three dates to choose from.

You need to brief the guest speaker on your expectations from the speech to be given to students. Before the speaker gives his speech, you should introduce him or her appropriately to the students. Remember to reiterate any key ideas and concepts highlighted in the speech by the guest speaker and give a vote of thanks after the speech. It is quite in order to give the guest speaker a token of appreciation for his/her time and effort. A token of appreciation is not mandatory and will largely depend on your institution's financial capabilities.

1.5.14 Values Clarification Exercise Method

In your lectures, you should provide students opportunities to explore values and beliefs they hold about the nature of knowledge, subject matter and the world they live in. The Values clarification exercise approach is based on the assumption that the instructor appreciates and encourages multiple perspectives from students, including those on their values and belief systems. It is also assumed that you are able to create an environment conducive enough to allow students to express themselves without fear or inhibition. By administering values clarification exercises, you can guide students to discuss what is of utmost importance to them in a safe and threat-free environment. You need to note that the value clarification exercise approach has the potential of providing structure to classroom discussions and for you to expand on your number of instructional techniques and strategies.

Take note

Not all students may be honest in a value clarification exercise activity. This might be as a result of students being too self-conscious or feeling vulnerable in regard to their values and belief systems. This is especially the case when someone experiences an inferiority complex concerning his or her background (be it social, cultural or economic).

You must carefully prepare the values clarification exercise you are to use during your lecture. Always remember to provide clear instructions about the exercise and thoroughly think about and prepare (in advance) relevant discussion questions. More importantly perhaps, you must

create and nurture a supportive classroom environment - a safety net - where students respect each others' opinions and perspectives. You can guide students to embrace a collaborative spirit and to build on each others' knowledge base. Equally important, you must make students feel that their social and cultural capital (i.e., their prior knowledge and experiences) is appreciated and celebrated within the classroom setting. This will prompt your students to open up and share their values and beliefs with the rest in class.

1.5.15 Inquiry-based Instruction

…Scientific inquiry is a creative process that is fueled by curiosity and hard work, often resulting in frustration and sometimes leading to useful knowledge. Scientific inquiry has at least two critical aspects, the process of finding out and the product of the search... (Chiappetta, & Koballa, 2006, p. 144) It is not enough to teach science using only the traditional methods of instruction and covering the science content as it is presented in textbooks. To advance scientific literacy, you should understand the importance of scientific inquiry in the world we live in. You need to expose your students to scientific inquiry to make them understand more about nature and be able to apply their understandings in solving problems in society. Inquiry in relation to science teaching may be viewed as involving science content (what question) and process (how question). Remember to present a lecture that incorporates both science content and process. There are four ways that you can view inquiry and science instruction: Content, Content with process, Process with content, and Process (Chiappetta, & Koballa, 2006).

Science content consists of facts, concepts, laws, principles, and theories about objects and events. Teaching science based on content engages students in active learning as they reconstruct scientific knowledge and its meanings. During instruction, students undergo gradual conceptual change process as they develop correct ideas about nature. Science content with process focused teaching involves the process of finding out about given phenomena. In this type of instruction, students are engaged in various laboratory activities such as firsthand investigations, replicating scientists' activities and making predictions about objects and events. Students also design

investigations to answer questions that have not been answered by scientists (Chiappetta, & Koballa, 2006).

When you view science teaching from content with process perspective, you are teaching science as inquiry. Science teaching from process with content perspective promotes active student engagement and how to inquire. The focus is on hands-on activities aiming to develop process skills. A science curriculum content in such situations favors student investigations. When you teach science topics by focusing on process with content, you will be teaching science by inquiry. You can also teach science from a process-based approach. A process approach to science teaching focuses on inquiry and discovery learning while omitting science content. A process skill instruction is particularly useful when you want your students to practice skills such as graphing, designing experiments, and identifying variables. Process approach in teaching science is another way of teaching science by inquiry (Chiappetta, & Koballa, 2006). For you to be effective teaching science topics, you should probably focus on content with process because science teaching that heavily relies on processes without content will be depriving students of content, which is an important component in science. It is better for you to teach science as inquiry than teaching science by inquiry.

1.5.15.1 Inquiry-based Instructional Strategies and Techniques

As a lecturer, you should master the following pedagogical strategies and techniques that you are likely to use when conducting inquiry-based instruction: Asking inquiry-based questions, Science process skills, Discrepant events, Inductive activities, Deductive activities, Gathering information, Reading printed material, Seeking information from individuals, Accessing information from the internet, Problem solving, Science projects, Group and cooperative learning. The questioning techniques play an important role in scientific inquiry. Questions assist learners to develop critical thinking as they make meaning of what is learned. There are various types of inquiry questions: what, why, when, and which.

It is argued that science questions may be asked in such a way that they focus on process skills or Bloom's taxonomy- knowledge, comprehension, application, analysis, synthesis, and evaluation (Chiappetta, & Koballa, 2006). You should not dwell on questions that address low order thinking skills but high order thinking skills at college or university level. Encourage asking of questions at any stage of the lecture or practical session to assist students focus on the learning task. Questions posed to students at the start of a lecture session are likely to put a student ready to discuss the main concept(s) covered in the lecture. You should facilitate student questions during discussions in science lectures.

Another way you can promote scientific literacy is to have inquiry-based instruction focusing on science process skills. Students attending inquiry-based sessions are likely to appreciate science and solve scientific problems through independent investigations. You should involve students in developing basic science process skills such as observing, classifying, visualizing and dealing with space/time relations, using numbers, measuring, inferring, and predicting.

In addition to the basics skills, you should go further and involve students in developing integrated science process skills: defining objects or events operationally, formulating models, controlling variables, interpreting data, hypothesizing, and experimenting (Chiappetta, & Koballa, 2006). You should not assume that college or university students have already developed integrated process skills. You should have your students develop these skills in different contexts. For instance graphing, as a sub skill, is applicable in many contexts and may be complicated depending on the information to be graphed. Students can be initiated into an inquiry session through discrepant events. Discrepant events do provoke student thoughts and can help you to have a student focused in science learning. For instance, you may have a discrepant event on Bernoulli principle, motion laws, centre of gravity, density, Pascal's principle, and vacuum to initiate an inquiry session (Chiappetta, & Koballa, 2006).

Take note

Discrepant events are scientific events that are likely to leave an observer puzzled or unable to explain a phenomenon's occurrence.

It is your responsibility to facilitate and guide college or university students in arriving at plausible explanations for the observed discrepancy between what your students know and do not know in the occurred event.

Use of inductive activities is another effective pedagogical strategy in science instruction. Through laboratory, field or lecture session experiences, students are able to discover a scientific concept or principle. It has been argued that inductive activities not only promote a learner's inquiry skills but also his/her intellectual development (Chiappetta, & Koballa, 2006). Initially inductive activities in science instruction involved three phases: exploration, invention, and application. Later, inductive activities were expanded to five instructional model phases: engagement, exploration, explanation, elaboration, and evaluation Inductive activities aim at engaging students in more learning opportunities. You need to involve your students in inductive activities to stimulate their thinking and form a basis for their understanding of scientific principles or concepts under study. Inductive-activity based instruction expose learners to scientific experiences before vocabularies are introduced. By so doing, learners are able to apply their experiences from inductive activities to situations that occur in nature.

In traditional science teaching, theory and practical-oriented learning sessions are covered using deductive activities. Deductive science teaching approach exposes learners to theory and relevant scientific terms followed by laboratory work to illustrate the concept being learned. In the deductive approach, you first provide students with a lecture/and discussions before a concrete class experience. Deductive instruction procedure is termed as a vocabulary-before-experience model of science teaching (Chiappetta, & Koballa, 2006). In some situations, this may involve hypothetical-deductive thinking by a learner or you clarifying ideas a learner may be studying in laboratory or field work. You need to involve your students in gathering information and ideas from several sources. This may include reading printed media, talking to colleagues/resource persons on given scientific knowledge or searching the internet.

Scientific information from across the globe is available electronically. Students are able to access other students or science scholars from various parts of the world through the electronic mail or chat rooms. Note that the internet offers instructional materials at various website

addresses that can be downloaded. In addition to internet sources, hard copies of encyclopedia, newspapers, magazines, journals, and course textbooks are likely to be a good source of students' scientific information gathering. You should ask your students to make short summaries of what they have learned or write-ups that require citation of information sources. Such inquiry techniques are likely to be some of the excellent ways you will engage students in finding out what other people think about a given scientific issue or challenge. By so doing, learners are able to develop questionnaires and survey instruments as they make sense of the relevance of science and its interaction to technology and society.

In problem-solving approach to science teaching, you can engage students in authentic investigations. Students that are active participants in their own investigations are likely to develop strong inquiry skills and understanding of the scientific content being studied. Problem solving approach often involves students in raising investigation questions, planning investigation procedures, collecting information and drawing conclusions on their investigations (Chiappetta, & Koballa, 2006). The duration for student investigation has to be negotiated between the students and you. This can be a short or long duration student activity. Students' involvement in problem-solving based science learning is likely to make what is being learned meaningful to them. You can involve your students in problem solving through science projects. Science projects may be taken individually or by a group of students or the entire class depending on your objectives. Science projects give students opportunities to conduct scientific investigations which, in most cases, are not likely to be conducted during normal class sessions.

Some of the activities that you can involve your students in during their own investigations may include a display of a natural phenomena, scientific models, report and poster display, laboratory exercise, an observational study or experimental study. When grading students' science project you must have a criteria for each categories of competence to be judged: creativity, investigative procedure, understanding of the research topic, quality of the display/report, and oral presentation (Chiappetta, & Koballa, 2006). It is also advisable that you assist your students learn about the content of investigation before students start to conduct their problem solving exercise. This will not only help students to be focused on their investigations but will also be in line with learning science as inquiry as opposed to learning science by inquiry.

It has been argued that "students find a great deal of meaning in science groups when they construct their own knowledge during productive, small, cooperative group activities" (Chiappetta, & Koballa, 2006, p. 155). Having your students studying in groups is likely to develop teamwork skills and lead to motivation in learning science. Organization and presentation of your lecture through group work may minimize and/or eliminate competitive and individualistic environments that are prevalent in academia. It is important to note that you divide students into various study groups (based on given criteria) and assign them inquiry-based learning tasks accordingly. Group activities are likely to promote cooperative learning with desirable learning outcomes: achievement and mastery of science content. Your role during student science projects should be that of a facilitator and guide. Well managed grouping and cooperative learning is one of the pedagogical strategies you can use to motivate students in learning science and thus promote student achievement and mastery of science content.

1.5.15.2 Challenges to Inquiry-based Instruction

- Although it has been argued that we need to improve on science teaching by having inquiry-based instruction in addition to the traditional methods of science teaching, there are many challenges to inquiry-based instruction. There is a possibility that some of your colleagues may not be aware of the balance between science content and processes necessary to provide desired educational outcomes that support scientific literacy.

- In addition, inquiry-based instruction requires plenty of time to prepare, plan and implement student learning activities. For students to benefit from this approach, you have to plan in advance as to how much time you will spend in laboratory and field experiences.

- Proper planning for and availing required teaching/learning materials for inquiry-based instruction demands a lot of time and money, respectively. Inquiry-based instruction may require increased budget for science and purchase of equipment or for provision of facilities to be used by students during their projects.

- It is important that you engage students on hands-on activities during inquiry-based instruction. However, you should frequently make explicit what students are to learn in order to have them develop the required scientific literacy bearing in mind that hands-on activities alone do not ensure that students are acquiring required knowledge and skills.

You need to involve the students in minds-on activities. Consequently, one may also argue that having an inductive activity approach (i.e. providing students with experiences before introducing scientific vocabulary) is likely to benefit students more than when deductive activity approach (i.e. providing students with vocabulary before experience) is employed (Chiappetta, & Koballa, 2006). Note that involving students on inquiry activities may be dictated by your institution's curriculum and the students' discipline when conducting their own investigations in the laboratory or field. In addition, you should bear in mind that deviating from your institutions "norm" may receive some resistance from the administrators, stakeholders and colleagues.

1.6 Summary

Your expert knowledge of various methods of science teaching and the strategies and techniques, which enhance teaching and learning is important in fostering student understanding of scientific concepts at all levels of higher education. You need to prepare thoroughly and plan for the lectures and practical sessions you conduct. By so doing, you will be able to have a total picture of the interrelationships of course unit objectives, teaching methods, students' learning process, and assessment in science. Below is a conceptual framework of the relationship between course unit objectives, teaching methods, student's learning process, and course assessment and evaluation.

1.7 Activity

- Discuss the application of a lecturer's knowledge of the nature of science in teaching science in institutions of higher learning.
- Discuss how you will ensure effective teaching of science in institutions of higher learning.

1.8 Suggested Further Reading

Read more about:

i) Constructivist approach in science teaching
ii) Multiculturalism in science education
iii) Cognition and teaching of science.

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LECTURE FIVE

PREPARATION AND PLANNING FOR TEACHING SCIENCE COURSES

BY

EVANSON MUREITHI , PhD

LECTURE FIVE : PREPARATION AND PLANNING FOR TEACHING SCIENCE COURSES

Course Outline

1.1 Introduction

1.2 Objectives

1.3 Planning for Effective Instructional Process

1.3.1 Analysis of the Syllabus/Course Outline

1.3.2 Work Plan

1.3.3 Preparing for a Lecture

1.3.4. Planning How You Will Manage a Lecture

- introduction
- developmental stages
- summary and conclusion

1.3.5 Use of Models

1.3.6 Planning for Group Work

1.4.1 Managing Learning Resources

1.4.2 Safety Precautions

1.4.3 Planning for Eventuality

1.4.4 Planning for a Demonstration

1.4.5 Planning for Experiments

1.4.6 Planning for Projects

1.4.7 Planning for Internship

1.5 Summary

1.6 References

5.1 Introduction

In this lecture, we are going to discuss the several components required for effective preparation and planning in teaching science courses. This lecture will constitute the following components. Work plan and analysis of the syllabus ; Lecture notes ; Time management ; Management of learning resources ; Planning for theory and practical sessions ; Assessment and feedback and use of models

5.2 Objectives

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

1. Explain the need for effective planning
2. Make a work plan for a specific unit
3. Prepare an effective lesson plan
4. Make a lesson plan for a practical session
5. Explain the preparation required for effective internship
6. Explain how to perform a demonstration
7. Explain the process of acquiring teaching and learning resources
8. Identifying the required teaching/learning resources for the course
9. Apply the knowledge learnt in teaching science courses

Activity 1.1

Can you identify some areas that you normally prepare for before going to give a lecture?

1.3 Planning for Effecting Lecturing

Before you go to give a lecture, I hope you normally do the following:

- analyze the syllabus
- make a work plan
- prepare lecture notes
- prepare for lecture introduction, development and conclusion
- prepare how to handle a demonstration
- prepare how to use models and other learning resources in the learning process
- prepare for experiments

I am now going to discuss in detail the components that are essential in preparation for effective lecturing, performing a demonstration and preparing for an experiment.

1.3.1 Analysis of the syllabus/ course outline

The first document that you need in your possession is a course outline or a syllabus. This is a document that shows the aims of the course, the objectives and the content in terms of topics and sub topics.

Take note

In lecture three you were introduced to the concept of syllabus or curriculum as well as the whole process of programme development and adminstration. I would like you now to go back to page 46 and page 47 of this manual to remind yourself of this exercise.

You already know from Lecture Three that the syllabus is developed by the subject specialist. It is then discussed and adopted at the School/Faculty Board before it is discussed at the College Academic Board and then at the Dean's Committee. Once adopted at this level, it is then discussed and adopted at the Senate level. This then becomes the official curriculum or

programme of the University and the work of the lecturer is the implementation of this curriculum. This is an important document that you must have as you prepare and plan to teach your course.

Activity1.2

1. Explain how one of the units you are teaching was developed.
2. In your opinion, why do you think a lecturer needs a critical analysis of the syllabus before s/he starts lecturing.

Let us now discuss some of the reasons why we analyze the syllabus. Some of these reasons include:

- To sequence the content in a logical manner from simple to complex topics
- To understand the expected scope and depth of coverage or treatment
- Analyze the special requirements and prerequisites for the course
- Plan for the expected assessment and grading of the syllabus
- Produce materials which will meet the needs of the syllabus
- Determine the expected competencies which need to be developed by the learners

1.3.2 Work plan

The next document that you need to make after analyzing the syllabus is a work plan.

Activity1.3

Explain how you plan to teach your unit for each semester.

Once analysis of the syllabus is done, you then proceed to make a work plan. This document is also referred to as the Scheme of Work (SOW). This is simply a road map that shows how the curriculum outlined in the syllabus discussed above will be implemented within the stipulated period of time. A good work plan should indicate a number of items. It should have the Title of the unit ; Topics to be covered as per the course outline and their Sub topics. The objectives of each topic as well as the Resources, materials and apparatus for each lecture should also be stated. In addition , the Timing of topics and assessment components and the Teaching and learning activities for each topic must also appear in this work-plan.

Reasons for making work plans

Why is it necessary for you to make a work-plan? Work-plans are important because they show

- Sequencing of topics
- Time allocation
- Depth and scope of coverage
- Organization of resources
- Planning for assessment components (CATs, projects, exam etc)
- Define teaching and learning activities

Work Plan format

There are many formats that can be adopted. The following is an example. The preliminary information appears on the first page and gives the general information on the name of the lecturer, the department you represent, name of the course, year and semester that the course is undertaken.

Unit _____ Department _____

Lecturer _____ Semester _____ Year_____

This is followed by a matrix that indicates the week, topic, objectives to be achieved, learning activities that learners will be undertaking and also the learning resources that will be required. The last column is where you make a remark on the extent of achievement of the objectives after you have delivered the lecture.

The work plan can take the format indicated on page 93.

Week/ Date	Lecture	Topic	Objectives	T/L activities	Resources	Remarks
1	1					
	2					
	3					
2	1					
	2					
	3					
3	1					
	2					
	3					

Figure 5.1 Example of a Work=plan Format.

1.3.3 Preparation for a Lecture

Having prepared the work plan for the whole semester, you then proceed to plan for each lecture. At this stage, it is recommended that you consult many reference materials and then make lecture notes. Lecture notes are prepared in advance. The notes should be:

i. Easy to follow from introduction to conclusion
ii. Have clear diagrams and illustrations where necessary
iii. Include Research questions and other related activities
iv. Cover each concept comprehensively before proceeding to the next concept

Format of Lecture Notes and/ or Handouts

You can plan your lecture to include the following sub-headings:

i. General Information that captures the university, course and course code, semester and year of study.
ii. Pre-requisite knowledge that the learner requires so as to follow the proceedings. This may include knowledge of previous topics.
iii. Introduction that shows what is contained in the notes
iv. Presentation that includes the introduction, lecture development and all the concepts, laws and principles
v. Conclusion encapsulating all the key areas of the topic
vi. Students' activities showing what learners will be doing at each stage of the lecture
vii. Apparatus/materials required for that particular lesson

1.3.4 Plan How You Will Manage the Lecture

There is need to plan for all the steps of a lecture. These areas include: Introduction , Development stage , Illustrations , Demonstrations , Summary and Research questions. I am now going to discuss the preparation required for each of these areas.

Planning to Introduce a Lecture

When planning how to introduce a lecture, you need to ensure that the introduction:

- Is relevant
- Is stimulating
- Has clear statements
- Links new topic to previous one
- Use constructivist approach

Activity 1.4

Reflect on how you have been introducing your lecture

Planning For the Developmental Stage of a Lecture

After the introduction, the next thing to plan for is the development of the lecture. Planning at this level includes:

i. Planning for the processes involved
ii. Plan for the illustrations to be given
iii. What learning resources (aids, models materials, realia) will be used so that so that they are made available and used at the correct time
iv. Plan for various subtopics within the topic so that you move from simple to complex, known to unknown, general to particular
v. Plan for examples to be given. These examples should be relevant in the sense that they are related to the topic under discussion. Giving examples of personal achievements and exploits may or may not be relevant depending on the topic under discussion.
vi. Plan for demonstrations
vii. What method of will be used for notes presentation

Planning For Summary and Conclusion of the Lecture

A good lecture should include a summary. The summary encapsulates the key points and includes a plan for research activities as well as follow-up activities

Take note

It is easy to detect a lecture that was not well planned It has the following characteristics:

i. Incomplete subject matter
ii. Lack of details and illustrative material
iii. Disorderly presentation of information
iv. Lack of summary

1.3.5 Use of Models

As a science educator, you use models to illustrate a given concept of skills.

In-text Questions

1. Name some models available in your department
2. For each model, state the concepts or skills illustrated using these models

Let me give an example used in teaching physics. A model of an engine is used to demonstrate the mechanisms involved in running a vehicle.

Models are useful because they are very effective in capturing students' attention. A model helps in making an abstract word or concept into something concrete and easy to understand , thus , making the student familiar with what is taught as it relates to what learners already know. In addition , models make a complex process easy to understand as well as making a potentially dry subject become fascinating to students , making them involved as real examples are understood. Examples of models include body organs like heart, head, eyes, body and machines like X-ray.

Effective use of Models

To ensure that models are used effectively, you need to plan how to use them. Some of the considerations to make are:

- Remove them at the right time
- Give enough time for students to make the necessary observations
- Make them visible to all students
- Explain clearly the processes involved
- Keep them away after use to avoid distracting the learners attention as you proceed with the lecture

1.3.6 Planning for Group Work

Teaching of sciences involves a lot of experimentation. As a lecturer you will be required to group learners so that they can work together. Ideally each student to use one set of apparatus but this is not always possible due to space or resources constraints. When grouping the learners;

i. Ensure they work in groups of two or four students for each experiment. A group of three or five students is not desirable. Why do you think this is the case
ii. Be gender sensitive when grouping
iii. Socialize the learners deliberately so as to achieve the bigger Educational objective of National Unity
iv. Consider special cases like that of the physically or visually challenged learners

1.4 Managing Learning Resources

Many other resources are required in teaching the sciences. These include apparatus, chemicals, materials and human resources like the technologists and the lab technicians.

In-text Question

How do you ensure proper management of apparatus and the human resources in your department?

For effective management and utilization of these resources, it is necessary to ensure that:

- the technicians/ technologists are well trained
- learning resources are available when required and accounted for
- method of resource collection and returning is very clear to students
- the laboratory is clean all the time. Who cleans up of the laboratory after an experiment is performed in your department?
- You have a waste disposal policy necessary that stipulates how waste is disposed of.

1.4.1 Safety precautions

When working in the laboratory, you also need to plan for the safety of your learners and other people involved in the learning process. One way of ensuring safety is to have clearly defined rules. Other measures to be put in place are:

i. Display the laboratory rules and regulations
ii. Ensure that the rules and regulations are clearly understood by all laboratory users
iii. Students to use laboratory coats when in the laboratory
iv. Breakages and damages to be documented
v. Radioactive materials are handled as per the regulations
vi. First Aid Kits are available in case of an accident
vii. Fire extinguishers are ready and checked regularly

2.4.2 Planning for Eventuality

It is important to note that an accident can occur in the course of performing an experiment or something can always go against your expectations. You need therefore to plan on what to do if the unexpected happens. Examples of these include:

i. power failure
ii. accident in the laboratory
iii. sickness
iv. alternative method of "experimentation"

v. special needs of students

In-text Question

What would you do if the following happened in the course of your teaching?

i) A student is electrocuted
ii) Concentrated acid pours on one of the learners
iii) There is power failure as you make a power point presentation
iv) You detect high levels of radioactive radiations emanating from one of the laboratories

1.4.3 Planning for Demonstrations

Let us now look at the planning needed for effective demonstration. A demonstration is an experiment that involves one set of apparatus that is normally handled by the lecturer. Science demonstrations are mostly performed when students have not mastered the skill of using the equipment/ resource or when apparatus are very delicate or when the concept taught is abstract

Take Note

You need to perform a demonstration alone in advance before doing the same in the laboratory for the learners to make observations. The reasons for this are:

i. To ensure that the apparatus is working as expected
ii. To know how to handle the apparatus
iii. Check that the results generated can be used for making generalizations
iv. Check required safety precautions

v. Design worksheets
vi. Make marking scheme
vii. Plan for any eventuality
viii. Make improvisation where necessary

In-text Question

What would you do if a demonstration failed to yield the expected results?

1.4.4 Planning for Experiments

Prepare for laboratory sessions in advance to ensure that:

- required resources are available and in good working condition
- You are conversant with the use of available materials
- Students will obtain the required results during their laboratory sessions
- Laboratory safety rules are observed

You need to plan clear guidelines on the use of apparatus as well as how the waste of the utilized materials and chemicals will be disposed of. Further , you may also need to how to involve students during practical sessions making observations, recording results, discussing results, and drawing evidence-based conclusions or generalizations. Finally , you also need to plan for other related experiments for fast learners.

1.4.5 Planning for Projects

The teaching of sciences involves the use of projects. These are self directed activities undertaken by science learners. They aim to achieve the following objectives:

i. Promote aspects of scientific thinking
ii. Develop practical skills

iii. Develop manipulative skills
iv. Develop process skills
v. Develop conceptual understanding

As a lecturer therefore, you need to make the following arrangements in order to ensure that projects are implemented successfully:

i. Discuss the topic areas by the learners
ii. Plan for the procedures to be followed
iii. Give the time span to complete the projects
iv. Plan how the required resources will be acquired
v. Plan for follow-up activities

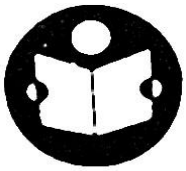
1.4.6 Planning for Internship

Let us now learn how we plan for internship or attachment of students. This is an important period when learners work in the field so as to practice the knowledge and skills acquired during the learning process. This may include teaching practice for teachers, internship for medical students , industrial attachment for engineers and other students taking information communication and technology. Therefore you need to plan for:

- Where the attachment will be done
- Who the learners will be working with such as cooperating teachers or supervisors
- The duration of the internship
- The expectations of both learners and their supervisors
- Feed back mechanisms
- Communications procedure
- Mode of remuneration for both learners and the lecturers.

In-text Question

How do you plan for internship for your students?



1.5 Summary

1. In this course, we have learnt that there is need to plan and prepare in advance in order to effectively implement the curriculum. This preparation is done by first analyzing the syllabus, then by making a good work-plan, then proceed to prepare the lecture notes.

2. You also need to plan how to implement the curriculum by preparing the introduction, lecture development and also its conclusion.

3. To effectively use models and other resources during lecturing you need to have them ready and utilize them at the appropriate time.

4. Further, we have discussed that you need to prepare in advance when performing a demonstration so as to get the expected results and also ensure the safety precautions of those involved.

5. We have also discussed how to prepare for internship of our learners by determining the what, when, where and the how.

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LECTURE SIX

EFFECTIVE LECTURING

by

JAYNE GATUMU , PhD.

~~**LECTURE SIX : EFFECTIVE LECTURING**~~

LECTURE OUTLINE

6.1 Introduction

In Lecture Two we were introduced to the role of the university lecturer in education. I would like to present the argument that to play our role as teachers we need to engage in effective lecturing. So we are now getting to an instructional method tied to what we are: lecturers. In this session I shall take you through the **Definition of lecture method ; Rationale for lecture method in an instruction ; Situations when lecture method would be appropriate ; How to apply lecture method in an instruction ; Importance of lecture notes ;** Dealing with nervousness. We shall complete the lecture by discussing the challenges which face the lecture as a method of instruction. We are concerned with this method because of its commonality and popularity in our lecture hall communication.

6.2 Objectives

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

1. Outline key features of lecturing as a method of instruction
2. Explain the rationale for lecture method in instruction.
3. Describe situations when it would be appropriate to employ lecture method.
4. Discuss the importance of lecture notes to a lecturer.
5. Outline various approaches which a lecturer should adopt to overcome nervousness during a lecture.
6. Analyse challenges which face lecturing as an instructional method.
7. Apply the lecture method in an instruction.

1.3 Definition of Lecture Method

Specific methods of teaching can be tied to either transmission strategy, liberation strategy or dialogical strategy. This alignment is due to what content you are to present; why you are presenting it; who is receiving the presentation and where the presentation is taking place. The Lecture method is one of the transmission methods (Groenewagen, 1993).

In-text Question

From our experiences as lecturers, what is a lecture method?

Our responses may suggest that:

- A lecture method is an example of a transmission method whose focus is to highlight the lecturer's expertise in a specific discipline and in which a student is provided with an opportunity to construct understanding by continuously listening to a verbal presentation.
- The term lecture is derived from a Latin word "lectare" which means to "read" loudly.
- Why do you think there is this reference to reading? As books were limited in antiquity, it required an expert to assemble knowledge stored in limited books. This expert would read, interpret and organize the accessed information to transmit it to the students. The students would sit, listen and make notes from the expert's oral transmission. The expert would do it by dictating sections of the cherished information to the student.

Take Note

Books as sources of information play a key role in our use of lecture method. This requires your accessing of various relevant up-to date books to inform your lecture topic. Are these books available? To this extent, our university library becomes a matter of concern to your work as a lecturer. This may mean that you become familiar with books in your area of specialization.

In modern times, the term lecture may be viewed under two perspectives which give two types of lecture: formal lecture and informal lecture (Digolo, 1990) depending on the length of presentation and student's level of participation. Let us consider these two modes in relation to our everyday experiences in a university lecture hall. A formal lecture in its purest form is entirely geared towards oral transmitting of re-planned set of information done without support of visual resources and the students are required to be in a continuous auditory receiving end and hardly is there any interaction between the lecturer and the student. An informal lecture , on the other hand allows the lecturer to transmit information orally with the concern that the student must manifest indicators of constructive understanding (Eggen and Kauchak, 1994). It is quite clear that in an informal lecture audio-visual resources can be introduced to vary your oral transmission. For instance the lecture topic's outline can be displayed on either the chalkboard, flipchart or overhead projector transparences or Liquis Crystal display (LCD). The informal lecture ends up providing a model of a thinking student (Digolo, 1992).

1.4 Rationale for Lecture Method

What makes us opt for lecture method in our instruction? Are there advantages? A lecture method is used because of the following:

- Lecture method is one of the oldest methods of teaching in universities.
- Most commonly used method by all the discipline areas

Eggen and Kauchak (1994) give the following three reasons for durability of lecture method:

- Lectures are efficient since planning time is devoted to organizing content.
- Lectures are flexible; they can be applied to virtually any content area.
- Lectures are simple…., lecturers have a drive to simplify their teaching situation, and lecturing allows this. (p.622)

The lecturer transmits information not readily available to the students. Sometimes , the information may be unpublished but the lecturer has access to it. The lecturer may have varied printed information which he/she can synthesize for the benefit of students.

A lecturer may be enthusiastic about his/her area of interest and may desire to convey his excitement to the student as a way to stimulate them towards learning. Thus, by using the lecture method the student's heuristic, critical, creative and insightful thinking are enhanced.

Using a lecture method allows an acceleration of the coverage of a course content and thus saves time. This is because the lecturer is focused without much interruptions from the students in the presentation. When faced by a large number of students, the lecturer still manages to undertake his/her oral presentation. This makes lecture method economical in terms of lecture and student ratio.

Take Note

However it is important to note that our usage of the lecture method may have the following demerits.

- A lecture method can be a form of passing the lecturer's notes to the student's notes without letting students understand (Gayles, 1966).
- The method advocates for learning by listening which is a disadvantage for those students whose interest is to learn by reading and doing (Polland, 2005). To this extent one may note that it does not address individual differences.
- Students in a lecture hall are characterized by diversities in terms of needs, interests, abilities and backgrounds. In its pure form the lecture encourages recitation tasks organization, whereby all students are expected to play identical roles (Groenewegen 1993).

1.5 Situations When One Uses the Lecture Method

Now that we have looked at the rationale for using lecture method, let us shift our focus to situations where the lecture method can be applied. They include :

i. You have unique information which you must transmit. You know the information because of your constant searches through research, attendance of seminars and conferences where new ideas emerge.

ii. An enthusiastic lecturer addresses his/her area of interest. This may be illustrated by the way a lecturer can captivate the interest of first years in the university to his/her area of specialization. A simple example can be the role of entrepreneurship in the economic development of a country. Listening to the issues promotes in the students' desire to pursue the course in Business Studies.

iii. You crave for the students to understand procedures. For instance, just before a laboratory experiment you may expose to the students an issue like digestive system in rats. From here the students may crave to go further and investigate it by dissecting rats in a laboratory.

iv. There are times when students must be provided with background information which may not be readily available or accessible to them. The student may be about to go for a field excursion to an area known by you. You expose to the students the unknown which they should observe when they get to the area of study.

v. There are times when facts or problems are conflicting or confusing in nature. The lecture becomes handy for clarification of issues. For instance does evolution exist or not? Is Pluto still one of the nine planets? Why do trees have roots? Your experience may contribute to the clarification of the issues at hand (Groenewegen, 1993).

vi. Time is an important variable in the organization of what and how to teach. When time is not enough and there is broad content to be covered, you may

employ lecture method which lets you transmit much information without interruption.

vii. Lecturing is a technique to employ in a situation where there is a large number of students to be taught by one lecturer. Many students are facilitated by a single lecturer to construct understanding of issues at hand.

1.6 How to Implement Lecture Method

We shall now discuss the steps involved in presenting an intriguing lecture. The steps involved are: Planning , Introduction , Main body and Conclusion. Let us now briefly look at each of them.

1.6.1 Planning

A good lecture is planned and it does not just happen (Matiru, Mwangi and Schletter, 1995). It requires you to:

- Read widely and intensively so that you are authoritative in terms of the content issues- the current issues and trends.
- set tutorial questions and reading references to be given to students to guide their involvement and participation
- Pattern the session in such a way that the main points appear no more frequently than every 15-20 minutes.
- Limit yourself to no more than four major themes in a one hour lecture.
- Have 15-20 minutes lecturettes within the main lecture.

In-text Question

What do you expect from an introduction of a lecture?

In the introduction we must:

- Focus on drawing and capturing the attention of students by creating expectances and relevance, key marks for attention.
- Set expectancies by just stating the objectives of the specific lecture.
- Use a current situation to provoke students towards the relevance of the content
- Emphasize on setting and stating a question that will be answered at the end of the lecture.
- Assure the students that all will be well because a good start says it all.
- Outline the lecturer's main points can even be displayed on the available media like chalkboard, flipchart, overhead projector, transparencies and LCD displays.

1.6.2 Main body

Let us look at what happens in the main body. During the main body presentations :

- The content must be delivered in a clear and confident voice. This is a mark that manifests that the students should have a trust in their lecturer's delivery.
- You may need to vary your voice when punctuating major points to capture students' attention.
- You can use gestures like raising of the hand and other forms body movements like nodding.
- In your movements try not to be too distant from the students.
- Maintain abundant eye contact not to lose the students. It alerts the students towards the fact that you are with them.
- Use well illustrated examples which make major points of the lecture clear.
- You may also need to involve your students using interactive styles. For instance , you could pause some questions for feedback.
- You may also use pauses which are important for breaking of the presentation to allow student to absorb. It is important to note that silence acts as a new stimulus as the lecturer prepares for the next major point.

- Try posing incongruent situations to challenge their alertness.
- Applying some form of humour to help students relax.
- Try shifting sensory channels like from listening to looking as displays on the chalkboard, transparencies, and flipcharts or LDC projectors.
- Pattern the lecture in such a way that there are mini lecturers within the main lecture. This is to allow for taking care of the student mind which keeps on tuning in and out every 15 minutes.
- You must be enthusiastic about the topic under presentation to sustain students' interest. Also provide clues/discourse marks like: take note of this , it is important, do not forget--- and so forth. This enables students to make notes as the lecture progresses.
- Using of the readily available audio-visual displays could be employed to capture your main points.

1.6.3 Conclusion

At the conclusion, your main points must be summarized by: highlighting the lecturer's focus. This is effected in the following ways

- Restating the premise
- Stating the opening question
- Typing the previously raised points with the current to prepare the way for the subsequent lecture.
- Providing students with an assignment
- Undertaking some feedback through oral evaluation.

Importance of Lecture Notes

In the previous section, we have seen how a lecture is delivered. One of the most important tools in delivering a lecture is lecture notes. Consequently , we are going to look at the importance of lecture notes.

Take Note

Let us start by noting that the nature of the lecture method implies that the lecturer is an expert.

One way for you to prepare is to have lecture notes which are important in the following ways:

- They form a basis of the lecture being organized in terms of what to present.
- Having notes ascertains that there is sufficient content for the given period of lecture time.
- Lecture notes act as the memory bank for you. In this way they tend to remove nervousness and tension as they have an implication that one is ready. This also assures you that the topic can be covered without forgetting the lecturer's main points. Then you cannot get lost as you can have a quick glance at the main points of the lecture.

Take Note

- Lecture notes become "yellow pages" immediately after the lecture is delivered. This requires that your lecture notes be updated to address new principles and practice in the area of expertise.
- If by any chance you are not ready for a lecture, you should not waste students' time lecturing. This calls upon you to be always ready for any lecture. You are called upon to be ready for any eventuality, which may require you to be rational, responsible and independent in the lecture hall.

1.8 A Nervous Lecturer

Nervousness can be upon all types of lecturers. It catches upon both the young lecturers and experienced lecturers. When this is inevitable, you can employ the following techniques:

i. Note that all people are prone to nervousness and it is not odd. This helps you to undertake it not as strange only to you.

ii. You must prepare well in terms of content and how to deliver the spelt out content. This provides the lecturer with some amount of feeling that one is in charge. Whatever is prepared must be clear and understandable.

iii. Have lecture notes which can easily be referred especially, whereby the key major points are highlighted for quick reference.

iv. Before getting to the lecture room you must refer to the notes as way of refreshing the mind and again as a way to assure you that he/she knows and understands the content.

v. One can attend lectures of competent lecturers in the same area to get to know how they do things and why they do what they do. Those observed can also be invited to a class of a nervous lecturer as a way to have somebody to assure them that all is well.

vi. One must make an effort to get to the lecture room a little early so that he/she begins to identify with the place before the students arrive.

vii. Before the actual beginning of the lecture, one may have a deep breath to assure himself/herself that all is well.

viii. In the course of the presentation, you may use non-verbal mode of communication to reduce oral transmission all through the presentation.

1.9 Challenges of Using Lecture Method

Having looked at how you use a lecture method in your classroom communication, let us address some common challenges which arise from its usage.

- The level of student's involvement and participation places the lecture method at the end of a continuum as compared to other methods whose level of student's participation tends to be higher. This condition may downgrade the lecture method for use in instruction as it may appear that it is not sensitive to the needs, interests, abilities and backgrounds of the student. This makes the method's feedback difficult to ascertain its effectiveness.

- In a lecture method the focus is on large coverage of the content, creating students motivation and ascertaining student's motivation (Brown and Atkins, 1991). If these purposes can be attained more effectively in other ways like through class discussion, then the lecture method may appear threatened.
- The key features of the lecture process are the lecturer's message, transmission and the receiver. The features which seem to be emphasized tend to be the source and the presence of the receiver. The source has the message which has to be communicated mainly verbally. To this extent you may be required to employ extra-verbal, non-verbal and audio-visual resources which if not dealt with carefully may interfere with the message. This renders these modes of communication detractors if not properly done.
- For you to transmit the specific message in form of content you must be versed in the issues of the topic. The concern may arise in terms of the availability of resources to address your getting informed. Issue of availability of up to date books and regular conferences to empower you may be a matter of concern.
- Student's attention tends to fluctuate during the lecture. How do you ascertain that it is the specific message which the student receives?
- The current use of computer may make the lecture method appear outdated due to the fact that lecture method does not undertake the rigorous planning and analysis (Brown and Atkins, 1991) of other methods. One may think that the televised lecture may be geared towards advance modes of teaching. But research has shown that students seem to prefer live lectures as compared to televised lectures.

Take Note

Note: In the context of all this, it is important that you use effective transmission skills which include:

- Clarity in expression.
- Having organized presentation.
- Having expressions of enthusiasm, humour, friendliness, dynamism and charisma.

- Constant use of audio-visual resources.
- Relevant appealing examples.
- Promoting some amount of students involvement

1.10 Summary

In this lecture we have looked at the definition of a lecture method and said that it is a continuous oral transmission of information. We also looked at rationale for the lecture method and noted that it has advantages like consolidating of information not readily available to the students. However, lecture method has disadvantages in that it assumes the students' construction of knowledge. In addition, we have examined situations of when you can use a lecture method and how you can do it. In reference to situations for using it, we noted that a large number of students may necessitate your usage of the method. In how to use it, we discussed the main steps which included: planning, introduction, main body and conclusion. Further, we addressed the concern of lecture notes which contribute towards your memory bank. Also, we have highlighted what you should do to avoid nervousness and we stressed that the key technique to use is to be prepared. In conclusion, an effective and ineffective lecture can be best understood by looking at Table 1

Table 1

Relationship between effective lecturing and ineffective lecturing.

Effective	**Ineffective**
More interaction	Limited interaction
Two way communication	One way communication
Use of non verbal communication	More verbal oriented
Motivation oriented	Limited motivation
Large amount of feedback	Limited feedback
Student attention oriented	Limited students attention
Content and Process Oriented	More content oriented

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LECTURE SEVEN

MOTIVATION: APPLICATION TO UNIVERSITY TEACHING

JOHN MWANGI , PhD.

LECTURE SEVEN : MOTIVATION AND ITS APPLICATION TO UNIVERSITY TEACHING

Chapter Outline

7.1 Introduction

This lecture is intended to introduce and discuss the role of motivation in influencing desirable learning behaviors in the university students in order to improve overall achievement and personal development. A brief highlight of recent education reforms has been provided. Since motivation is a major factor that also influences learning at the university level, the lecture has defined the term motivation and provided a few illustrations of the concept of motivation.

Thereafter the lecture addresses the importance of motivation, principles of motivation and their application to a teaching situation. Finally we proceed to show the steps that you may follow in order to motivate your students from the time you step into a lecture theatre to the time you leave. According to Davis (1999), understanding of motivational theory helps you promote desired learning behaviors that promote cognitive, affective and psychomotor development in your students through lecturing. These will therefore confirm Mitchell's (1974) contention that there is a positive correlation between learning and achievement for your students.

7.2 Objectives

At the end of this lecture you should be able to

1. Explain motivation on the basis of behavioral, humanistic, cognitive and social learning theories.
2. Identify applications of Maslow's (1970) hierarchy of needs to your students learning situation in the lecture room.
3. Explain how you can apply motivational concepts to a lecturing situation.

1.3 Higher Education: The Changing Situation

Let me start by providing a brief perspective of the issues that have affected higher education in the recent past. There has been an increased demand for higher education in Kenya in the last decade (Republic of Kenya, 2005). With the introduction of module II (two) programmes, the numbers of students have increased tremendously. As such demands on lecturers have increased in relation to quality of teaching and learning. Large classes often mean absence of individual attention and tutorials for such students. The question that arises then is; what should we do to motivate our learners so that they achieve higher learning achievement levels than they are doing currently? Because of these kinds of situation, students have open views about their institutions as well as their lecturers in terms of:

1. Lecturing styles
2. Lecture content

3. Learning environment
4. Examinations
5. Relationships with lecturers

Activity 1.1

Discuss four roles that motivation can play in promoting student learning at the university level?

1.4 Definition of the Term Motivation

In Lecture Three we learnt that since the ultimate aim of the university curriculum is to help the student to learn , it is imperative that we get to know our students in terms of ***inter alia their motivation.*** In this lecture we provide you the definition of the term motivation as well as different perspectives of the concept of motivation.

Motivation is defined as an internal state or condition (seen as a need, desire, want) that serves to activate or energizes behavior and gives it direction (Kleinginna and Kleinginna, 1981a). Three important points you need to note about this definition;

- That internal motivation is a state or condition that activates behavior and gives it direction.
- That motivation consists of desire or wants which energize and direct goal oriented behaviors.
- That motivation influences needs and desires as well as the intensity of direction of behavior

1.5 Further Views on the Concept of Motivation

To simplify these definitions, you may need to consider the following views of the concept of motivation. As a trait motivation is not only stable, but also permanent in every person. People have different interests, values, careers, hobbies and entertainments. However , the extent to which an organism is stimulated or not depends on the nature of the environment , that is whether it is exciting or dull. Secondly , the degree to which a person is ambitious will influence

the intensity with which the person will pursue his or her objectives. What this means is that motivation may help to provide energy and direction. In addition , motivation is affected by extrinsic and intrinsic factors.

1.6. Theories of Motivation

In this section, you will learn about the theories of motivation. They will be discussed from the following perspectives; traditional, contemporary and human needs theories.

1.6.1 Traditional theories

At this point I would like to present you with a few of the traditional theories of motivation. The Learning theory refers to use of rewards and punishment in influencing human learning. This tends to suggest that the higher the level of rewards, the higher the motivation. In Psychoanalytic theory , on the other hand , human behavior is a function of man's state of unconsciousness (Freud 1961). This also means that human beings are driven by their inner energies in order to achieve specific goals. A good example is the role of id in directing human behavior. Finally , in the Need theory (Murray 1938) contends that human needs serve as the source of motivation. These needs are physiological, security, socialization/ belonging as well as other higher level needs like esteem and self-actualization.

1.6.2 Contemporary theories

Let us now examine a few contemporary theories of motivation

- Competence Motivation: desire to perform competently or to gain mastery over a certain body of knowledge.
- Achievement motivation: need to do well at school is a motivating factor influencing his/her behavior.
- Social learning theory (Bandura 1986): motivation as a result of interactions between behaviors and environment.
- Cognitive view: - behavior is motivated by curiosity (need to explore new ideas).

1.6.3 Hierarchy of Needs

In the most recent times Maslow (1954) has proposed a hierarchy of needs theory in which he defines a need as lacking of something necessary or desirable. Maslow's view is humanistic in that it emphasizes an individual's overall well being. Needs can be broadly divided into 2 categories;

- Deficiency needs whose absence energize or moves people to meet them for survival, safety, belonging and self esteem.
- Growth needs which expand and grow as people have experience with them such as intellectual achievement, aesthetic appreciation, and self actualization.

Importance of motivation

Motivation is involved in all LEARNED responses. In other words , learned behavior will not occur if it is not energized. Where learning is indeed perceived to be beneficial or provides pleasurable experiences, such motivation leads to positive leaning. Secondly ,motivation is goal oriented. Goal setting is important in all endeavors (see academic pursuits). Where an individual's creates goals to help them achieve success in academics, they will usually pursue such goals because that is the only way in which they can achieve the goal.

The following question will help you to brainstorm as to whether a lecturer may have a role in motivating their students to learn.

In-text Question

Do lecturers have a role in motivating their students?

- As a lecturer, you should be able to identify the interest and desires that brought the students into your course. This begins by you offering opportunities to learners to individually consult you and explain the difficulties they experience in your course. Lecturers should therefore indicate consultation hours on a weekly basis.

- You should endeavor to understand that learner intrinsic motivation is the most significant.
- You should be able to find out if students have set realistic goals for themselves

1.8 General Principles of Motivation

The following are the general principles of motivation that you are required to understand;

- Focus on the environment In other words , the environment of the student is perhaps the most significant in student motivation. An environment that is not conducive to learning will not promote positive learning and vice versa.
- Incentives motivate learning ; in other words , for you to able to motivate your learners, you must offer incentives. This does not however mean that you use tangible incentives like money. Showing students that the subject they are learning is important for their own future development is in itself an incentive. You can therefore be a role model.
- Intrinsic motivation is important. As a lecturer, you should be able to show that learning and achievement can provide personal satisfaction. That means that education is good for an individual irrespective of pecuniary advantages.
- Learning is most effective when an individual is ready to learn. This means that you should understand that you can't force a student to learn if they don't want to. Therefore effective learning takes place when the student is ready and oriented to learn.
- Motivation is influenced by instructional materials. As a lecturer , you need to realize that effective lecturing and learning takes place where instructional resources are used. Where such resources are not adequately available, you should be able to improvise or acquire them commercially.

1.8.1 The Following Points are Important to Observe

Note the following points about the general principles of motivation;

1. Since learning requires change in beliefs and behavior, it may produce mild levels of anxiety.
2. It is important to help each student set goals and to provide informative feedback regarding progress towards the goal. Affiliation and approval are also very important.

Activity 1.1

A. Discuss the following factors in terms of motivating a university student

1. University academic environment including infrastructure
2. Parents/guardians
3. Peer influence
4. Politics
5. Social issues
6. Economic issues

1.9 Motivating Students

Let us now examine the different ways of motivating learners

- Some students seem enthusiastic about learning. However, many other students need or expect their lecturers to inspire and stimulate them. For this reason you should understand your content (subject) very well.. You must create interest in the learners so that they are able to participate and achieve learning.
- Effective learning in the lecture-room depends on the lecturer's ability… to maintain the interest that brought the students to the course (Ericksen, 1978, p3). You are expected to also analyze the interest the learners have in the subject. If you find that your learners don't understand the interests that brought them into the course, then you should be able to provide with the relevant information about the subject that they may not have known to interest them into the course.
- There are many factors that apply to motivating students in any learning environment including the university that you should also be aware of. These include;
    1. Interest in the subject matter
    2. Perception of its usefulness
    3. General desire to achieve
    4. Self-confidence and self-esteem

5. Patience and persistence

1.9.1 To improve motivation lecturers should attempt the following

So what should you take note of with regard to improving the motivation of learners at university level and especially in your course?

Take Note

- Give frequent, early and positive feedback
- Assign tasks that are neither too difficult nor too easy
- Help students find personal meaning and value in what they learn
- Create an atmosphere that is open and positive
- Help students feel they are valued members during the learning process.
- Capitalize on students existing needs (see McMillan and Forsyth 1991)
- Make students active participants in the lecturer-room through instructor enthusiasm, relevance of the materials, and organization of the course content.

1.10 Incorporating Instructional Behaviors that Motivate Learners

This section deals with the instructional behaviors that may lead to motivation for your students

- As a lecturer you should have high but realistic expectations of your students
- You should be able to help students identify achievable goals for themselves
- You should be able to tell the students what they need to do to succeed in your course
- You should strengthen student's self-motivation
- Avoid creating intense competition among students
- Be enthusiastic about your subject

In trying to incorporate behaviors that you can use to increase motivation in your lecture room, the following need to be taken into account

1.10.1 Structuring the course content

When structuring the content:

- Work from students strengths and interests (Brock, 1976; Lucas, 1990)
- Whenever possible, let students have some say in choosing what will be studied
- Increase the difficulty of materials as the semester progresses (see Cashin 1979)
- Vary your teaching methods

1.10.2 De-emphasize Grades

Instead of emphasizing the grades:

- emphasize mastery and learning rather than grades
- design tests that encourage the kind of learning you want students to achieve
- avoid using grades as threats

1.10.3 Motivating Students by Responding to their Work

Use the following:

- give students feedback as quickly as possible
- introduce students to the good work done by their peers
- be specific when giving negative feedback
- avoid demeaning comments
- Avoid giving in to student's pleas for 'the answer' to assignments

1.10.4 Motivating Students to Do Independent Reading

Use the following:

- Assign the reading at least two sessions before it will be discussed
- Assign study questions
- If your class is small, have students turn in brief notes on the day's reading
- .Ask students to write notes in the way they understand rather than copying texts from published work
- Ask non-threatening questions about the readings the students have done

- With small groups, use class as a reading period
- Prepare examination questions from the student's reading
- Give written assignments where possible

1.11 Motivation and Strategies by lecture time

1.11.1 BEGINNING of a lecture:

When the learner enters the lecture rooms to start learning **motivational factors that you should focus on are**

***Attitudes*:** towards the teacher, the environment, subject matter and self

***Needs*:** the basic needs of the learner at the time of learning

Motivational strategies are:

1. Check condition surrounding the subject is positive
2. Confront the erroneous beliefs, expectations and assumptions that may underlie negative learner attitude
3. Remove the components of the learning environment that lead to failure or fear and plan activities to allow learners to meet esteem needs

1.11.2 DURING the lecture:

When the learner is involved in the main content of learning **motivational factors you should focus on are**

Stimulate the learner to learn

Affect the emotional experience of the learner while learning

Motivational strategies are:

1. Change the style and content of the learning activities.
2. Make learner reaction and involvement essential parts of the learning process i.e. Problem solving, role playing and simulation.

3. Use group cooperation to maximize learner involvement and sharing.

1.11.3 ENDING the lecture:

When the learner is completing the learning process **motivational factors that you focus on are**

Competence value of the learner that is a result of learning

Reinforcement value attached to the learning experience

Motivational strategies are:

Provide feedback consistently

Acknowledge the learners responsibility in completing learning tasks

1.12 Summary

This lecture has been very useful to you as lecturer teaching at the university level. We have briefly reviewed status of education in Kenya in the recent past. The term motivation was defined and various theories exposed. Subsequently, the importance and general principles of motivation were discussed. We have also learnt application of motivating students in the lecture room as well as outside these lecture rooms. We have concluded our lecture by systematically looking at the steps that you will need to go through to carry out in designing motivational strategies by time, i.e. at the beginning of the lecture, during the lecture and at the end of the lecture.

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LECTURE EIGHT

TEACHING AS COMMUNICATION
BY

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~~**LECTURE EIGHT : TEACHING AS COMMUNICATION**~~

Course Outline

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8.1 Introduction

What is communication? It is not possible to get a simple definition of the term 'communication'. The reasons for having different definitions are that there are many approaches to the study of communication, and definitions differ according to the person's views about communication. Nevertheless , the following definition serves as a summary of communication.

Communication is the process of sending and receiving messages in order to share meanings. It is a process because it moves forward from a beginning point to the end. This communication involves two or more people who try to share their ideas, feelings, opinions, and attitude. This sharing of ideas is done verbally and non-verbally or in written form. In teaching, most of the communication between the teachers and students is done orally.

8.2 Objectives

By the end of this lecture you should be able to:

1. Define communication
2. Demonstrate the communication process
3. Explain the components of communication
4. Describe verbal communication
5. Discuss non-verbal modes of communication
6. Apply both verbal and non-verbal modes of communication

In-text Question

a) Describe the communication process in the classroom environment.

b) Explain the purpose of communication in teaching.

c) Explain how a classroom environment affects communication.

1.3 The Communication Process

Since communication involves people who share their ideas, it should be viewed as a system that comprises different elements which work together to accomplish the intended goal, namely, source, idea, message, medium, receiver, feedback, and communication environment. These elements affect one another during the communication process. For example, the source of the communication formulates a concept (idea) by forming the mental image of the object, person, event, or place. Then he or she must think of the method (medium) they will use to deliver that message to the audience (receiver) and the response they will receive (feedback) from the audience during and after delivery. The environment in which he or she will deliver that message might affect his or her message and the way of delivery. The following are the components of the communication process:

1.4 The Communicator as Source

The communicator or source forms an idea or thought which he wishes to express to other people through verbal and non-verbal signs. The source translates his ideas, feelings and opinions into verbal or non-verbal forms which are called encoding. For example, speakers use words, hands and gestures to put the message across. Encoding is the process of putting concepts and feelings into a set of symbols that can be sent to another person. In a classroom situation, these symbols are in form of words or actions as the teacher communicates his information to the students through verbal and nonverbal signs. The speaker should understand his ideas properly in order to deliver them with competence and confidence. His purpose is to share his thoughts and feelings with the listener or to persuade the listener to change his ways of thinking or acting.

The way listeners perceive the speaker and the idea affects how they respond to the message. For example, listeners trust speakers who express themselves as authority of the concepts that they deliver. This is shown by the way they explain the ideas in simple and clear language. The speaker should also be forceful and action–oriented in order to make his message colourful, and inspire the listener. Therefore, the listener is an active participant in the communication process because he continuously pays attention to the message in order to understand and interpret it correctly.

1.5 Idea

In order to be an effective communicator, you must develop an idea or information that you want to convey to your students. This idea which you will express as a message is made up of your thoughts and feelings which your brain processes and interprets. During intrapersonal communication, you send and receive messages internally, that is, you communicate with yourself. As you talk to yourself, you make decisions, or discard some ideas and replace them with others. Intrapersonal communication forms the base for interpersonal communication as you express your ideas to another person. Since this idea is something you want to share with other people, it must be important to you and you must show that you like it. In a classroom situation,

the idea should be relevant and valuable to the students' course in order for them to pay serious attention to it. The teacher should be conversant with the concepts he wishes to present and should search for relevant examples and experiences which will support this message. This makes the teacher well informed and a responsible speaker.

1.6 Message

The thought or idea which is now represented by a set of symbols is the message. A message is the way meaning is conveyed to people. Without a message, there can be no communication since the speaker does not have a thought to share with another person. In a classroom situation, the teacher designs a structure of content which he presents to his students in words, visual aids, vocal patterns, and body language. The shaping of this message is basic to the act of speaking that involves considering the needs and interests of the listeners, finding and organizing information, selecting supporting materials, and appropriate words to use for maximum effect. The teacher prepares the message by building a structure of thoughts in which each point should follow naturally and properly the point that precedes it until the content is completed. In order to make the message convincing, the teacher uses supporting materials such as facts, statistics, examples, testimony, and narratives. In addition, the teacher clarifies his message and adds a variety to his speech by use of visual aids such as maps, models, charts or diagrams. The teacher also conveys his message by the way he uses his voice, facial expressions, gestures, body movements, and personal appearance.

1.7 Medium

After the message has been encoded by the teacher, it is sent to the student. The teacher sends the message through a carrier or medium. The medium is the route by which messages travel. The air waves that carry the sound of your voice is the channel of communication. The recipient receives the message through channels such as the sense of hearing, sight, smell, touch, and taste. The medium or the channel is the link between the communicator and the recipient. The medium is the physical means by which messages are transmitted between people in communication. Mediums (media) take various forms such as a loud speaker, graphic signs, or television set. For the teacher, the primary medium is the voice in combination with nonverbal signs such as

gestures, facial expressions, movements, and visual aids. The medium of communication can affect the message. For example, the personal appearance of the teacher in the classroom can influence the way in which the students receive the message.

1.8 The receiver

Communication takes place after the message has reached its destination to which the message was directed-the receiver. The receiver engages himself in decoding the message in order to understand it. In order for him to understand the message appropriately, he must understand the content level of the information which refers to the factual information about the topic. He must also understand the relational level of information which determines how the participants understand their relationship. The relational level provides the feelings of the speaker and how the concepts should be interpreted. For example, the tone of the speaker's voice and the way in which the message is delivered defines your relationship. The interpretation of the message depends on both social and individual meanings. For example, in order to communicate with one another, we must have something in common or some shared experiences such as verbal and nonverbal signs. That means, the receiver's response to your message will depend on factors such as his schemata, culture, attitudes, beliefs, age, gender, values, occupation, and knowledge. Nevertheless, the interpretation is never right or wrong since it is a private matter that happens inside the receiver. There may be different but equally valid interpretations for individual recipients of the same message. For example, in teaching, students respond to teacher's messages differently depending on their perception and intellectual capacity. Therefore, ideal listening requires creativity as well as critical judgment.

1.9 Feedback

During teaching, both teachers and the students continuously send messages to each other. Teachers interpret the response students make to their messages. This perception of the response created by the message is the feedback. Feedback provides the teacher with essential information concerning his success in accomplishing the desired objectives and the efforts needed to adapt himself to the perceived reactions. Feedback can be verbal or nonverbal. For example, a feedback can take the form of a puzzled look, smile, frown, nods of agreement, yawning fissure,

looks of intense interest, or boredom. Effective teachers are sensitive to feedback from their students and adjust their messages and their ways of delivery accordingly. Therefore, during teaching, the teacher should observe and interpret the students' reaction to his content and adjust the next message in the light of his observations and interpretations by adding more supporting materials or more enthusiasm to his delivery. Feedback is important in any speech especially teaching as it allows participants to monitor their performance. It is the means whereby the people in communication negotiate ideas and exchange meaning. Feedback gives us room to discuss an idea or a feeling, exchange opinions or go on confidently to our conclusion.

1.10 The Communication Environment

Communication takes place within a situation or setting. The communication environment refers to the context, the place or conditions in which a communication encounter takes place. The participants' mood, attitudes, and expectations can encourage or discourage speech effectiveness. For example, in a teaching situation, communication may become tense or cold if the students were anticipating an interesting speech about their future employment and instead receive a speech about college rules and regulations. In another setting, your speech might work but not in this particular circumstance. Communication is influenced by factors such as time, place and physical properties of the meeting place. In addition, the roles, status, and relationships of the participants influence the content and the way the message is delivered.

Speech effectiveness can also be affected by interference. In a classroom setting, this could be any physical noise or disturbing elements such as motor vehicle traffic, animals, insects, objects, or human activities. Interference can also be at the meeting place itself. For example, the room for the meeting might be too cold or too hot for the comfort of the listeners, or the chairs might not be suitable for some students. In a classroom setting, the student does not choose the lecture hall and therefore does not have control over its acoustics, ventilation, temperature, sitting and writing space, chairs and desks, or even the students he sits next to. In addition, interference can also be psychological distractions within the students. These are strong feelings such as joy, fear, anger, anxiety, grief, or excitement that interfere with their power of concentration. Others are mental distractions such as day-dreaming, absentmindedness or mental wandering which make the students incapable of listening because their minds are not concentrating on the message.

In summary, human communication is the process of sharing ones knowledge, interests, beliefs, attitudes, opinions, feelings, ideas, and values with another person or persons. The communication process involves the speaker who encodes a message using verbal and non-verbal signs and codes. The speaker then uses a medium to deliver his message to the listener who decodes or interprets the content according to his understanding. What listeners bring to the speech influences how they will respond to the speaker's message. For example, they bring both general and specific aspects such as knowledge, attitudes, beliefs, and values. Both the speaker and the listener give continuous feedback during communication. The speaker and the listener give the message a personal meaning and then respond to it through feedback. Since communication is an activity, we can improve the way we engage ourselves in the delivery of the message. All the components of the communication process influence one another. For example, interference of any type or noise in the locale can disturb speech effectiveness. Knowing how to listen and how to talk in a competent manner can offer satisfaction to the people involved in the communication.

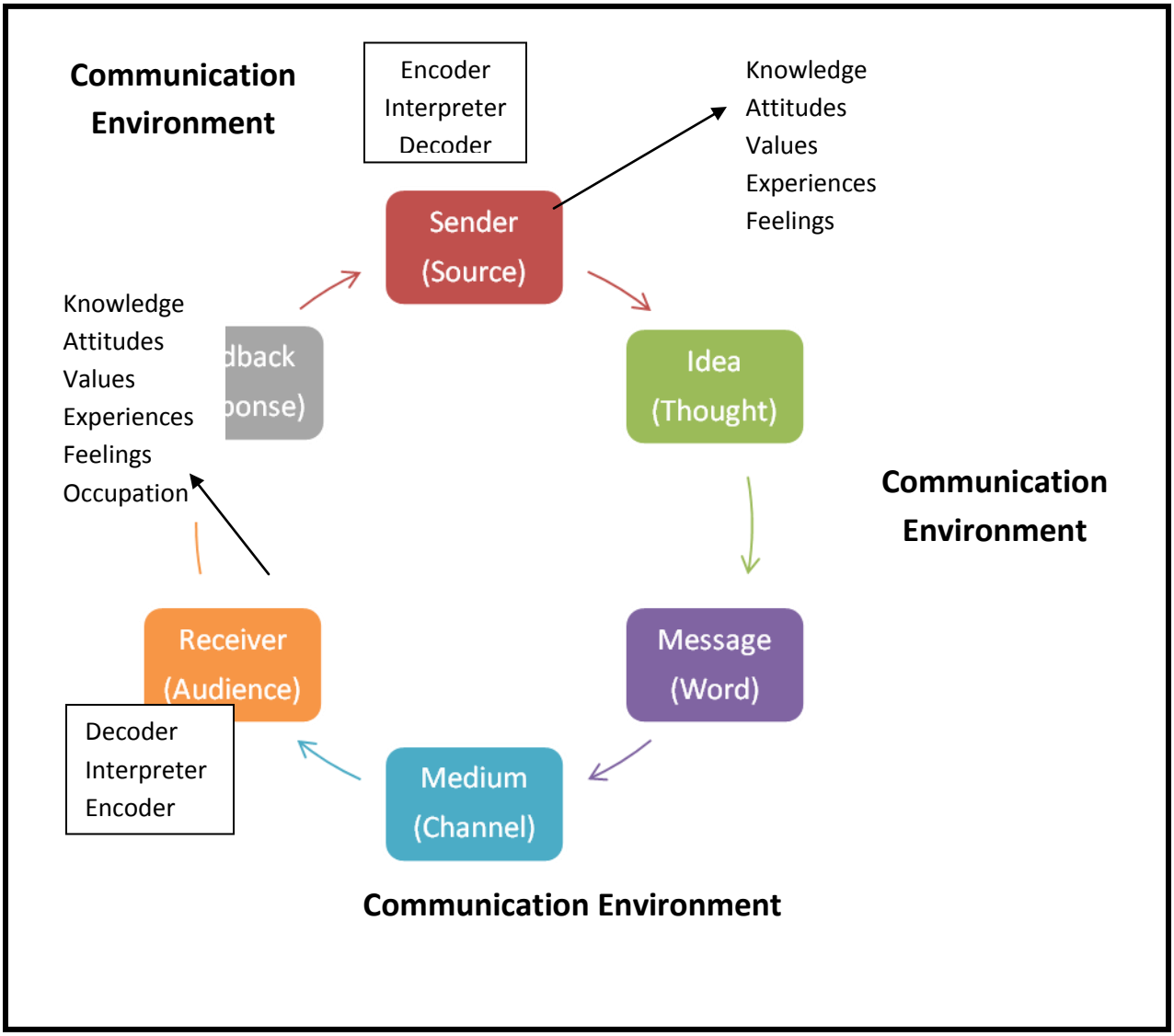

Fig 1.11 The Communication system

In-text Question

Explain communication barriers and show how a teacher can apply communication skills so as to improve teaching in the classroom environment.

2.1 Elements of Communication

Communication in the classroom involves the use of words to express messages to the students. The way students understand the messages depends on more than words. Non-verbal signs such as gestures, tone of voice, body language, sign language, paralanguage, touch, eye contact, writing, accent and personal appearance of the speaker influence our understanding. Speakers use both verbal and non-verbal signs during communication.

2.2 Verbal Communication

Verbal communication refers to human communication that uses spoken signs. It involves the choice of words and word order in a sentence. For example, words such as minor, small, little, tiny, slight, minute, minimum, and least express the same message but none would work equally well at all times. The speaker chooses the word that he feels suits the context. Similarly, a word might have several meanings and the listener should interpret the meaning according to the context. For instance, the word 'bear' has the following expressions. 'The bear has thick fur'. 'This document will bear your signature'. 'They bear themselves like soldiers'. 'You bear a grudge against him'. 'I cannot bear being laughed at'. 'His joke will bear repeating'. This is an indication that words do not have the same meaning to everyone and that is why people interpret the same message differently. In addition, since people experience words in personal ways, they may have different emotional responses to them.

In verbal communication, there are certain standards the speaker should strive to achieve during the delivery of his speech for the listener to understand his message. These standards should be, use of proper language, choice of appropriate words, and conciseness.

2.3 Language use

In order to communicate ideas with clarity, speakers should be skilled for communication to be close and meaningful to the listeners. In a classroom situation, the language used to explain ideas should be simple and familiar to the students. As a lecturer, try to use simple, intelligible sentences. You should keep your sentences short in order to avoid ambiguity and if relationship is complex, explain them by visual means. Use simple words within the class own vocabulary. If

specialist vocabulary is used, ensure that the terms employed are defined and understood by students. Clarity is necessary during explanations. Start with simple examples as you move towards the more complex ones. The examples should be relevant to students experience and level of understanding. Examples given should relate to ideas or the principles being taught. The purpose of classroom communication is to share ideas and feelings with the students and if a lecturer does not convey his meanings, then the purpose for communication cannot be effective. When a lecturer uses concrete or specific language, he conveys more pictorial and precise information which is clear to the students. Concrete language reduces misunderstanding and connects the listeners to subjects through their senses because the information conveyed is specific. As a lecturer, avoid the use of too many abstract words as they invite misunderstanding and the student might lose interest in the topic.

2.4 Choice of Words

The lecturer should constantly enrich his active vocabulary. Colourful language carries emotional intensity and vividness which makes the listener retain it in his mind. This is achieved by the choice of active appealing words, sentence structure and the approach the lecturer uses to convince the students to accept his ideas. For example, the use of familiar and concrete vocabulary will create pictorial images. Such words are unambiguous, easier to comprehend and more likely to remain in the listener's memory. Use figurative language such as similes, and metaphors properly. Using a metaphor instead of an abstract word brings to life an essentially dead word. Short expressions are more appealing than long ones and they are also easier to understand and remember. The listener will find long, complex sentences and those that do not convey an instant clear message difficult to understand.

A lecturer should select words that say exactly what he means to say. Mistakes in grammar or word selection can ruin a lecturer's self-esteem because the listeners connect such errors with incompetence, lack of proper preparation or disregard for the students. Choose the specific word that suits your thought best. Use simple words as far as possible and avoid all unnecessary words. In other words, use the precise word rather than the vague one; the appropriate word rather than any word; active word rather than the passive one; popular word rather than the strange one. Always use a dictionary while in doubt of word choice before going to give a

lecture. Check the meaning and pronunciation of any word you feel uncertain about. Faulty pronunciation and use of incorrect words seem to reflect the speaker's social class, carefree attitude, lack of preparation, and educational level.

A class may represent a diversity of racial and ethnic differences, religious affiliations, lifestyles, socio-economic levels, as well as gender differences. The way your students receive the message depends on how the speech responds to them as they are. They are gathered in the lecture theatre against the background of their own situations, experiences, expectations, and needs. Therefore, be careful about the choice of words when referring to those different from you. Avoid ethnic, religious or gender based humour. Identify yourself with your students, feel one with them by sharing their experiences and aspirations.

2.5 Conciseness

When giving a lecture make your points quickly and appropriately and avoid irrelevant ideas, dull explanations, and uninteresting details. Successful communication through speech is only guaranteed if you can express your opinion, and the student understands it the way it is intended. In order to achieve conciseness, use simple and direct expression. Never use two words while one will do. Use active voice rather than passive in your verbs. For example, "We expect some explanation" is more concise, direct, colourful and clear rather than "Some explanation is expected by us." In other words, to be specific, get down to things, events, persons, places, scenes, questions, needs, and so forth. In addition, use lively and active words.

In-text Question

Write a paragraph describing how language affects communication.

3.1 Non-verbal Communication

Non-verbal messages are those messages which are expressed without words. These are messages which are not written or spoken and can be intentional or unintentional. Non verbal

communication is the mode of communication which is used more than any others. In face to face communication, the verbal components carry less than 35 per cent of the meaning of the message while more than 65 per cent is carried on the non-verbal mode (Stewart, 1990).These messages rely on the tone of voice, facial expressions, gestures, body movements, eye contact, your general appearance, body odour, punctuality, social status, touch, time, and space. A non-verbal message reinforces the verbal message by adding meaning to it. It can also supplement the verbal language.

3.2 Voice

A lecturer's voice does more than simply making words audible to the students. It gives different meanings to those words. Just like your body language, gestures, and movements, voice tells a lot of things about you apart from the words you are uttering. For instance, it exposes your socio-economic class, your community, educational background, emotional state, or your attitude towards the students.

A lecturer can create many different meanings just by varying the pace, emphasis, rising and falling inflections of his voice. Your voice is very personal and it may represent your personality to many people. A good speaking voice conveys ones message clearly and enhances ones ethos. Therefore, a lecturer should be concerned with his voice because it affects how students perceive him and how they receive his message. For example, a piercing, rough, or croaking voice is unpleasant. Ones voice can bring about positive changes in how others may respond to the message and the speaker. Improve your voice by cultivating a deep, clear, pleasing voice. As you practice how to speak naturally, work on pitch, rate, loudness, variety, articulation, enunciation and pronunciation. Vocal pitch can range from low, deep to high squeaky levels. Find a pitch level that is comfortable to you and your learner, and that allows maximum flexibility and variety.

3.3 Pitch

Each person has a habitual pitch or level at which he speaks most frequently. In addition, we all have an optimum pitch or a level at which we can produce our stronger voice with minimal effort and that allows variation up and down the scale. There should not be a wide gap between your

habitual and optimum pitch. When one speaks before a group, sometimes the pitch seems higher than usual because ones voice is sensitive to emotions and generally goes up in pitch when one is under pressure. When a speaker is tense, especially under the duress of a formal speaking situation, he might inhibit his natural tendency to vary his pitch level. His voice becomes monotonous so that the listeners get bored and inattentive. Change in pitch level gives different types of meaning to your spoken words, and the changes help to hold the students attention.

3.4 Rate

The rate or speed at which a lecturer speaks should vary with the type of material being presented. For example, complex topics require a slower and more deliberate speed while simpler topics can be handled well by a faster pace. Speed contributes to the mood of your speech. Variety of rate includes the relative duration of syllables in words and the use of pauses, as well as the overall speed of presentation. For example, a lecturer may encounter problems with speed in his first lesson in a large class because he feels nervous. He may speed up and run his words together so as to finish and sit down. Occasionally, some lecturers may become so slow that they sound as though they are drowsy. One should balance the rate of his speech. If the rate is too fast, comprehensibility suffers. If the rate is slow when it should be fast or fast when it should be slow, interpretation may suffer. If the rate is not properly varied, attention decreases.

Effective lecturers use pauses to emphasize meaning of the message. A pause before or after a word or phrase can signal its importance. It can also clarify the relationship among ideas, phrases and sentences. A pause makes listening and interpretation of the message easy as the listeners get time to contemplate what you have said. A pause serves as a transition from one point to another as the lecturer gives listeners time to interpret the message.

3.5 Volume

A lecturer should always balance the rate of his speech. Presentation cannot be effective if your voice is faint. Likewise, if the voice is too loud it might irritate and tire the students. The non-verbal response from the listeners will guide you. For example, if your voice is soft or faint, you may see listeners leaning forward, straining to hear or they will ask you to increase volume. There are several ways of emphasizing a word or phrase. For example, you can say it with

deliberate slowness and clarity. Shouting a word out is not always an effective way. If you speak too loudly, students may unconsciously lean back, pulling away from the noise. Changes in loudness give your speech power and force and they are also helpful in putting emphasis on words or phrases. A lecturer should vary the loudness of his speech not forgetting the quality of the sound. Changes in loudness usually express emotion. When we are very excited or angry about something, we tend to become louder. One should strive to acquire a variety in loudness as well as a comfortable volume. This enhances word meaning and sustains attention. Avoid monotony by raising your voice and letting it fall in a proper way and in appropriate places. Make sure that your voice is audible and loud enough so that your students can hear you clearly and comfortably. Vocal variety gives life to speeches. It also promotes identification between the lecturer and the students. Remember to use your voice like a musical instrument. The following article from the standard newspaper indicates how lecturers' content and their way of presentation is perceived by the students which illustrates the above point:

One of the most intriguing aspects of life on campus is facing a boring lecturer who teachers a boring course. And, should your lesson fall in the afternoon, you will have to look for means to fight the threatening drowsiness. Some lecturers dictate very fast, even on foreign concepts that one has no clue about. With their barely audible words, coupled with a lack of enthusiasm, the lecturers put sleepy students through a living hell. Frequently, students start streaming out, one after the other, leaving a handful of those 'serious' guys who do not appear to be sedated by the sleep inducing lesson. In one lecture, a certain lecturer was stunned to shift his gaze from the old notes he carelessly held to discover all the students had left, save for the class representative and a female student whose attempt to fight drowsiness had failed and was loudly snoring on top of her desk."(The standard Newspaper, 17th October, Education, 2007: p. 2)

3.6 Effective use of your body

Lecturers should strive to use body language while teaching. A limited amount of gestures and facial expression is very useful. Used in moderation, gestures and facial expressions will support, enhance, illustrate, complement, contradict, replace or regulate your message. In teaching, the eyes are the most important feature of facial expressiveness. They express inner feeling and

convictions. We use eye contact for similar reasons although in most cases, cultural norms control the amount of eye contact one can engage in. In addition, the age, social class and gender of the person you are talking to play a great role. While teaching, look at your students and not at the floor, ceiling, walls, or outside. Frequent and sustained eye contact suggests honesty, openness and respect. A lack of eye contact may suggest that you are either nervous, shy, or you do not care about your students. Try to value eye contact with all sectors of the students but not to gaze at one or two students. This might make them uncomfortable while other students will feel left out. If you must gaze, include each student in your gaze. As you maintain eye contact, first, look at the people sitting in the front rows, then, shift your focus to the middle, and finally, look at those in the rear. Lecturers who look at their listeners during teaching seem confident and in control as the students know that they are aware of them. They also use their eyes to regulate and monitor the effects of their message so that they can adjust both their presentation and content.

3.7 Movement and gestures

Speakers use many physical body movements in nonverbal communication. Proper movements of body, eyes, face, hands, or head can convey an idea, a response or a sentiment. There are two main types of physical signs that lecturers use while teaching, namely, movements of the whole body from one location to another, and movements of hands, head, eyes, and shoulders. For example, a lecturer moves close to his students when he wants to emphasize a point or to hold his students in his confidence. Your words and gestures should work in harmony. That means you should avoid random movements such as pacing back and forth. Gestures and movements should appear natural and spontaneous, prompted by ideas and feelings. Keep your hands free or immobilize them and they will work for you but do not throw them around like a wind-mill. Always use meaningful gestures to reinforce your point. Furthermore, you should adhere to the theories of distance between people which guide interpersonal communication. For example, intimate distance (45cm), personal distance (45 – 120cm), social distance (120-360cm) and public distance more than 360cm. As you adhere to the theories, you should not allow physical remoteness to separate you from your students. Make them sit close to one another in the front rows where you are standing. The distance you set between you and your students will depend

on a number of factors. For instance, if the room is small, you will be much closer than when you are in a large lecture theatre. As you get farther away from your students, formality and coldness increase. Likewise, if you move too close to your students, you might make them feel uncomfortable. The physical distance that separates you from your students will also affect your movements, gestures, facial expressions, use of voice, and your feeling of mental proximity.

3.8 Appearance

The lecturer's personality or mannerisms might interfere with student's concentration abilities. For example, some lecturers talk very fast so that some sentences are left unfinished as words are mumbled out of the lecturer's mouth too fast to allow for the aural mental process to take place. Make your presentation lively in order to help the studenst to stay alert and pick up important points from the lecture. In addition, the way you dress and carry yourself influences students' perception about your personality. Physical appearance influences first impression. Your appearance provides visual clues to your age, gender, status, personality, and attitudes. A lecturer should dress in a way that puts him at ease and makes him feel good about himself. Dress a little more formally than you usually do so as to emphasize both to yourself and to the students that your message is important. Your appearance can serve as a visual aid that complements your message. For example, your body, grooming, actions, gestures, voice and facial expression, always provide an added dimension to your speech. However, what you wear should not be more interesting than what you say. Your personal appearance should complement, not overshadow, the verbal message. Therefore, avoid bright and showy colours or casual wears that have logos or slogans, and avoid wearing any type of distracting ornamentation.

3.9 Visual Aids

Visual aids serve as a part of non verbal communication. They aid students with memory and recall. When students see and hear a message, they understand and retain it better than when they listen to it only. Psychologists estimate that we retain 20 percent of what we hear and when we combine hearing with seeing, we retain 50 percent of the information. Visual aids assist lecturers in clarifying content. For example, students who have never seen a pineapple will have a clear picture of the fruit if the lecturer brings the real object or a model in class. He can also draw a

diagram if he fails to get the object. Lecturers are advised to use many physical senses while teaching so as to help students to remember the ideas they are conveying to them. Some of the visual aids used to enhance learning and improve comprehension are, people, objects, models, maps, diagrams, graphics, charts, pictures, television, films, and environmental layouts.

When preparing visual aids, make sure that the letters are large enough for the students in the back row to see. In addition, the artwork and other main features should be attractive and clear. Use the right colour to avoid distracting meaning. Study the cultural meanings of colours as different communities attach different values to colours. Assist students who do not distinguish between colours and those who are either short sighted or long sighted so that they can participate at equal levels with the other members of class.

3.10 Summary

In this lecture we have examined Communication as the process of sharing ideas with other people. This takes place between the speaker and another person or persons. In a classroom situation, communication takes place between the teacher and the students. The teacher is the source of the message while the student is the receiver of the message. The message is conveyed through a medium (voice) which could be verbal or non-verbal (body language and visual aids). The student gives feedback to the teacher during teaching and this helps the teacher to adjust his content or/and his method of teaching. During teaching, the environment where teaching is taking place can interfere with teaching and learning.

There are two elements of communication: verbal and non-verbal. In verbal communication, the teacher uses words to convey the message to the students. During this process, he uses simple language in order to make sure that his message is clear and to the point. In non-verbal communication, the teacher uses body language, gestures, and visual aids to reinforce the verbal message. Both verbal and non-verbal modes of communication are used simultaneously in the teaching process.

Activity 1.1

Write a paragraph describing how language affects communication at the university level

Intext Question

Write one paragraph on each of the following:

a) The non-verbal cues that can be used by the teacher to improve classroom communication.

b) Visual communication.

3.11 References

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LECTURE NINE

ENGLISH AS A MEDIUM OF INSTRUCTION

By

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~~**LECTURE NINE : ENGLISH AS A MEDIUM OF INSTRUCTION**~~

The Course Outline

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Introduction

Polonius: What do you read, my lord?

Hamlet: Words, word, words.

Polonius: What is the matter, my lord?

Hamlet: Between who?

Polonius: I mean, the matter that you read, my lord.

(Hamlet, by William Shakespeare)

9.1 Introduction

In this lecture, we shall discuss how language is used as a means of interaction between the lecturer and the students and how both the lecturer and the students use words to communicate their ideas to one another. It is important to note that language is formed by words which have different meanings as shown in the statement above. It is the speaker and the listener who negotiate the meaning of their conversation according to the context. A person uses words to express his ideas and share his thoughts. Words, which are symbols used in verbal communication are substitutes for the real objects. We shall also discuss the role of English as a medium of instruction in the classroom and how effective the use of appropriate words enhances proper learning. The attitude of the lecturer and the student, and the warm relationship between them also helps to facilitate learning. Although the content the lecturers deliver to the students is important, a great deal is conveyed by the way they say it. Therefore, the choice of words, quality of voice, pace and intonation are important aspects in communication. In addition, non-verbal mode of communication such as facial expressions and gestures, if used appropriately, reinforce the verbal language. Finally, lecturers should use effective communication strategies in order to guide students in taking notes during lectures.

9.2 Objectives

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

1. Explain the nature of language.
2. Describe the Language process in the classroom.
3. Explain Language and interpersonal relations in teaching.
4. Explain the functions of language in teaching.
5. Apply language for specific purposes while teaching.
6. Analyze the role of English across the curriculum.
7. Use appropriate communication strategies while giving lectures.
8. Minimize barriers to effective listening while teaching.
9. Apply effective semantic markers while teaching.
10. Use clear and distinct voice while giving lectures.

9.3 Nature of Language

Defining language is not as easy as it sounds as most of the definitions found in dictionaries and elementary textbooks are very broad. For example: 'the faculty of language consists in man's ability to make noises with the vocal organs and marks on paper or some other material by means of which groups of people speaking the same language are able to interact and cooperate as a group' (Robins, 1971); 'Language is a system of communication by written or spoken words which is used by the people of a particular country' (Longman, Dictionary of contemporary English, 2003); 'Language may be thought of as an organized system of symbols, both verbal and nonverbal, used in a common and uniform way by persons who are able to manipulate these symbols to express and communicate their thoughts and feelings' (Samovar, 2005:309); Language is communication of thoughts and feelings through a system of arbitrary signals, such as voice sounds, gestures, or written symbols' (The free online dictionary, thesaurus and encyclopedia, 2007).

When we look at the four definitions, we notice some useful design features of language. These are the use of vocal auditory channel or written symbols, a human being, duality, semantics, cultural transmission, structure dependence and creativity.

What then should be the definition of language based on the seven design features?

Language can be defined as a way of communicating thoughts or ideas clearly from one person to another in such a way that the other person will be able to act accordingly; the transportation of such ideas could be acquired by either verbal expression, written word, gestures, facial expressions, body language and images. Words are the symbols used in verbal language while body language such as gestures, movements, and facial expressions are the symbols of nonverbal language.

The role of language is therefore to communicate ones thoughts, which are in the mind and not known to the audience. The speaker expresses the ideas as he thinks and believes. Language helps us to express our needs, experiences, emotions, attitudes etcetera. Without language, it would be difficult to make ourselves understood correctly and clearly and to get the desired responses from the listeners. We would depend on body language and gestures which would make our relationship with others limited. Human language is learned and it conveys information about external events; it has a grammatical structure which observes a strictly formalized system of signs and rules, namely, syntactic rules, semantic rules, and pragmatic rules. It also consists of a set of learned social techniques which are used to influence others. There are great differences in skill of individuals at using language which is associated with intelligence, education, training, and social class.

Activity

Explain why it is difficult to define 'language'.

1.4 The Language Process in the Classroom

There cannot be effective teaching in the classroom without the use of language since teaching is above all, a linguistic activity. There are many day-to-day activities carried out in the class room through language. For instance, a lecturer uses oral or written language to communicate information to the students. He uses language to teach definitions, facts, explanations, interpretation, generalization, principles and concepts of the subject at hand. Similarly, language is used to perform the following activities: to interpret, complement, and emphasize the demonstrations of the skills that the lecturer teaches; to correct, reject, accept, praise or negate responses from students; to encourage students in their activities; to evaluate or test the development of the students' achievements; to show respect, dignity, honesty, fairness, and equality of treatment towards the students; to express feelings of interest, hate, love or indifference; to give directions, and make assignments; to explain maps, films, slides, tape recording, charts, models, diagrams, and tables; to reward, punish, blame or approve the students' performance.

Language therefore has a great role to play in teaching as it is a tool of thought. It determines the possibility of thinking about any particular topic in any subject for both lecturers and scholars.

1.5 Language and Interpersonal Relations

Teachers spend a great deal of time teaching students how to study, read, and write, to pronounce words and use them correctly; but very little time at school, college or university is spent on teaching students how to communicate effectively. Communication is the foundation for all our interpersonal relationships and good communication can only be achieved through the use of proper language.

Teaching involves face-to-face relations between a lecturer and a student. Even in programmes in which the lecturer and students are not gathered in a lecture theatre such as teaching via television, a programmed text, or a correspondence course, the acts of the lecturer are

influenced and selected on the basis of the experience gained in the usual teaching situation, which involves face-to-face contact. All this teaching is done through language.

The act of teaching requires the lecturer to choose appropriate words to use in the classroom so as to encourage students to use their intelligence in supporting what they learn with proper evidence. Having a variety of vocabulary and enriching them is advisable for successful teaching. The active vocabulary of the lecturer should be large and he should be conversant with the words so that he can use them freely. This shows that language is a powerful instrument of teaching in class. Words help lecturers share their perceptions and feelings with students and develop values and goals together. Words can promote togetherness and help students and lecturers to achieve and accomplish significant goals.

Teaching involves a relationship between the lecturer and the student that goes beyond the rational intellectual dimensions, though this is central to it. The lecturer should be attuned to the diversity of his students, appreciative of the differences between cultural groups, cognitive ability, and should be careful about his choice of words when referring to those different from him. He should avoid ethnic, religious or gender–based humour and should stay away from racial or sexist language. The act of teaching requires the lecturer to treat the student as a human being with dignity and respect. He must seek to minimize anxiety and threat so as to establish mutual trust. This positive interpersonal relationship that promotes learning and the development of the independence of the student is done through language. If done otherwise, the activity is not teaching. It may be labelled intimidating, or threatening, but it is not teaching.

1.6 Language and Learning

Learning happens when information, knowledge and meaning flow from one point to another or from the teacher to the student. Teaching and learning are modes of communication as the two forms are connected. Communication and teaching will be effective if the delivery of content is adequate and the knowledge is accurate and valuable. Language plays a great role in this delivery of knowledge. Language as a whole is multifunctional and particular kinds of language are specialized to serve particular functions, for example, the use of language as an instrument of

thought. In teaching and learning, different requirements on language lead to different forms which are used in different ways. That is why language is considered to be functional as it serves different purposes.

Various codes of verbal language fit into other languages or codes such as visual and auditory for similar purposes. Hence, language needs to be semiotic because in teaching and learning, lecturers use signs and images to reinforce their verbal language. Language also needs to be developmental since it is concerned with how different codes develop and interact and how thought develops in different phases requiring different codes which are used in different ways.

Activity

Write a paragraph explaining the language process in the classroom

1.7 Functions of Language in the Classroom

Language is an interactive and an interpersonal instrument, a way to direct ones behaviour and make others behave. In the classroom, language performs the following functions: the instrumental function, in which language is used to get things or to cause certain events to happen. For example, lecturers give instructions to students on how to carry out an activity through language. It is also used for regulatory function in setting rules so as to control the behaviour of the students. In the representational functions, language is used to convey facts and knowledge, report, explain, make statements, etcetera; it also plays a role in the classroom interaction as it ensures social maintenance by the use of appropriate words. In the heuristic function, language is used in learning and discovery. This is usually conveyed in the form of questions that lead to answers. Language also serves to create imaginary systems or ideas in the classroom. Students imagine, visualize events and concepts that are not demonstrated by real objects. They create possible and impossible dreams or go beyond the real world.

1.8 The Power of the Spoken Word in Teaching

Words help us share our perceptions, attitudes, and emotions with other people. They can change the way we think and the way we act. Words are powerful and once they are received, they have a commanding effect on the audience. The words lecturers select and the way they use them can bring great joy or great frustration and sadness to the students. Words create clear mental images and they can change the way students perceive and interpret concepts, and they can also change the way students behave. Therefore, the lecturer should bear in mind that words have many uses and meanings. These meanings become more complicated and ambiguous when we add the variable of culture. That means, language is symbolic and that words have no meaning in themselves – people give meanings to words.

A skillful lecturer helps students to visualize the world as the lecturer sees it. The words used become the light that can reveal subjects with clarity whether the subject is familiar or complicated. For students to infer, interpret, comprehend, analyze, and evaluate the topic or content, the lecturer needs to be very clear in his explanation. It is not possible to tell lecturers how they should use language as ones style is an experience of his/her individuality. The style varies according to the subject or topic at hand, the situation and cognitive level of the students. For example, the style and language used to teach students who are studying literature or music might be more relaxed than that used to teach students who are studying medicine or agriculture.

In-text Question

Describe the functions of language in the classroom and how words are used in communication.

1.9 Types of Talk in the Classroom

In teaching, the lecturer and the students continually send and receive silent messages to substitute words, express feelings and cognition. Students, for example, raise their hands, nod their heads, smile, look drowsy, or appear puzzled. The lecturers, in addition to the foregoing,

points, snap fingers, and raise eyebrows. The lecturer understands these gestures and may reject them when they are out of place. Silent communication is legitimate in teaching but the prime means of communication is through oral and written language of communication – the two forms are connected. Human culture depends to a large extent on the spoken word as a means of transmitting knowledge. As a result, a lot of talking takes place in the classroom. Apart from being social and communicative, talk is also a tool for learning and this talk is done through language.

There are many types of talk that take place in the classroom. The main ones are instructional talk, procedural talk and managerial talk. The lecturer should balance his talk so that he does not interfere with students' freedom and independence. For example, the instructional talk deals with the concepts and the knowledge delivered to the students. If the lecturer gives too little of cognitive talk, the lesson becomes undemanding and boring while too much of it makes the lesson overwhelming. Either way, the students might lose interest. The procedural talk guides the students on how to work on the content and the activities that need to be done in order to achieve the objectives. Too little of procedural talk might not give enough guidelines on how to carry out an activity and therefore the student will not know how to work on the activity. Too much procedural talk will interfere with students' freedom and independence and they might rely on the lecturer most of the time as their mental development will have been interfered with. The managerial talk helps the students to behave according to the acceptable behaviour in the classroom. If the lecturer puts too much emphasis on this, the students become bored, and de-motivated. If he puts too little of the managerial talk, he might risk disruption of the lesson by the students as there might not be law and order in the classroom.

1.10 Talking to Learn

Talk is an oral/aural medium and many students cannot sustain this concentration for very long without a visual focus such as pictures, board, video, and activities. A considerable amount of talking takes place in colleges and classrooms. This is so because our own culture depends to a large extent on the spoken word as a means of transmitting knowledge. Although the spoken word plays an important part in classroom interaction, the communicative rights of lecturers

and students are unequal; the lecturer talks most of the time allowing the student to barely make comments or ask questions. The lecturers tell students when to talk, what to talk about, when to stop talking and how well they have talked. An effective lecturer has the right to talk first, last and most; controls the content of the lesson, organize that content by allocating speaking turns to the students. The lecturer's right to decide who speaks when, for how long and to whom is an interactional role of language.

Interactional patterns/communicative networks are as follows: The lecturer delivers the lecture; checks on the reception of the lecture; invites questions; sorts out problems; elicits discussion and trusts students to work on their own.

Since much of the time planned for teaching by lecturers is taken up by giving information and instructions, censuring students, and evaluating them, their talking can be described as telling (dormant performance). Lecturers should not monopolize the talk totally–there has to be a certain amount of student participation. For example, lecturers should encourage the development of speech for communication as well as talk for thinking through problems, discussing assigned tasks and for clarifying thought. As explained, in addition to being social and communicative, talk is also a tool for learning. That talk is done through language.

Activity

Write a paragraph describing the types of talk used in the classroom to convey messages to the students.

1.11 The process of Listening in the Classroom

The lecturer should understand the listening skill in order to find out why students do not achieve the objectives set for them in the classroom. Listening is a complex skill that involves a number of interrelated stages. Students spend a lot of time listening to lecturers in classroom but very little time is given to formal training in listening. Many lecturers confuse listening with hearing.

Educators put a great emphasis on speaking forgetting that effective listening is essential to all communication transactions. Most people assume that listening is a natural activity that does not require a lot of teaching. This assumption is wrong because just as one can hear sounds without listening it is also possible for one to listen without understanding the message.

Hearing is a passive process that occurs when sound waves vibrate against the eardrum and the brain registers these sounds. On the other hand, listening is the process of giving meaning to these sounds. Listening occurs when these electrochemical impulses sent to the brain are processed and used. The listener attends to what is being said, selects what is relevant, understands, and responds to the communicator. Listening therefore involves the communicator and the listener as the following combinations indicate: The listener receives the sound waves, focuses on a specific sound or a series of sounds and rejects others, the brain interprets the message and assigns meaning according to his understanding, restores the message in long term memory for later recall; the listener analyzes the message, makes a judgment about it using his schemata. In the final stage, he gives a response to the message according to his understanding. Hence listening is a complex skill that involves hearing which is a physiological response; it is a perceptual act that involves focusing and cueing in ones environmental stimuli, and comprehension which requires the listener to process the sounds cognitively and assign meaning to them.

1.12 Types of Listening

People listen for various purposes and they keep on adapting to different communication situations. Both listeners and speakers should alter their attitude, beliefs and behaviour in order to listen effectively and receive the message intended by the communicator. There are four main categories of listening: reflective or emphatic listening, informational or discriminative listening, critical or evaluative listening, and appreciative listening.

a) Reflective Listening

Reflective or emphatic listening involves feelings and sharing. It is an emotional sensitivity that demands that the person listens carefully so that the other person knows that the listener appreciates and understands his problem. In this case, listening becomes a responsibility rather

than a duty as the person feels better because the other person has listened and offered moral support.

b) Informational or Discriminative Listening

People listen for different types of information. They listen in order to gather pieces of information so that they can learn something from them. For example, a student taking notes in a communication lecture is listening for information. When a student knows that his purpose for listening is informational, he will listen discriminatively. This will enable him to make decisions on notes to take, ask questions about missing or unclear information and answer questions that are related to the information.

c) Critical or Evaluative Listening

Critical listening helps the student to evaluate what he hears so that he can act on the piece of information. Critical listening involves separating facts from opinion and checking out the source of a message. A fact is a statement that can be proved or disproved while an opinion is a statement or judgment that is based on a belief or feeling. One cannot prove an opinion. A critical listener hears the other persons ideas first, looks for facts, opinions, disagreements, confusion, and then figures out how to respond effectively. This requires the skill needed to analyze, evaluate and challenge the content of the information. The listener does this in order to gather proper information that he understands and can explain to other listeners.

d) Appreciative or Recreational Listening

Sometimes, listeners suspend their critical faculties, relax, and enjoy the stimulations. This type of listening for enjoyment occupies a great deal of listening time. For example, students and lecturers listen to music, social conversations, jokes, watch television, and plays. In order to appreciate listening for enjoyment, one needs to listen carefully.

In-text Question

Describe the process of listening in the classroom.

2.1 Communication strategies in classroom teaching

In teaching, lecturers try to be clear and fluent in order to communicate the content to the students. Sometimes, the demand of quick delivery in spoken language often leads them to be disfluent. They may pause, use fillers, repeat themselves, restart their utterances or coin new words. Disfluencies are a common feature of spoken language especially when lecturers have difficulties with lexical meaning or discourse constraints that make some referents more accessible than others.

Lecturers use the following strategies in the classroom:

a) Avoidance strategies

i) Message abandonment: leaving a message unfinished because of language difficulties.
ii) Topic avoidance: Avoiding topic areas or concepts that pose language difficulties.

b) Compensatory Strategies

iii) Circumlocution: Describing the target object of action because of lack of vocabulary (e.g. the thing you sweep the floor with).
iv) Approximation: using an alternative term which expresses the meaning of the target lexical item as closely as possible.
v) Use of all-purpose words: Extending a general, empty lexical item to contexts where specific words are lacking (e.g. the overuse of 'thing').
vi) Word Coinage: Creating a non existing L2 word based on a supposed rule.
Code-switching: using L1 word with L1 pronunciation or L3 word with L3 pronunciation while speaking L2. (e.g. use of kumbe, nini, yaani).

vii) Appeal for help: Asking for aid from the listener either directly or indirectly (e.g. what do you call, remind me the name).

viii) Stalling or time-gaining strategies: using fillers or hesitation devices to fill pauses and to gain time to think (e.g. well, well, well; now let's see, uh uh, um um, ah ah, as a matter of fact, you know).

ix) Foreignizing: using a L1 word by adjusting it to L2 phonology (i.e. with a language 2 pronunciation) e.g. adding or omitting of consonants (e.g. eat for heat, hearly for early).

2.2 Voice and speech

A lecturer's voice is an important device in the meaning students attach to words. The voice conveys both the meaning and the feeling of the message. Therefore, your voice should be clear from any ambiguity. For example, in a typical classroom, few sentences are heard by all the students. Sometimes, in a single hour lecture, not even one-half of the class hears what is said. In such a situation, achievement is low, students become bored and disciplinary situations develop. As a lecturer, you should always evaluate the following: Is your voice too high? Nasal? Strained? Breathy? Varied, clear and distinct? Adapted to the size of the listening group? Well controlled and modulated? Do you speak too fast – students do not hear all the words. Too slowly–students become impatient. Gruffly – rough and unfriendly voice. Uncertain, halting manner – betrays lack of confidence. Try to pronounce words clearly and correctly. Use slang appropriately and adapt voice to the occasion. Employ concepts adapted to the audience.

Activity

Give a summary of the communication strategies used by teachers in the classroom environment.

2.3 Techniques of Note Taking During Lectures

Lecturers may cue their main points while speaking by emphasis, or repetition or even by visual display on the white board. They also use signaling devices or semantic markers to show students how ideas connect with each other. These transition devices also connect the main points in paragraphs. Therefore, students should watch the facial expressions and gestures for clues. Some signaling devices are short phrases or words. For example, when introducing an important point, the lecturer uses phrases such as, 'I want to start by trying to….' 'The point I want to introduce is….' In order to justify the introduction of an important point, the lecturer uses the following words: 'There are several ways/means of looking at….' The lecturer way pause, reduce the pace of his delivery or vary his intonation to indicate that he is making an important point and then use the following words: 'The thing/point is...' 'The question I want to ask is…' He may repeat the point for emphasis or state it in a different way: 'Let me repeat/stress….' 'In other words….' Moving from one idea to another, the following semantic markers are used: 'The next question is….' 'Furthermore….' 'Next, then/secondly/finally….' The lecturer may wish to contrast ideas or to balance one point against another using the following phrases: 'However/nevertheless….' 'In contrast to….' Cause and effect relationship may be contrasted with words such as, as a result or consequently. Words or phrases like 'in summary/in short/ finally/ in conclusion' may signal that the lecturer has finished his delivery. When delivering a lecture, the lecturer should understand that note taking by the student is a complex activity which requires a high level of ability in many separate skills Note-taking as a skill must be taught!

2.4 English across the curriculum

Language is one of the most important ways by which ideas are communicated in all the subjects in the school curriculum. The fact that so many students find science and mathematics difficult to understand suggests that this process of communication does not always work very well. Doing science by both lecturers and students means talking and listening to science; reading and writing science. In talking, reading and writing, there are many ways in which language is used in teaching science. These include describing, questioning, explaining, discussing, and formulating arguments. Many students fail to understand the content in science and this is an indication that

there is a communication gap between lecturers and students. Students' failure to understand the content may be caused by a lack of mastery of non-specialist vocabulary. The attitude of the lecturer and the student; the relationship between them and the context itself add another layer of meaning to the encounter.

2.5 Vocabulary used in science lessons

Science uses technical vocabulary with which students need to become familiar with in order to understand what they hear, read, and use while writing in their lessons. Those for whom English is the first language are privileged in that much scientific writing is done in English. Many learners of science have to cope with the additional difficulty of the medium of instruction being a second or third language. Many words are poorly understood by students – even words which are used in everyday contexts but which have special meanings in science (e.g. agent, incident, component, random, uniform). Lecturers take time to explain the technical vocabulary of science but are not aware of problems posed by frequently employed non-specialist vocabulary and words with multiple meanings. They need to understand that all teachers are teachers of English since English is the medium of instruction in the classroom and they should therefore help students to speak fluently as they use their everyday vocabulary

2.6 Summary

In this lecture we have learnt that the way a lecturer expresses himself is important in promoting understanding on the part of the students. Language is important for communication in the classroom. Some of the factors contributing to effective teaching are the use of precise terminology, connected discourse, transition devices and emphasis. Language skills are fundamental but since communication involves people, it requires social skills as well. Since communication is focused on some meaningful topic, it calls for appropriate cognitive capacities, that is, knowing something about the subject under consideration, using technical terms and specialist vocabulary and correct sentence structure. In addition, the attitude of the lecturer and the student, the relationship between them, and the context itself add another layer of meaning to the encounter. Para-verbal and non-verbal features of oral language contribute to the effectiveness of how we communicate. Apart from what we say, a great deal is conveyed by how we say it. In addition, tone of voice, pace, volume, and how we project our voice are all part of communication. There are non-verbal aspects such as looks and gestures, the ways we move, which accompany what we say. Non-verbal aspects can sometimes extend our meanings but they can also confuse or even contradict what we say.

~~In-text Question~~

1. Describe the semantic markers teachers can use in order to guide students in note taking during teaching.
2. Explain the problems students encounter in the language used in science subjects.

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LECTURE TEN

MANAGEMENT OF LEARNING ENVIRONMENT

BY: TERESIA KAZUNGU

Lecture Outline

Magement of Learning Environment

10.1 Introduction

This lecture introduces you to management of the learning environment by explaining:

- What a learning environment is and its importance.

- Main components in the management of the learning environment.
- The role of the lecturer in managing the learning environment.
- The importance of rules, regulations and discipline for effective management of a learning environment.

10.2 Objectives

By the end of this lecture you should be to:

1. Explain what a learning environment is.
2. Explain what is management of the learning environment.
3. Describe the management styles.
4. Describe how the physical and social learning environments can be managed.
5. Show how the teachers' qualities are necessary for managing the learning environment.
6. Apply the skills in managing a learning environment to effect learning.

10.3 The Learning Environment

In Lecture Two we were introduced to the fact that the teaching enterprise requires minimal distraction. What this means in practical terms is that we need to manage our learning environments well. In this lecture , we are going to explain the meaning of learning environment and how a learning environment can be managed for effective learning.

Can any one of you explain the meaning of word environment?

According to Opanya (1985) a learning environment is the sum total of the teacher's area of operation. This can be a classroom, a lecture hall, outside the classroom or even outside the school gate. It should not be a fixed space, but a dynamic one. It is the dynamic nature of the learning environment that promotes learning. The essence of a conducive learning environment is expressed by some scholars, like Banks, et al (1995) who states that. "The best of teachers can

become ineffective if the learning environment of the students is inconsistent, unexpected and without regulation. Parrot (1982) also sees the learning environment as having two major activities, which are management and instruction.

1.4 Management of Learning Environment

Before we can explain the above statement, you need to understand what general management means**.** General management according to Follet (1979) is the art of getting things done through people.

What then is management of the learning environment?

Let us look at various definitions given by different scholars:

Bull et al (1987) states that classroom management:

- Focuses on those factors which are within the teacher's sphere of influence, and also those which may be beyond the teacher's control but the teacher still remains the manager of the learning environment.
- Is to organize the learning environment so as to encourage students' appropriate behaviour that determines adequate learning.
- Is what the teacher does that has implications on the students' behaviour both directly and via its effects on other people's behavior?
- In order to be an effective manager of the learning environment the teacher needs to consider applying appropriate management principles or styles.

Management of the learning environment is however within the context of general management which follows the management principles as outlined in the management styles.

1.5 Management Styles

Now that we know what management of the learning environment is , let us now focus our attention on the different management styles. Banks et al (1995) outlined the following three philosophically and psychologically based styles about the nature of people, on which classroom management styles are based. Let us look at each of them:

1.5.1 Non –Directive

Let us examine the characteristics of this style.

This style is based on a model developed by Rogers(1983) and Gordon (1974) which states that:

- Nature is the most optical factor in human development.
- People have a certain amount of potential to grow and develop.
- The learning environment has to be managed in the light of what the students are able to do so that students are free to choose what and how to learn, establish rules and consequences for breaking them.
- It is also known as student- centered.
- It helps to develop individualized learning and instruction.

Priority in this style, as stated by Rogers (1969; 1983) is to:

- Create a classroom environment that encourages the development of each student's inner potential.
- Promote relationship of mutual caring and respect where the teacher is involved with the student's personalities.

The assumption of this style of management is that the students' curriculum begins from where they are in their learning. The teacher interacts with the students through active listening to students' problems and creates an environment that will:

- Encourage the developments of each student's inner potential.
- Promote relationships of mutual caring and respect.

Consequently , you as a Lecturer are involved with the student's personalities based on a belief that students have a natural desire to learn and manage their learning environment.

1.5.2 Directive

Let us now look at our second style and please note the main differences between this style and the one we have just learnt.

Activity 1.1

This management style is:

- Teacher centered, where, the teacher uses the autocratic leadership style in which decisions about the learning environment are made by the teacher.
- Not learner friendly since the students do only what the teacher tells them to do. The students have no free choice of the environment that determines their behaviors but the teacher.
- Teacher-directed in the sense that the teacher directs the classroom through a behavior analysis and environmental planning procedure to analyze the causes and effects of students' behavior.
- Based on behavior modification principles of Skinner's operant conditioning methods(1976,1981)and Canter's (1976,1981) assertive discipline model.
- Emphatic on how human development and behavior depend on the quality and diversity of the environment
- Focused on what the students are doing rather than why they are doing it. Banks et al (1995) state that it is based on the nature nurture debates which states that: behavior is determined by the environment (Skinner 1971) Thus , a Teacher's implementation plan should be designed to make the socially observed and acceptable behavior more attractive to students. More-over such teachers keep a record of what the students are doing and require them to take responsibility for their own behavior.

1.5.3 Eclectic style

We now discuss our third style. What do you think eclectic style means? It means a combination of the directive and non-directive. According to Banks et al (1995) proponents of eclectic classroom management style, Glasser's (1969, 1990) and Dreikur (1968) believe that:

- Students and teachers benefit most from a combination of the above two styles.
- The teachers using this style need to be conversant with the directive and non-directive styles.
- An eclectic teacher relies on interventions from a variety of approaches to tailor them to the needs of the students.
- Students are required to be more responsible for their behavior than others.
- Banks et al (1995) alleges that the above three management styles often overlap.

Take Note

- Knowledge about a variety of management styles enables teachers to know which ones to apply for individual students and situations.
- Their use has one common goal of providing the students with the best learning environment.
- Teachers need to make an assessment of which styles are most suitable.
- An eclectic teacher has a wide range of alternatives in solving conflicts by using the following approaches:
- Collaboration.
- Compromise.
- Competition.
- Accommodation.
- Avoidance.

Activity

Define the approaches to managing the learning environment that we have just discussed..

Management of the learning environment

Let us now see how the teacher manages the learning environment. What is the learning environment made up of? The learning environment consists of:

- The physical components which are the physical structures.
- The social environment which is made up of the learners.

1.6.1 The physical environment

What are some of the physical factors in the classroom that can have an effect on learning?

Bull (1987) states that there are a number factors which make up the physical components of the classroom environment and are important to consider in managing learning. These factors are as follows:-

Visual factors that consist of two aspects; the quality of illumination of the room as determined by the available light whether natural or artificial. The second aspect is arrangement of the classroom environment whether it is visually stimulating, creates the desired learning atmosphere and can capture the learners' interest or has unwanted distractions.

Acoustic factors are, where the model of communication is verbal, there is need to avoid distraction resulting from acoustic factors in the classroom. One such factor is noise which can affect students' performance and behavior.

Activity 1.2

What are the sources of noise in the classroom?

Destructive noise within the learning environment can be caused by other students passing in the corridors, scraping chairs and students talking among themselves. How does the teacher manage noise in the classroom?

- Identify the source of noise and damper it down.
- The teacher should be interesting and motivating to the students.

Thermal factors are heating and ventilation requirements which are important in making the learning environment conducive to learning. The heating system is determined by the prevailing climatic conditions, and can be either too hot or too cold. This is beyond the teachers control but the ventilation conditions on the other hand can be influenced by the teacher by ensuring that the learning space is sufficient for learners. Studies which have been done on these two aspects have indicated that, they can influence students' performance and behaviour negatively (Bell et al 1978).

Spatial factors include the design of institutional buildings. Though Bull (1987) has reported this, Summer (1969, 1974) has explored this further and indicated that it has an effect on the behavior of students. He emphasizes that the design of school buildings and their influences should be of concern to architects as well as to the teachers who have to manage the classroom environment. Manning (1967) suggests that the skills of good teachers are likely to be stretched to the greatest advantage in buildings that are designed to provide the greatest amount of flexibility. This flexibility allows the teacher to use a variety of learning activities which are suitable to a variety of learners needs. Such buildings affect the least hindrance to anything the teacher may want to do.

Arrangement of the room is an integral part of classroom management according to (Bull 1987), Perrot (1982) and Opanya (1985). The room should be arranged to suit the needs of the learners for example; rearrange the tables to suit the individual learner or groups, Parrot (1982) further says that there are differences between classroom studies and those which take, place outside the class of school. In supports of Perrot, Opanya (1985) says that:

- Proper arrangement of the room makes learners active.
- A round table can be arranged for discussion,
- Space can be created at the centre and grouping can be done for practical activities.

In order for the class to be active, the teacher has to make it a learning resource centre- a place that provides most of what is required for meaningful learning Whatever the classroom is; be it a four walled enclosure, a laboratory or a field it serves as a total learning environment and has to be made an effective learning environment by the teachers of all subjects.

Learning Activities used have implications for classroom arrangement. The learning activities which the students undertake are determined by the teaching methods which the teacher uses.

Activity

What is a learning activity ?

How are learning activities selected?

To answer these questions , you need to go back to Lecture Three on pages 45 – 46. Please do so now

Smith (1993) suggests that the teaching methods must be flexible to cope with a range of capacities for learning. This requires making decisions about teaching methods which imply different arrangements such as;

- Whole class teaching.
- Group work/tutorials.

- Individual learning.

1.6.2 The Social Environment.

Having discussed the management of the physical environment let's see how the social environment should be managed. (Bull (1987) says that once the classroom is occupied by students the teacher has to manage the social context in which the students' behaviours take place. In managing this social group, the teacher is the leader and his/her personal qualities as well as his/her technical skills are vital, Mc Manus (1989). What , then , are the qualities of the teacher as the leader of this social group of learners?

1.6.2.1 Teachers Qualities

Bull (1987) states that the teacher has to:-

- Establish his/ her position as the leader in the initial contacts with a new group. Manage classroom interaction, movement of students, allocation of space and materials.
- Ensure that the classroom is carefully arranged and has to exercise control over events performed by different groups of students.
- Ensure that each teaching/ learning session progresses smoothly and efficiently. Act professionally in his/ her service. The concept of professionalism in teaching is important for the teacher in managing students' behaviour. (Mc Manus 1989).

In outlining some of the teachers' qualities for effective classroom management, Mc Manus (1989) says that experienced teachers have trouble- free classes because of their effective management skills. Mc Manus (1989) has outlined the appropriate skills which have been observed to be associated with trouble- free classrooms as follows:-

Early Encounters :

- Get to class first and supervise the student's entry. Occupy centre stage and make directive statements using plenty of eye-contact. Give impressions as well as instructions

using appropriate voice tone and pitch, facial expressions, posture use of space proximity, be relaxed and confident.

- Scan the class to get attention mid sentence stop and wait, stare so as to keep mystery.
- State rules and objectives of the course. Perhaps present only simple content in the first lesson.
- Part of the time can also be used to learn the students' names.

Main part of the lesson presentation

This follows after having had a successful early encounter of the lesson , presentation of the lesson should follow including: Topic, objectives, content, materials and time allocation. Mc Manus(1989) states that the teacher has to handle the main part of the lesson professionally by outlining the following ways:

- The lesson should be well prepared, showing how content relates, to students present concerns.
- The learning activities and styles have to be varied and movements in the classroom have to be organized and planned by giving warnings for changes of activities.
- The teacher has to notice everything and not let an individual or group monopolize his/ her attention but should organize, discipline and attends to all. The pace of presentation should be varied and learners motivated adequately. The lesson presentation should not be interrupted unnecessarily and there should be proper use of space and the purpose of any movements to be clear.

Ending the lesson

Mc Manus (1989) also gives suggestions on how a professional teacher can end his/ her lesson by suggesting that:

- The ending of a lesson should be prepared organized and time allocated for it. Review what has been covered.

- Assignment to be given.

The departure of the class should:

- Allow for a brief moment for advice or consultation .

- Have an orderly dismissal with a relaxed and smiling teacher in order to minimize problems at the end and provide a good prelude to the next lesson.

1.6.2.2 Rules Regulations and Discipline.

The management of the learning environment would be complete without any rules, regulations and discipline? Smith (1993) states that, other elements in determining the states of the classroom environment are rules and routine.

What are rules?

He defines rules as the formal statements of the teacher's expectations about what students may do or may not do. They define the boundaries for behaviour within a classroom. Students however spend some time discovering and testing teachers' rules. He suggests that It is important to state clearly and precisely, what the boundaries are of the permissible, whilst avoiding the two problems of:

- Teachers having to enforce them
- Infringement of the rules being the quickest route to confrontation.

In order to avoid the two problems The number of formal rules can be reduced to a minimum. Their purpose clearly explained to avoid the authority spending time and effort on injunctions and enforcement.

What is routine?

In emphasizing the importance of routine Smith (1993) says that routine:

- Regulates the flow of activities within the classroom.

- Helps to reduce the complexities of learning to a more predictable sequence,
- Helps students to plan their activities and work out the anticipated events.

What happens when students do not follow rules and regulations?

Such students can be referred to as being indisciplined. This could lead to many more becoming indisciplined. Makes learning to become more difficult.

What is discipline?

- A system of rules and order exercised over people so as to maintain order
- A good classroom discipline is equated with effective classroom management.
- Various studies have established that institutions with good discipline have good management practices that prevent disruptive behaviour from occurring (Charlton and David Ed.1993).

What is disruptive behavior?

McmManus (1989) define disruptive behaviour as:

Excessive disturbing behaviour usually manifested verbally or physically.

That which overtly challenges the authority of the teacher or school.

It also demands more expenditure of the teacher's time and energy.

What are teacher's perceptions of disruptive behavior?

According to McManus (1989) students disruptive behavior is perceived by teachers as being minor and more serious**.**

What are minor disruptive behaviors?

Making unnecessary noise.

- Leaving class before time
- Hindering other students
- Calculated idleness or work avoidance
- Not being punctual to class

- Not handing in assignments on time

What are the more serious disruptive behaviors?

- Verbal abuse towards teachers.
- Physical aggression towards teachers
- Other adults and other students
- Damage of institutional property
- Attempting to smoke in class
- Determined not to conform to rules
- Cheating in an examination
- Rocking of chairs defiantly

According to a Chalton et al (1993) minor misbehavior occurs more frequently than the more serious. As a manager of the classroom, the teacher needs to know the causes of students' misbehavior.

What are the causes of students misbehavior?

Chalton et al (1993) outlines the following causes of students' misbehaviours.

- Stereotyped teaching and ineffective management style.
- Administration of punishment intended to suppress the behaviour without knowing its cause.
- A teacher who is not able to communicate effectively so as to arouse academic endevours and students interests.
- A depressing institutional climate; for example misunderstanding between teachers and students or among staff.
- Teachers' inadequate management skills in managing students behavior
- Inconsistency among members of staff in interpreting and enforcing institutional regulations and rules.

Intext Question

How can discipline be managed?

According to McManus (1989) discipline management requires skills which can free the class from troublesome behaviour. The ability to control students is also regarded as a vital aspect of the teachers profession. Chalton et al (1993) has stated that--- over the last decades a number of studies have identified institutional characteristics that are likely to influence positively students behaviour (Rutter et al 1979, Reynolds 1984, Martimore et al 1988). These include:-

- Good leadership by senior management in consultation with colleagues and one who is sensitive to the opinion of parents nod students.
- Shared staff policies on academic and behaviour expectations which are meaningful to the students and consistently enforced.
- A curriculum which is matched to pupils' present and future needs.
- Academic expectations which are high though not unreasonable
- An emphasis upon effective use of rewards for good behaviour and good work, rather than the application of punishments.
- High professional standards by staff in terms of planning, setting and starting and ending lessons on time.
- Pedagogical skills that arouse students interest in the subject material and motivate them to work well.
- Classroom management skills which help prevent problem behaviours from arising rather than dealing with them when they arise.
- Healthy supportive and respectful relationships between teachers and students, between students and students, between school and parents and between the school and outside agencies.
- Opportunities for students to become involved in and share responsibilities for running of the school and

- An effective system of pastoral care, guidance and counseling
- There should be a consistent and predictable pattern of teacher's response to students' behaviour.

1.7 Summary

The teacher as the manager of the learning environment is required to:

use the appropriate management styles

Relate the styles to the student's needs and aspirations.

Manage the physical and the social environments

Ensure that effective learning is taking place.

Have personal qualities and technical skills which promote effective classroom management focused on effective learning.

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LECTURE ELEVEN

DESIGNING INSTRUCTION IN HIGHER EDUCATION

BY

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~~**LECTURE ELEVEN : DESIGNING INSTRUCTION IN HIGHER EDUCATION**~~

Outline

11.1 Introduction

The question of improving the quality of the product of an organisation is an important one. Most lecturers are concerned when we read or hear reports of mass failure (or even substantial failure) in our university departments or national examinations. We ask questions such as: do those students attend classes regularly, were they taught well, were the examinations fair and well marked? If these answers are in the affirmative we may take a closer look at the persons who taught these courses or the kind of questions that were set in the hope of obtaining further insights. At the outset we must believe that instruction makes a difference in the performance of learners.

What can we do to increase the productivity of the human resource in our higher education institutions in a competitive environment? Product quality is an important issue in industry

because it determines the extent to which the product will be preferred over others in the market. Many sponsoring organizations spend a lot of money in education and training their human resource because education makes a difference. Since education or training diverts a substantial amount of the organizations resources, there is need to rationalize, plan thoroughly so that set goals can be achieved efficiently and sound principles applied.

In the 60s Jerome Bruner asserted that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development." (Bruner , 1960 : 31) In this lecture, Instructional design is offered as one way to forestall failure in a class and in improving the quality of the instruction.

11.2 Objectives

11.2 Meaning and Purpose of Instructional Design

When used as a verb, the word design means to plan purposefully. As a noun it means a plan that shows the distinguishing detail of how something is to be made. In this senses we can talk of designs meaning the different ways of constructing an item. Since education is a goal oriented activity we should take time to visualize the goal and plan ways of getting there most efficiently. To make quality creations you need to start by considering the end users of the instruction and then move systematically towards that goal.

Instruction is a deliberate, goal oriented teaching process. The goal is student learning in a process that involves content, teachers and students. We hope that our students can learn the content planned in the unit, apply it and move beyond where the lecturer got them. After instruction we hope to change the normal curve of performance to a positively skewed one, where most students are on the high performance range.

Design of instruction includes development of instructional materials and activities, and the application of appropriate instructional strategies as an intervention to help change the learners' behaviour from where they are to a desired end goal. The area of designing instruction draws from experience in training and theory of learning, human performance and instruction. For

example how do we improve the effectiveness of instruction in a rapidly changing environment and with increasing numbers of trainees?

Instruction design serves the following purposes

i) apply appropriate instructional strategies and methods to teach content at a level desirable to learners.
ii) provide a plan to guide instruction in the course.
iii) anticipate the resource requirements to teach with.
iv) Provides a checkpoint against which to check achievements in the instruction.

1.3 Theory in Instructional Design

A lecturer requires some theoretical view point, some assumptions and elaboration about the world and learning that guide his or her actions. A learning theory provides a general explanation of observations about learning and helps to explain such behaviour. An instructional design theory may help provide guidance on how to organise learning for students to take it in efficiently. Theories guide the way we approach the process of designing instruction in the classroom. Some of the theories, are mentioned below, and discussed in more detail in another lecture. Theories address how students learn, how they acquire knowledge and store information.

- **Humanist theories** are more philosophical in nature and emphasize more on what content is relevant learning to promote individual students' human dignity as responsible, and self directing beings.

Intext Question

What can these ideas contribute to learning your subject?

- **Behaviourist theories** focus on the effect of appropriate stimuli on behavior. How for, example does teacher actions of reward and punishment affect learners behavior in learning tasks. Before students can attend to learning, they need to like it, or don't they? In what ways can instruction be organized to provide rewards to learners: Proponents of these theories include , John Watson, Edward Thorndike and Skinner

- **Cognitivist theories** emphasize on what happens in the learners minds as they learn. The mind is considered as a black box which educators need to understand to design better instruction. How is information stored and retrieved from memory in the brain? How long can the brain concentrate on learning? For example, cognitive load theory seeks to understand the load on memory of various instruction. To reduce cognitive load to learners, the lecturer is advised to organize information to be learned into small manageable chunks ,say, a maximum of seven pieces of information, to reduce unnecessary material and to increase the meaningfulness of the information remembering that the brain can handle so much information at a time. And from simple to complex. When students think that a learning task is unmanageable they behave in predictable disinterested ways. Proponents are Jean Piaget, Charles Reigeluth – sequencing and chunking of information, Robert Gagne – conditions for different types of learning, Joseph Scandura – structuring of content, David Ausubel – use of advance organizers and teaching of higher order thinking skills.

Intext Question

How do you differentiate between a learning/project work for undergraduate and graduate students?

- Constructivist theories- emphasis on learners' interpretation and use of learning in a social context. To what extent do learners bring their own experiences shaped in different circumstances to your class? How can these experiences help in reconstructing new ideas?

This may imply that the lecturer requires methods that engage the learner, starting and building on their experiences and not just the standard treatment of delivering the information. Proponents (Jerome Bruner), Lev Vygotsky , Kolbe– importance of teacher and social scaffolding to help students extend their own thinking on learning experiences.

Activity

Do we to need to know if a student learnt something in the lecture? How do you know what a student has learnt during n the lesson?

To what extent do you allow students to "create" their own knowledge beyond the facts given?

Take note

From the learning theories the following facts emerge

i) Importance of learner motivation in learning. Students need a driving force before they can learn some content well. The motivation may be extrinsic as from a lecturer or it may be intrinsic, within the individual himself. You need to gain attention to your lesson for example during the introduction.

ii) It is necessary to show the learners where we wish to take them to, the objectives of the lesson. What are the most important connections during this instruction?

iii) The focus during instruction is the learner. It is he or she who learns. All activities must be aimed at the learner, who must be required to participate, do something in a lesson.

iv) There are different levels of learning to be aimed at in subject content. Learning of facts, concepts, procedures, principles and skills

both reproductive and productive (imitative and creative). Each level can be taught efficiently through unique strategies/methods. Facts and concepts, procedures and imitative skill are best taught through expositive strategies (direct instruction). Principles and creative skills are better taught through heuristic strategies.

v) There are domains or spheres of learning to be targeted namely cognitive (learning what), psychomotor (learning how to perform a skill), reactive (learning how to react as a person), and interactive (learning how to socialize with others). For example, How will your instruction address the values required in using the content learned?

vi) For efficient learning it is necessary to organize content properly. It needs to be organized in small meaningful chunks.

vii) Content to be learnt should be sequences from simple to complex, particular to general, and concrete to abstract.

viii) Different activities are necessary for learning. Students need to attend to presentations, practice skills learned, participate in a learning game, hunt for information from several sources, do experiments and synthesize their own work.

ix) Feedback and evaluation from the lecturer is important to students for them to know how well they are doing and what other effort is necessary. To be useful the feedback should be timely and meaningful.

x) The lecturers' skill as a facilitator of learning is very important in the class. What kinds of organizing cues and ideas are presented during the lecture? Does the lecturer guide and require students to apply their higher order skills or are questions directed at the knowledge level only? Discussion is one known method through which students learn higher order thinking skills.

xi) All, or most students, can learn most things easily if taught well. Mastery of content is possible for most students if adequate time and

quality instruction is provided. Teaching does make a difference.

Intext Question

In your experience , how would you compare a lecturer and a coach?

1.4 Levels of design

There are four levels of instructional design (Romiszowski, 1981).

i) Subject level analysis. What are the topics to be taught with what goals?

ii) Topic level analysis. What is the sequence of teaching the topics and what will be the general objectives? What methods and media will be used?

iii) Lesson level analysis. How will the specific objectives in the lesson be best achieved?

iv) Lesson step analysis. What exercises, learning activities are required to ensure the particular lesson objective is achieved?

Take Note

The lecturer is more likely to be involved as an individual in the last three levels since the first may be done at the departmental level. This lecture on the module shows you how to design instruction for your class. The design of instruction at the higher level is dealt with in Lecture Three. You may wish to go to Lecture Three now to remind yourself on how programme design is actually a prelude to pedagogy

1.5 Model of instructional design

A model summarises the most important components in a phenomenon under investigation. There are several models of instructional design, say those by Romiszowski, Dick and Carey; Morrison, Kemp and Ross; Seel and Glasgow; IDLS (Instructional Development Learning systems), and rapid prototyping.

The first four are similar in that they use a systems approach to instruction and are based on an "ADDIE" model. The models advocate a front end analysis where the designer uses techniques to convert a current state of a learner to a desired output. IDLS is particularly useful as a model during the development of learning materials while rapid prototyping is a kind of up front testing used in the technical world where parts of whole are tested at critical stages of development rather than at the end. A system is a set of elements that work together and independently to achieve a common instructional goal. It involves people, technology and resources. The word systematic on the other hand, means doing things in an orderly way following a given sequence, systems emphasise the coupling between the elements and working for the common good of the system. A good system can thus start by designing the parts that make up the whole and link them together to create the overall instructional system.

However, most models cover the important elements that you need for the work. This lecture topic deals only with the more common one, the ADDIE model. ADDIE is an acronym for analysis, design, development, implementation, and evaluation. The model helps us to design instruction without problems. The most common and easy to understand model of instructional design is the ADDIE model. In this model, A is for analyse, D for design, I for implement and E for Evaluation. In some cases the two Ds may be combined into one so that the process is analyse, develop, implement and evaluate

Analyse the instructional task, learners, and your instructional situation. In analysis we need to consider the learners, the content, and the task to be performed. We may have heard the market praise or complain about graduates of a certain university usually because of the skills they acquired at the university. How do we include this in our design of instruction?

Is there a problem? What is the problem we wish to address? What do prospective employers or further education expect? Do we need the instruction? What are the characteristics for targeted learners as individuals or as a group (numbers, age, spread, pre-requisites? What do they need to know? How will I bring out the best of my students to bear on the learning of the content? What would they like to know? Will the instruction be book centred or learner centred? How complex is the subject? What is the nature of the content to be learnt? What do experts in the field believe to be the most important goals for this content area? What does current research say about the teaching of this subject? Where will the instruction be offered; in class, laboratory, workshop, outside, through distance or face to face?

Design the instruction to be delivered. This is the planning stage in the instructional design process. What do I consider to be the most important goals to achieve with the students at this level within the time available for the instruction? What levels of objectives will be included? For example, do we want to pass facts and skills or do we want students to be able to apply the knowledge or even be creative beyond the course content? What methods and tools will be used to be effective in presenting content and promoting inquiring habits of mind befitting a graduate? Concepts and facts can be learnt well individually while principles and creative skills can be presented in groups. There are instructional resources to use with individuals and those to use with groups. What is a viable instructional approach? How will I ensure that the instruction be cost effective ? How does the planned instruction fit within the institutional instructional policy? What will be important milestones and check points along the instruction? How will learners interact with each other and with the instructor during the course? What contingencies could alter our instructional plan?

One may use a schedule as shown below to draft an action map at this stage:

Topic	**Objectives**	**Test Items**	**Strategy/ Methods**	**Activities**	**Resources**

Development of instructional materials is an action stage. Writing worksheets, assignments, and teaching notes; assembling references, tools and equipment; and reference material; and developing records to be kept. Luckily each institution has certain record forms available on demand. The IDLS model is especially useful in material development.

Implementing the design follows. At this stage the materials and methods chosen earlier are used to instruct students.

Evaluate student learning to see if our desired goals have been met. The main question should be what the students learnt and not whether the teacher taught. The purpose of instruction is student learning. It is necessary to emphasise that monitoring evaluation is required at all stages of the instructional design process and not just at the end. For example we need constant evaluation even as we design to be able to choose the most appropriate plan to instruct students.

1.6 Summary

In this chapter you have explored some ideas on how you can design more effective instruction for your class. Various ideas around implementing more effective instruction have been explored. This way you can take more responsibility on what learning happens in your class.

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LECTURE TWELVE:
FACILITATING INDEPENDENT LEARNING AND PROBLEM SOLVING

By

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~~LECTURE TWELVE: FACILITATING INDEPENDENT LEARNING AND PROBLEM SOLVING~~

12.1 Introduction

In this lecture, we are going to discuss components needed for effective and efficient facilitation of independent study and problem solving techniques during teaching - learning process. This lecture will focus on the following components:

- Rationale of independent learning
- Guidelines for independent learning
- Strategies of achieving independent learning and problem solving
- Lecturer's role on independent learning
- Lecturer's role in teaching and modeling
- Modeling and practical modeling skills
- Transferring responsibility from lecturer to the learner
- Inquiry based teaching and independent learning
- Inquiry problem based instruction and independent learning
- Inquiry problem based reasoning abilities for independent learning
- Non inquiry – problem solving and independent learning.
- Problem based learning and learner independence
- Benefits of problem based approach to the learners.
- Assessment and feedback

12.2 Objectives

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

1. *Explain the rationale of independent learning and problem solving during teaching – learning process.*
2. *Explain steps involved in facilitating effective independent learning during instruction process.*
3. *Outline the role of the lecturer in facilitating independent learning and problem solving in instructional processes.*
4. *Explain the benefits of inquiry - problem based instruction over non inquiry - problem based approaches in teaching.*
5. *Discuss the instructional approaches that could be used in enhancing independent learning and problem solving skills.*
6. *Explain the constraints the lecturer is likely to face when implementing independent learning and problem solving approaches during a lecture.*

Before we proceed with this lecture, conduct this activity

	Activity 1.1 What is the rationale of independent learning and problem solving during teaching?

We begin this lecture by defining the concept of independent learning and problem solving approach in the teaching-learning process. This approach is used to engage learners minds-on and hands-on to benefit fully from their own involvement in the learning process both in the lecture rooms and outside. Based on this, could you answer the following question?

	**Intext Question** What meaning would you attribute to independent study and problem solving approaches during teaching and learning process?

1.3 Rationale of Independent Learning

In this section, we will focus on how independent learning addresses the needs of learners to achieve independence in their own learning. Besides, this approach reduces learner dependence on lecturers. Independent learning promotes own learning as a life skill. According to Kolb's (1984), learning constitutes the following**:-**

- *Prepares learners for new situations and experiences*
- *Assists in acquiring new knowledge, abilities and skills, values and motivation*

- *Enables learners to analyze learning situations in context.*
- *Develop appropriate strategies for action promoting acquisition of knowledge.*
- *Take responsibility of their own learning and work through problems.*
- *Provide opportunities and strategies for learning independently.*
- *Learners to initiate and actively participate in own learning.*
- *Explore issues with meaning and relevance to own learning.*
- *Individual learners bring different perspectives and experience to class.*

	**Intext Question** Explain the usefulness of independent learning and problem solving in promoting learner supremacy during the learning process.

1.4 Guidelines for Effective Independent learning and problem solving.

Following our discussion on the need to engage learner during the teaching – learning process you should consider providing detailed orientation about class procedures, learner expectations and instructional methods that reflect preferred learning styles. Burns (1995) propounded guidelines for enhancing learner independence which include:-

- *Reflect on your work style and preferences*
- *Provide orientation and class procedures.*
- *Learners learning style and preferences*
- *Determine program and learner needs and activities*
- *Consult with learners to determine their needs and mode of assistance required.*
- *Assess the level of skills and tasks preferred.*
- *Create personalized attention with learner*

•*Teach and coach new skills through Practice*

•*Feedback on performance of new skills and provide feedback in practice situations.*

	Activity Discuss how the guidelines could be used to assist learners gain independence during the teaching learning process

1.5 Strategies of achieving independent learning and problem solving

In the attempt to optimize on learner independence and achievement, the lecturer should consider coaching as a strategy in fine tuning and modifying learner decisions to promote adaptation to independent learning and problem solving skills. Further, the lecturer should develop work plans to monitor learner progress in adapting and applying acquired knowledge in new environments. To achieve this, delegate tasks on a stepwise basis, document progress on the implementation of skills and spell out time frame upon which assigned work could be accomplished. In support of this contention, Lumsdaine and Lumsdaine (1994) emphasized creative problem solving as a strategy of gaining independence on part of learner. Based on this, the lecturer should take cognizance of the following:

•*Observe and coach learner to fine tunes, decisions, make modifications and adaptation to new environments.*

•*Document training provided application of skills*

•*Provide work plans modification and adaptation in new situations.*

•*Delegate skillfully the scope of tasks to be performed in given environments.*

•*Monitor delegated tasks focusing on outcomes of learning*

•*Create and manage schedules spelling out the time frame for achievement.*

•*Document performance of tasks where you compare performance to a given standard and observe attainment.*

7. *Regular debriefing sessions to keep track of skills acquired.*
8. *Give directions, solve problems arising and manage learning process.*
9. *Manage conflicts among learners.*

- ✓ Pay attention to signs of conflict arising from independent learning.
- ✓ Preempt conflict, address issues and stimulate independence.
- ✓ Encourages peaceful coexistence in facilitating independence.

	Activity Discuss how workplace, delegation of tasks and conflict management would enhance learner independence and problem solving skills during teaching learning process.

1.6 Lecturer's Role in Independent Learning and Problem solving.

In this section, we present the role of a lecturer in stimulating independent learning. This could be achieved through creating a rich learning environment, cordial relationship between lecturer and learners and building teams for increased learner involvement. In support of this view (Brooks 1995, Smith and Renzulli 1984, Felder 1993, Hermann 1999) proposed the following activities which may sustain learner independence during the learning process:

a) Learning Environment to further independence using resource based learning

- ➢ ***Assist concisely and accept responsibility to make decisions on their own learning.***
- ➢ ***Encouraging learner motivation, self-confidence and curiosity in problem solving.***

- ***Create a sensitive, flexible and responsive climate to facilitate independence.***
- ***Resource based learning and learners access resources to stimulate problem solving.***
- ***Strong library services, guidance support and freedom to control own learning.***

b) Relationship between Lecturer

- ✓ ***comprehensive acceptance of responsibilities for own learning***
- ✓ ***discover the personal meaning of new knowledge and experience.***
- ✓ ***Judge learner's readiness for increased responsibility.***
- ✓ ***Use strategies, approaches and techniques based on collaboration***

	**Intext Question** Explain how learning environment could further learner independence and problem solving skills.

1.7 Lecturer's Role in Teaching and Modeling Skills and Independent Learning

The lecturer can adopt varied teaching and modeling approaches to practicalize concepts taught. Modeling helps to create semblance with content delivered or sketching features that raise internalization of ideas and boost creativity. This includes; practical skills, transferring responsibility to the learner and mastery of preferences in learning among others. This confirms the arguments of Felder 1993, Gardner 1999, 2006, Grasha 1996 that modeling creates problem solving skills, promotes independence and captures varied intelligences resulting in improved learner achievement. Based on this, lecturer should embrace modeling and practical approach to learning.

1.7.1 Modeling and Practical Learning Skills

- ✓ ***Effective Performance of task through schematic representation of ideas.***
- ✓ ***Transition to independence through modeling and demonstration ideas in new situations.***
- ✓ ***Practice opportunities, monitor progress towards independent decision making and problem solving.***

Learners would:-

- ✓ ***Eventually make own decisions to boost own learning,***
- ✓ ***Connect what they already know, with what they are learning to facilitate mastery of concepts and apply in new environment.***
- ✓ ***Make judgement and references in different situations.***
- ✓ ***Apply new ideas and devise pleasure from learning independently.***

	Activity Using relevant examples, explain how you would adopt teaching and modelling skills to realize maximum learner achievement during the teaching-learning process

1.8 Transferring of responsibility from lecturer to learner

The lecturer should transfer responsibility to make decisions and performance of tasks to the learners with due regard to readiness to independently engage minds on hands on during teaching – learning process. To achieve effective problem solving skills, lecturers should adopt hands-on, minds on approach (Felder 1993, Kolb 1984, Hermann 1999, Hunt 1971, Myers and Myers 1980). The lecturer should adopt the following:

- ✓ ***Show the learners how to perform assigned task.***
- ✓ ***Provide practice with less control of the learning process.***
- ✓ ***Structure activities to capture learner imagination and promote independence.***
- ✓ ***Use the activities independently on a stepwise basis to facilitate problem solving skills.***

3. Knowledge and Understanding of learners

The lecturer should be able to master learner preferences, learning styles in integrating program activities that sustain attention and encourage independence. Such activities are:

- ✓ ***Learners learn a skill at one level, uses the skill to learn other skills or content in subsequent activities.***
- ✓ ***Observe and reflect on learner's learning processes and use to stimulate independence.***
- ✓ ***Be proactive, for learners to succeed as independent learners and promote hands on, minds on learning processes.***
- ✓ ***Understand strengths and weaknesses (socially, emotionally, intellectually and physically) and integrate for sustained independence.***
- ✓ ***Identify exceptionalities, health, cultural backgrounds and mainstream to facilitate independence.***

1.8.1 Collaborative Instructional Techniques and Independent learning.

In an attempt to achieve independence during teaching -learning process, the lecturer should assume the role of a team player (Grasha 1996, Felder 1993, Brooks 1995). In addition, the lecturer should adopt cooperative, small group and whole class learning to capture preferences and learning styles of all learners. The approaches include:

*i) **Cooperative, small group and whole class learning.***

*ii) **Learners select from a variety of settings, resources and styles.***

*iii) **Structured experience to boost independence***

- ***Instructional approaches that facilitate Independent learning and problem solving***

- ✓ **Divergent thinking**
- ✓ **Concept mapping**
- ✓ **Journal writing**
- ✓ **Learning centres**
- ✓ **Inquiry process**
- ✓ **Independent research**
- ✓ **Student teacher conferences**

This supports the position of Myers and Myers 1980, Burns 1995, Brooks 1995, Hermann 1996 and Kolb 1984, all of whom stress experiential learning as a strategy of gaining independence and problem solving skills.

	**Intext Question** Discuss how you would use varied instructional approaches in facilitating independent learning and problem solving skills

•*5 Support for learners*

The lecturer should treat independent learning and problem solving as a goal and a process of promoting skill development and life learning. To achieve this, devise approaches of discerning learner characteristics and influence on own learning. These include:

- ✓ ***Independent learning as a goal and a process:***
- ✓ ***Methods of learning and learner's characteristics***
- ✓ ***Develop captivating learning programs***

	**Take note 1.1.** ***10. Gains for the learner*** ✓ ***Ability to respond to change*** ✓ ***Transferable skills*** ✓ ***Allows for different learning styles*** ✓ ***Own judgment of learning*** ✓ ***Self direction is motivating*** ✓ ***Pre-empt conflict, address issues*** ✓ ***Encourage peaceful coexistence***

1.9.0 Inquiry – Problem based instruction and independent learning

Problem solving or inquiry based learning is useful in developing critical thinking, concept mapping and mind writing of issues confronting independent learning. To realize this, the lecturer should create a learning environment that is challenging with interesting activities and varied materials that provoke divergent thinking. As a lecturer, create pathways of accommodating multiple intelligences and varied learning styles to propel individual learners to independence. The following are highlights for gaining independence:

- ✓ ***Challenging, interesting activities and rich materials for learning.***
- ✓ ***Pathways of accommodating different intelligence and learning styles.***
- ✓ ***Learners make choices, contribute to learning experiences and managing situations.***
- ✓ ***Learners hands on and minds-on e.g. case studies, experimentation.***
- ✓ ***Experiential learning and rich opportunities for problem solving.***

1.9.1 *Inquiry-Problem-based approach and independent learning*

- ✓ ***Felt difficulty of the task***
- ✓ ***Location and definition of concept***
- ✓ ***Discerning concepts on step by step basis***
- ✓ ***Reflective thinking to gain thorough mastery***
- ✓ ***Observation and experimentation leading to acceptance or rejection***

- ***Inquiry-Problem – based learning for independence revolves around:***
  - ✓ ***Multifaceted activity involving making observations***
  - ✓ ***Posing questions, examining sources of information.***
  - ✓ ***Planning investigations and observations***
  - ✓ ***Reviewing what is known against experiential evidence***

	Activity Discuss the implications of using inquiry – problem based learning on attainment of independence during and after the teaching learning process

	**Take note** •*Benefits to the learner:* ✓ ***Do more than just reporting on topics covered.*** ✓ ***Eliminates memorization and regurgitation of context.*** ✓ ***Creates new and deeper mastery of situations.*** ✓ ***Identification and application of solutions to specific topic*** ✓ ***New alternatives, prior knowledge and improved skill processing.***

1.10 *Inquiry Problem based reasoning abilities for independent learning*

The lecturer should adopt inquiry – problem based approaches in developing reasoning abilities in the learners to encourage independence during the learning process. This method could adopt case studies, grouping and small groups. Again, individualized demonstration could be used to provoke creativity in the learner during teaching- learning process. This strategy revolves around experiential learning that fully engages learners hands on, minds on at all times. This process engages the learner in exploration, invention, expansion and elaboration of existing knowledge to manipulate future experiences as they control own learning.

	Activity 1.1 Explain how you would demonstrate the learning cycle model in the

	teaching-learning process

1. Exploration (experience) - navigates immediate environment and beyond to boost mastery and internalization of ideas.

2. Invention (interpretation) - stimulates creativity through diagnosis of existing theories, practices and application of new situations.

3. Expansion (elaboration) - extends understanding of prior knowledge into the horizon to generate new techniques of solving problems and manipulation of new environments.

1.11 Learning cycle model can be expanded into 5 levels

i) Engagement e.g. experience, provocative situation and manipulation of environment.

ii) Exploration e.g. group objectives, explore references, questions and draw conclusions.

iii) Explanation e.g. solving the problem, group solution, problem manipulation.

iv) Elaboration e.g. testing solutions, special events and activities, trial solution.

v) Evaluation e.g. implication of results, effects and application, generation of new knowledge.

1.12. Non Inquiry-problem solving and independent learning

Non-inquiry-problem solving approach emphasizes lecturer dominated teaching learning process. The mode of instruction is anchored on overdependence on the lecturer as the custodian of knowledge. In this context the lecturer knows everything excluding nothing and the learner remains a passive participant in their own learning. The implication of this method is that learners are forced to agree with the position of the lecturer even though it may be wrong. On the other hand, learner centred inquiry-problem based approach remains nourishing with the lecturer sequentially offloading tasks to the learner to boost level of independence. In this method, learning outcomes are high and captures varied learning styles and preferences. The benefits of this strategy in teaching are:

1. Learner-centered /inquiry, problem solving and learner independence

- Remains a facilitator during teaching learning process.
- ***Realize higher learner achievement, improved skill acquisition.***
- Cooperative and collaborative learning, shared approach to learning.
- ***Improvement in reasoning ability, integration of divergent thinking.***
- Proactive and inquisitive approach to problem solving.
- ***Showed higher overall performance of assigned tasks.***

- Develops critical and divergent thinking skills.
- ***Transcends all learning styles and facilitates inclusive learning.***

2. Teacher centered/ Non Inquiry- problem solving and learner independence

- Overbearing and dominating learning process
- ***Showed lower improvement in reasoning ability.***
- Kills initiative and loss of sense of creativity.
- ***Showed lower overall performance of assigned tasks***
- ***Low learner achievement and weak overall competence***
- Overdependence on the lecturer and over-emphasis on learner authority.
- Promotes rote learning or regurgitation of content making learners passive participants in own learning.

	Activity 1.1 Using appropriate examples, discus the uniqueness of non inquiry – problem solving and inquiry – problem solving techniques in securing learner independence during the teaching – learning process

1.13 Problem-based approach to learning and learning independence.

Problem-based approach to learning and learner independence focuses on encouragement of self directed learning and promoted self reliance as life skill. This strategy is guided by discussion, demonstration, adversary approaches among others to stimulate desire for independent learning. In addition, computer based instruction is used to accelerate acquisition of knowledge and management of new situations. This method keeps the learning thinking and practicalizing skills learnt to solve problems in immediate environment and beyond. The approach is suitable for all types of learner preferences and styles. The benefits of the approach to the lecturer include:

	**Take note** • ***Teach self directed learning techniques*** • ***Discussing, supporting problem solving*** • ***Learners are expected to analyze problems*** • ***Locate relevant materials and resources*** • ***Use computer based technology*** • ***Develop habits of life learning*** • ***Develop independent study skills*** • ***Practice problem identification and outcomes***

	• ***Problem solving as effective means of developing and securing*** • ***Realizing desirable learning outcomes*** • ***Learners evaluate, draw inferences, make decisions on solutions to problems*** • ***Increases retention and learner achievement*** • ***Transcends all learner learning styles.***

	Activity Using relevant examples, discuss the benefits that would accrue to learners whose lecturer adopts problem based approach to learning and learner independence during teaching process

1.14 *Benefits of problem based approach to learners;*

The learner is the greatest beneficiary in instances where the lecturer adopts problem solving approaches during the teaching learning process. The learners benefit through cooperation between the lecturer and the learner, focus on high order thinking skills and the learner engaged minds on hands on during the learning process. In addition, problem based approach stimulates creativity through concrete experiences and appropriately structured learning process. In the process the learner executes such experiences to create better understanding of new situations. To realize this, the learner is actively involved in their learning, creates relevance of content and consistently using acquired knowledge to manipulate the environment for sustained learning. The benefits of this approach to the learner include:

- ***Teaching and learning that is cooperative between lecturer and learner***
- ***Used in teaching higher order thinking skills and independent learning.***
- ***Hands on and minds on when structuring content delivery.***
- ***Learning experiences anchored on constructivist approach to instruction.***
- ***Active, relevant, applied and contextual manipulation of context.***
- ***Learning environment supporting sustained inquiry e.g. learning cycle approach to instruction***
- ***Rich in concrete experiences and application in new situations.***
- ***Planning designing a problem based learning experience and customizing to the environment.***
- ***Executing such experience, observation in real life situations.***
- ***Assessing, evaluating learning outcomes and domesticating to solve problems.***

	**Intext Question** Discuss the circumstances under which the benefits of problem based approach may be compromised during the teaching learning process

1.15 Review Questions

Activity

1. Explain the steps involved in facilitating effective independent learning and problem solving during teaching learning process
2. Highlight the instructional approaches a lecturer could use to enhance independent learning and problem solving skills during and after instruction
3. Discuss the benefits that may accrue to learners whose lecturer adopts independent learning and problem solving as methods of instruction during a lecture.

4. ***Discuss the contemporary issues arising from the adoption of independent learning and problem solving as instructional approaches in instruction.***

1.16 **Summary**

The development of skills in independent learning and problem solving stimulates critical thinking and greatly enhances reflection. In this approach, the learner goes through examples used in the delivery of content on a stepwise basis to work through subsequent assignments

or exercises. During this time learners adopt a trial and error approach in dissecting components of the assigned work. In doing so, the learner persistently discover constraints to the mastery of requisite skills and modalities of overcoming such challenges. In this regard, reliance on the lecturer is reduced to that of a facilitator rather than custodian of knowledge. Over-dependence on the lecturer kills initiative on the part of the learner often resulting in regurgitation of notes taken during lectures rather than sourcing additional data to boost reflection of learning outcomes. As lecturers, we need to offload our dominance of the learning process to the learners who in turn should control their learning but only with our facilitation. In this way we shall develop critical thinking skills in the learner and promote independence in their own learning in class and outside. By implication an independent learner will move proactively and creatively and subsequently enjoy learning as a life skill unlike dependent learners who deeply rely on future authority to guide their learning.

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LECTURE TWELVE

GENDER AND PEDAGOGY IN HIGHER EDUCATION

By

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LECTURE TWELVE : GENDER AND PEDAGOGY IN HIGHER EDUCATION

Lecture Outline

1.1 Introduction

This is the last lecture in this volume and is one in which we discuss cross-cutting issues. In this lecture we want to focus on gender and pedagogy. This unit introduces you to some commonly used gender related terms that will make you understand the lives of men and women students. This will be followed by a presentation of gender pedagogical dimensions showing their practicability in enhancing gender equity in the teaching and learning process. The knowledge acquired in this presentation will make it possible for you to be able to conduct your teaching in a way that will make male and female students appreciate each other as equal partners and friends.

1.2 Objectives

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

1. Define gender
2. Describe gender equity
3. Explain gender equality
4. Discuss the relevance of gender equitable pedagogy in the teaching and learning process
5. Apply suggestions given in order to achieve gender equality in the teaching and learning process.

As we proceed with this lecture lets think about the question below:

Intext Question

Why should educators be concerned with the needs and interests of male and female students during the teaching and learning processes?

1.3 Definition of Terms

1.3.1 What is Gender?

As we continue to reflect on our guiding question in intext question 1.1, let us now try to understand the meaning of gender. Gender as a term was coined in the 1960's to refer to the social cultural differences between women and men, which are socially constructed, in contrast to the physical and biological distinctions between them. The social cultural differences are created in our families, peer groups, educational institutions, church groups and the media. We can observe the social constructions of gender by:

a) Identifying the roles, responsibilities, social norms, values, attitudes, constraints and opportunities that are deemed appropriate for boys and girls, men and women.

b) Measuring dynamism which means that the socially constructed roles are made by society and they can therefore be changed.

Thus, gender as a concept helps us to:

c) Make our society more just and equitable because we can conceptualize the nature of women's subordination, which means that subordination can be changed or ended, since it is not biologically predetermined nor fixed (Elimu-Yetu Coalition, 2003).

d) Explain how boys and girls, men and women may be differently affected by pedagogy which fails to consider the needs and interests of each one of them.

Activity

i) Write down five differences between gender and sex?

ii) Imagine that your are teaching, what roles and activities would you assign to men and women students and why?

1.4 What is Gender Equity?

Gender equity is the process of being fair to boys and girls, men and women according to their respective needs, interests and aspirations. This means that in order to achieve gender equity you need to:

a) Give similar treatment equivalent to rights, benefits, obligations and opportunities (UNESCO, 2000).

b) Provide similar enjoyment by women and men of socially valued, opportunities, resources and rewards.

c) Apply social justice and fairness in the distribution of opportunities among boys and girls, men and women.

d) Develop and implement policies to compensate for the historical disadvantages that girls and women encounter.

Intext Question

1. In your opinion how have the gender policies enhanced the achievement of gender equity in Higher Education?
2. What challenges are likely to hinder the implementation of such policies?

When answering the above question, you may think about it in line with some of the following international and national policies:

i) Dakar World Education Forum 2000
ii) Millennium Development Goals 2000
iii) Kenya's New constitution 2010
iv) Gender Policy in Education 2007
v) Gender Policy in the University of Nairobi 2008
vi) And any other relevant policy

Activity

1. Give examples of how you are implementing gender equity in your home, for example how do you treat your sons and daughters?
2. How do you equalize men and women students in your daily interactions in the university?

1.5 What is Gender Equality?

Gender equality has been enshrined in various international frameworks, for instance, 1985 Nairobi Conference, 1995 Beijing Platform of Action and Millennium Development Goals 2000. Gender equality is the fundamental principle of human rights where boys and girls, men and women get similar opportunities to enable them participate and contribute socially, economically and politically on a level playing ground without any discrimination (Reeves and Baden, 2000). Gender equality entails:

a) Different behavior, aspirations and needs of boys and girls, women and men which are considered, valued and favored on similar ground.

b) Women and men's rights, responsibilities and opportunities should not be based on the idea of being born a man or a woman (UNESCO, 2000).

c) Boys and girls, men and women being full partners in their home, community, society (Elimu Yetu Coalition, 2003) and particularly in education, which is key to sustainable development.

d) Men and women enjoy equal access to education, get similar opportunities to develop personal ambitions, interests and talents through participating on an equal footing in all the activities taking place in and out of the class/lecture room.

e) Men and women are free to choose outcomes they have reason to value (Aikman, Unterhalter and Challender, 2005), free to express themselves as students and lecturers.

f) The removal of barriers such as discriminatory laws, customs, practices, institutional practices and processes (Aikman, Unterhalter and Challender, 2005).

Activity

Give examples of gender inequalities you have experienced in your teaching and learning process.

Indicate how your treatment of men and women students is likely to contribute to gender equality.

1.6 Gender Equitable Pedagogy

Hoping that you are now familiar with the concepts of gender, gender equity and gender equality, let us now look at what gender equitable pedagogy entails. Gender equitable pedagogy:

a) Provides for the personal needs, interest and problems of men and women students

b) Give men and women students' freedom to enter educational institutions, learn and participate there in safety and security (Aikman, Unterhalter and Challender, 2005).

c) Develop identities where men and women students tolerate each other, promote health and enjoy economic, political and cultural opportunities (Aikman, Unterhalter and Challender, 2005).

d) Support the learning of men and women students

e) Build mutual respect among men and women students

f) Detect, make aware and integrate gender issues in the teaching process

g) Create learners who have the potential and the motivation to actively gain control over their own lives, while thinking on how to enhance equal opportunities both in and outside the classroom (Arnot, 2004).

Article 9 of the World Conference on Higher Education (1998a) reveals the importance of considering gender dimension in the pedagogical approaches. This is important since gender pedagogy:

a) Helps achieve good quality outcomes for womens' education (Aikman, Unterhalter and Challender, 2004).

b) Places men and women students at the centre of learning and encourages their active participation.

c) Makes men and women students come to realize each others 'special needs', embrace diversity and cherish it.

1.6.1 Dimensions of Gender Equitable Pedagogy

Now that we have conceptualised gender and pedagogy, let us address the dimensions of gender equitable pedagogy, by trying to show how we can apply it in our teaching and learning practices. In our previous lecture 'introduction to pedagogy', you were introduced to meaning and aspects of pedagogy. You will agree with me that pedagogy covers mainly institutional daily activities where you interact with the students in delivering different aspects of the curriculum. These aspects can be summarized as follows:

a) Gender sensitive curriculum

b) Planning for gender friendly teaching

c) Gender friendly teaching

d) Gender friendly communication

e) Gender friendly teaching and learning materials

f) Supportive gender friendly learning environment.

Let us now try to address each of these aspects of gender and pedagogy.

Gender Sensitive Curriculum

The document *Higher Education and Women: Issues and Perspectives* prepared for the UNESCO conference identified among other areas the absence of a gender dimension in Higher Education curriculum (UNESCO, 1998b). We need to know that the knowledge we teach our students should have a gender dimension. This means that:

a) Subjects taught whether core or high status should attract both men and women students

b) Subjects taught whether electives, optional or low status should attract both men and women students.

c) The subject matter should cater for needs and interests of men and women students.

Take note

As long as we do not consider the experiences and expectations of men and women in shaping our curriculum, what this means is that it will not be gender sensitive.

So far we have looked at what a gender sensitive curriculum entails, you can now attempt questions in activity 1.4.

Activity

Do you think the subject you teach is gender sensitive? Give reasons.

In your views, what experiences have you encountered in helping men and women students choose their subjects?

Do you think men and women feel confident in making subject choices that may not be traditionally male or female subjects? Give reasons.

Planning for Gender Friendly Teaching

Let us now find out how you plan for gender responsive teaching. Haggis (1995) has provided us with appropriate guidelines which we may need to reflect on. For instance:

a) What will enable me to give equal attention to men and women students in the classroom?
b) What will encourage women students to participate in different class activities?
c) What positions of leadership and responsibility in class, for example group leaders do we give to women students?
d) Would we want to give men students' tasks and responsibilities usually associated with women?
e) Can we be able to design activities for the class in which gender-stereotypes are broken down, for example role playing games in which women play the parts of doctors, pilots, engineers and vice-versa?
f) Can we prepare teaching materials where women are seen as taking an active role. For example, women inventors, women in history, women in sports etc.

You should not:

a) Allow men to dominate, bully or ridicule women in class
b) Negatively label women in the class
c) Encourage competition between men and women or divide the class into men and women groups for any activities, instead encourage cooperation and have mixed groupings.

A teacher can encompass gender approach in planning, for instance in practical science lessons you can ensure that men do not dominate learning processes as a way of maintaining their superiority in the presence of women (FAWE, 2006).

Activity

In your opinion, what are some of the challenges you are likely to encounter when planning for gender friendly teaching?

Gender Friendly Teaching

Gender friendly teaching approach incorporates the values, takes into account the interests, needs and concerns of men and women students in the teaching process (Parker and Rennie, 2002). Use of gender friendly teaching places students at the centre of learning, encouraging their active participation in learning that fulfils the needs and interests of all on board. It further makes classroom experience equally empowering to men and women students through different interactions. The interactions are based on:

a) relations between lecturer and learner
b) relations between different groups of learners

Take note

We should always remember to:
Help women students develop their confidence as they interact with the learning experience.

Encourage men and women students to interact and discourage men from dominating in different interactions during instruction.

Give men and women students equal attention and space to respond, ask questions since this enhances equal expectations.

When evaluating whether we are using gender friendly interactions, we are simply asking: Do men and women students respond differently to lecturing, coursework, project work and other learning activities and are they equally motivated? This can only be achieved if you select and use teaching methods that ensure equal participation of men and women as students and leaders.

For instance, what do you think is happening in this picture? Relate your answers to the experiences you have with men and women students in class/lecture rooms.

You may use some of the following methods to enhance equal interactions with the men and women students in the course of the learning process:

i) group work
ii) group discussions
iii) role play
iv) debates
v) case studies
vi) explorations
vii) practicals in the laboratories
viii) project

These methods are gender friendly because they:

i) Give both men and women students an opportunity to participate more actively.

ii) Encourage men and women students to speak out.

iii) Enhance socialization of men and women students which will make them understand and respect the needs and interests of each other.

Activity

1. Give examples to show how you have been able to practise gender friendly teaching.
2. What challenges are you likely to encounter when applying gender friendly teaching.

I now look at how we can enhance gender friendly teaching using the lecture method. You are aware both from our experience as university lecturers and from the presentation on 'effective lecturing' that lecture method is the most commonly used method of teaching in the university. When you are using the lecture method you may need to consider how you can make your lecture more gender friendly. For instance, you may need to consider some of the following aspects:

a) Direct questions to men and women students

b) Give equal attention to men and women students

c) The examples and activities you use should reflect the interests and experiences of men and women students

d) Be sensitive to the interests and aspirations of men and women students

e) React equally to the wrong/right answers given by men and women students

f) Appear to expect questions/answers from both men and women students

g) Give answers equally to difficult questions asked by men and women students

h) Give equal intensive and constructive feedback to men and women students

i) Note where most of the jokes and anecdotes are directed to, men or women students

j) The tasks you give to men and women students should be of equal status in terms of difficulties.

k) Reward/reinforce equally answers given by men and women students

Thus, as shown in this picture the lecturer should be a skillful listener to all students irrespective of their gender.

Activity

Imagine that you are giving a lecture to both men and women students, give examples to show how you are likely to make your teaching become gender friendly.

Gender Friendly Communication

In the lecture topic 'English as a Medium of Instruction' you remember what you learnt that language is a tool used to communicate ideas clearly either through verbal expression, spoken or written word, gestures and images reveals what you think and believe. This means that, as lecturers you need to choose and use it appropriately with your students. The presenter noted that the communicative right of lecturers and students are unequal, where lecturers are seen to be talking most as compared to the students. Thus, you will need to incorporate gender responsive language. Gender friendly language treats men and women as equal partners, enhances a conducive environment for learning, this further enhances students' performance. You should avoid use of gender unfriendly language in your teaching because it:

a) Reinforces negative gender attitudes which can bring about differences and inequalities

b) May unconsciously or deliberately make you say things in class that discourage women students from performing well.
c) Enhances notions of masculinity and superiority of men, the femininity and inferiority position of women.

Activity

Reflecting on your experience as a lecturer, give examples of what you think may have made the language you use in lecturing gender biased.

In thinking about activity 1.8 above you may be guided by some of the following ideas:

i) Women cannot perform as well as the men
ii) Women should not allow themselves to be outperformed by men in academia
iii) Women are not meant to take subjects such as mathematics or the sciences because these are meant for men or are too difficult for women to study.

In our verbal and non-verbal communication there are times you consciously or unconsciously use sexist language which can negatively affect men and women students' participation and performance in class. PALAMA (no date) noted that gender bias in language can influence how men and women respond to information. Research has shown that women revealed more when unbiased language was used compared to exclusive use of masculine language (PALAMA, no date). For instance non-verbal communication may include:

- staring
- ogling
- touching
- winking
- use of pornography

Verbal communication may require you to use abusive language without being conscious of the men and women students. Examples of statements with connotations of abusive language may include:

- *'...they are showing off their private parts and they know very well there are men who are looking for that thing…;*
- *we whistle so that others who may be thinking of wearing their short skirts may learn a lesson and stop…'. (Omale, 2001);*
- *'...you are a Malaya [prostitute] and should walk out of the office…'.*

Take note

You may need to be conscious of bias in the language you use by ensuring that it is gender responsive and free from any abuse.

Language is sexist for instance if you refer to general managers, lawyers, and other professionals as 'her' or 'him' while referring to nurses and secretaries as 'she' or 'her'. Our goal of teaching is to identify with our students, not to insult them (PALAMA, no date). Thus eliminate sexist expressions from all communications both spoken and written. For instance:

i) Use neutral expressions

   - Use 'chair' or 'chairperson' rather than 'chairman'
   - Use 'businessperson' rather than 'businessman'
   - Use police officer' rather than 'policeman'

i) Avoid overuse of pairings (him/her, she/he, his/hers). Too many such pairings are awkward.

ii) Avoid sexist salutations such as 'Dear sir' or 'Gentleman'. Its always preferable to use the person's name.

Gender friendly teaching and learning materials

Teaching and learning materials are central to effective pedagogical processes and are critical for shaping the students minds (FAWE, 2006), thus they need to be gender friendly if men and

women students have to benefit from them. Musokotwane, Siwale and Nkhata (2001) noted the importance of using gender friendly materials. This is because they:

a) Make learning become more meaningful for both men and women students

b) Encourage men and women students to grow up in mutual respect of each other

c) Motivate men and women to equally participate in the learning process

d) Erase gender stereotypes in the minds of men and women students

You need to be aware of the following gender aspects which are likely to reinforce inequalities in the materials we use for teaching:

a) Gender stereotypes

b) Lack of gender specific needs and interests of men and women students

c) Inequitable distribution of materials given to men and women students

d) Lack of presentation and appearance of men and women in the teaching materials

e) Lack of men and women authors/researchers as part of reference materials for your lecturer notes.

Activity

Which of the materials you have been using do you think reflect gender friendliness and which ones are stereotyped? Give reasons for your answers.

Supportive gender friendly learning environment

As mentioned in the lecture topic ‘management of learning environment’ you will agree with me that learning environment contributes to the achievement of objectives since it is the space within

which the whole learning takes place. Gender responsive learning environment welcomes, nurtures and educates both men and women students in order to utilize their full potential. This enables them to improve their participation, behaviours and performance. Thus, you should make every effort ensure that the learning environment is safe and secure for both men and women students.

You should be aware of the impact of seating arrangements because it impacts on the nature of interactions in the class/lecture rooms. For instance,

a) Is the sitting arrangement spontaneous?
b) Do men sit at the front and dominate? Are the women bundled in a corner and left alone?
c) Who sits with whom?

While ample physical space and facilities are important in making the learning environment conducive to men and women students, you may need to check on some of the following aspects:

a) Arrangement of the sitting space where students seat around a table facilitates group interaction. This arrangement enhances cooperative learning and socializing enabling women to speak out and overcome their shyness.
b) Stools in laboratories should be appropriate in size and shape thus enabling effective participation of both men and women students.
c) Well-maintained toileting facilities for men and women students.
d) Establishing rapport with the students helps build mutual respect and minimize classroom behavior problems. A deeper understanding of your students needs, problems and interests will enable you to plan instruction that succeeds.
e) Any form of harassment should be avoided
f) Organise classroom and extra-curricular activities to ensure that women students are not overlooked or 'excluded' in the learning process.
g) Organise special programmes to encourage women students to get involved in activities that have been traditionally considered mainly for men.

Take note

Lack of appropriate learning space and equipment can constrain women students' participation especially in practical oriented subjects. This is likely to lead to their poor performance.

Suggestions on how to improve on gender equitable pedagogy

After having looked at the dimensions of gender equitable pedagogy, you may need to reflect on the question presented in the box below:

Intext Question

What needs to change, what does the university need to do to achieve gender equitable pedagogy?

Although we have mentioned some of the suggestions in the course of this lecture, there are however general comments your institution may need to consider in order to enhance the achievement of gender equitable pedagogy. For instance:

i) Help develop curriculum/classroom organization that allows for equal participation of girls and women.
ii) Consider breaking down hierarchies and power-networks that exclude girls and women from participating in the teaching and learning process
iii) Organize for 'gender sensitization or awareness where you will be made aware of how use of inappropriate pedagogy can sustain gender inequalities and have negative consequences for men and women students. This will sensitize lecturers in gender issues and make them aware of the hurt that they cause when discriminatory methods and materials are used for teaching. This is important if we have to acquire gender responsive teaching skills for instruction which would help you handle gender issues both in and out of the classroom.

iv) Learn how to include gender equitable skills in the teaching and learning process, since this would lead to the attainment of quality education and achievement of MDGs and EFA for gender equality.

v) Advocate for feminist pedagogy for inclusive teaching since it encourages use of collaborative and cooperative learning environment in which students ideas count as contributors to the construction of knowledge. This makes the students responsible for their own learning. To implement feminist pedagogy one may need to accommodate cooperative learning, discussions, small group activities and exploratory reading and writing. Use of feminist pedagogy in the classroom means that both men and women will be given an opportunity of being more responsible for the creation of relevant and useful knowledge.

vi) Haggis (1995) advices us to avoid labelling subjects and knowledge as 'masculine' or 'feminine', motivate men and women to achieve by increasing their expectations and taking time to help them overcome problems arising from gender socialization.

Achieving gender equality in education for enhancement, inclusion and participation of men and women means that educational quality must be accompanied by broader changes in society.

Summary

This lecture has opened our eyes to gender and pedagogy. We have learnt that since gender is socially constructed, it means that it can be deconstructed. Consequently, this would make us change our teaching and learning strategies so that we can accommodate the needs, interests and aspirations of men and women students as equal partners in the learning process. Thus, gender equitable pedagogy can only be accomplished if you become grounded in gender responsive teaching skills and approaches. Any discriminatory aspects likely to undermine the aspirations for gender and pedagogy should be addressed if we have to achieve EFA and MDG goals.

Activity

1. What is the difference between gender equity and equality?
2. What challenges are you likely to encounter in applying gender pedagogy both inside and outside the class/lecture room?
3. Give suggestions on how you are likely to deal with these challenges.

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