PROFESSIONALISM IN TEACHING AT SELECTED DEPARTMENTS OF KNUST: ENHANCEMENT OF QUALITY EDUCATION

A THESIS SUBMITTED TO THE BOARD OF POSTGRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE, MASTER OF ARTS (ART EDUCATION)

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AUGUST 2006

DECLARATION

I hereby declare that this submission is my own work towards the M. A and that to the best of my knowledge, it contains no materials previously published by another person, nor materials which have been accepted for the award of any other degree of the University except where due acknowledgement has been made in the text.

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ACKNOWLEDGEMENTS

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ABSTRACT

Every society wants to develop its human resources and potentials to enhance total growth. Teachers in the Universities are of the idea that their main method of teaching is to lecture but not to undergo strict compliance with the selection of appropriate method of teaching. Generally, lecturing is one of the methods of teaching and the need to undergo professional teachers' training to <u>know the pedagogical training</u> of teaching is inevitable. There is no need to bring University Teacher to the classroom to be trained how to teach. This research was intended to identify professional teachers in the KNUST to know whether to make any recommendations for more professional teachers; assessment of lecturers' performance and to make curriculum framework for the introduction of professional teacher's course in the KNUST. The Researcher adopted the Qualitative and Quantitative research methods to collect, compile and analyze information for the possible solution by training more professional teachers in KNUST. The researcher quotes Vol. 2, of the 2005 QAPU report (quality Assurance and Strategic Planning Unit of KNUST) in Students' evaluation of courses and Lecturers in the first and second semesters of 2003 – 2004 Academic Year. Views from selected lecturers indicated that professional training of lecturers in KNUST is inevitable and that aspiring lecturers should first undergo professional teachers' course before they are appointed. Even though most of the lecturers did not respond to the questionnaire, it was found out that relatively few of the lecturers in KNUST were professional teachers who were trained as teachers in Teachers Training Colleges or had undergone professional teachers' courses organized by KNUST as short courses. It is recommended that the KNUST, in consultation with the Department of Art Education should make provision for the proper teaching procedure to be planted for better results which will enhance acceptable growth in KNUST which is quite of age.

CHAPTER ONE

INTRODUCTION

1.0 Background to the study

Every institution of high learning needs to grow in order to achieve academic excellence   As Kwame Nkrumah university of Science and Technology – Kumasi is within the global arena of learning, she cannot remain static. The recent celebration of a golden jubilee cautioned the university into finding means of meaningful growth in terms of quality teaching. This is why the Vice-Chancellor's report for the thirty-ninth congregation hinted on the training of sixty brilliant graduates to fill few new teaching positions and to replace the retiring ones.   Ignorance of the right method of teaching cannot make any meaningful growth, in an institution such as K.N.U.S.T. A proposal for professionalism in Teaching therefore is a necessity if K.N.U.S.T. is to maintain any meaningful growth; lecturers must accept the need to go professional in teaching. The Vice-chancellor's assertion that the KNUST is a four star University and the best university of science and Technology in Africa needs to be addressed in its proper sense.

This thesis highlights on the professional teacher who by the nature of his training can rearrange the syllabus in a proper order for treatment of content, the scope within which the topics are to be treated. Appropriate teaching and learning methods to be adopted in teaching each topic and improved approach of assessing the learner's ability. The Professional Teacher makes teaching and learning very interesting due to the approach to teaching from the known to the unknown. The teacher prepares well and follows appropriate teaching principles.

It is worth noting that for most of the Universities in Ghana, including the Kwame Nkrumah University of Science and Technology, majority of the teachers have been those students who excelled academically in their fields of study.   They are consequently encouraged to be university teachers without special training as professional teachers.   The criterion for selection for young teachers is basically knowledge in subject area.

A cursory observation and survey indicate that professional teachers perform better than non professional teachers.   Due to one reason or another, young graduates are being lured to become prospective lectures that could be described as a fast-track post-graduate cum Doctorate course. So much money is being paid as allowances to those selected post-graduate students and their supervisors. The actual methods of teaching what they learn is not highlighted probably because KNUST is not a Teacher Training College so to speak, it is very necessary that

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training courses are organized for teachers of KNUST irrespective of cost because a proper training of teachers will enhance better subject delivery.

Statement of the Problem

K.N.U.S.T. – Kumasi is among the tertiary institutions that have limited number of professionally trained teachers. Originally graduates were employed as university teachers just because, they obtained higher grades or were found academically good during their courses of study. Such prospective teachers were made teaching assistants (TAS) to first assist lecturers then some gained scholarships to study abroad or internally to become lecturers.

Student enrolment in Ghana universities have more than doubled in recent years but the number of lecturers has dwindled. That is why the Special Initiative of the Vice-Chancellor of KNUST produced a fast-track post-graduate programme to upgrade the academic standard of professional training of these lecturers to follow pedagogy. This thesis therefore seeks to carry out an investigation into the professional qualification of lecturers of KNUST and how they impact effective teaching and learning.

Importance of the Study

If many lecturers in the Kwame Nkrumah University of Science and Technology are trained to teach they can ensure quality teaching and learning. This is so because for teaching to go on successfully, application of General Principles of teaching is inevitable. It ensures preparation of the subject matter and the right teaching procedures. This procedure sets the teacher on steps to follow. He uses a source for teaching and refers to it, highlighting on relevant matter, use of appropriate teaching aids and student support materials.

Getting a first or second class division of a degree or merely excelling in university examination does not make one a good teacher but his interest in teaching and training as a teacher enables a person to perform well as a teacher. This thesis therefore seeks to propose a professional teachers' course for non-professional teachers in the university.

1.3 Objectives

- The primary objective is to find out the professional qualification of lecturers of KNUST.
- To assess the performance of other teaching methods.
- To develop a curriculum framework for the training of non-professional lecturers.

1.4 Hypothesis

Many lectures of KNUST are non-professional teachers hence they lack competence in pedagogy in teaching

1.5 Delimitation

This research was undertaken by using 30 randomly selected depa tments of the KNUST.

1.6 Definition of Terms

Evaluation- is the gathering of data for decision making on either

programme, process, event or product (students) which pertains in endeavors in either

qualitative or quantitative terms. The researcher views- evaluation as a measurement of work don

Education- educere (Greek) means lead out; or bringing out the best in the individual. It is a proces

by which your mind develops through learning at a school or college.

Pedagogy   - the science of teaching

Curriculum   - A compilation of all the subjects taught in a school or college

Encyclopedia 2004 states that it is a systematically organized course of teaching and learning.

Syllabus   - Course of study, subjects and topics taught in schools and colleges.

Lesson plan   - plan for items to be learnt by student or pupil

Lesson order   - sequence of teaching.

Taxonomy   - laws and principles of teaching

Scheme of work   - systematic treatment of subject topics for a term or semester.

Professionalism   - It is skill and standards of behavior expected of a professional person.

Professional   - some one earning money by doing a job. In view of the above, the researcher believes that a professional is well trained -person for a specific occupation. Research
                                  - To study a subject in detail to discover new ideas

Educational Administration - managing and organizing educational activity.

Specific objective	- Expected learning outcome of teaching.
Psychology	- the study of the nature and meaning of existence and reality,
good and bad.	
Edtech	- use of gadgets in education
Management	- administration of business
Sociology	- study of human behavior especially civilized society, their problems and how to solve them.
Guidance and counseling	- helping the individual to understand himself and the environment
Evaluation	- calculating or finding out in numbers; find numerical expression for something.
Measurement	- assessment of work; as in evaluation.
Etymology	- the study of the origins, in story and changing meaning of words
Performance	- done merely for the sake of getting through a duty.
Collegiality	- act of putting together a group of people (learners)
Appraisal	- examine in order to find qualities, success or needs.

.7 Abbreviations

| K.N.U.S.T | - Kwame Nkrumah University of science and Technology |
| Q.A.P.U. | - Quality Assurance and Planning Unit |

.8 Organization of thesis

Chapter One	–	Introduction
Chapter Two	–	Review of Related literature
Chapter Three	-	Methodology
Chapter Four	-	Result / their Discussion / Presentation
Chapter Five	-	Summary Conclusions and Recommendations

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CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

All the books consulted to enhance proper presentation of the Research are highlighted here. In support of this therefore, "Ebest Sally, et al (2003)[1] - writing from A to Z. indicate that "Research outside the university is used to strengthen an argument, to demonstrate the need for change, to provide additional information and verification to trace a pattern or trend, to validate ides using statistics to discover a process or a remedy, or to add spice to an otherwise unpersuasive or uninteresting piece of writing.

This Research is about improving education through acceptable teaching methods at KNUST. Anno Kwaku (2002)2 affirms that "Education is any institution that moulds character.

2.1 Some definitions of Education
Source: Oshaweb 23/ 05/ 2006 affirm that education is:

➢ The activities of educating or instructing; activities that impart knowledge or skill.

➢ Knowledge acquired by learning and instruction.

➢ The profession of teaching (especially at a school or college or university.

➢ The result of good upbringing (especially knowledge of correct social behavior)

➢ Education encompasses teaching and learning specific skills, and also something less tangible but more profound: the imparting or knowledge, good judgment and wisdom. Education has as one of its fundamental goals the imparting of culture from generation to generation. wwwb.com/robertzemeckis.

➢ Education means planned and organized activity by a consultant to impart information to employers and employees to enable them to establish and maintain employment and a place of employment which is safe and healthful.

➢ Education activity primarily involves the presentation of material by the faculty to students who are learning about the subject matter. The material being studied is fundamentally well known material, www/intersystems.com/cache/education/cachecampus//glossary.

➢ Is the propagation of a set of beliefs, or propaganda. We call it "education".

In a second sense, Education has been variously defined by Spencer and Ducasse as stated in Amofa Andrew (1996 p3)3 Students Companion in Education.

(a) "Creation of a sound mind in a sound body" Aristotle.

(b) Preparation for a complete life – spencer.

(c) "All round drawing out of the best in the individual – Ghandi.

(d) Etymologically Ducasse 1958 states that "Education or Educere (Greek) means lead out or bring out".

In School Education, there is a guide, the teacher who is considered as "the holder of the key for unlocking doors". The key is the plan which is drawn form the syllabus and which is part of the Curriculum. School Education offers formal teaching in properly established schools. Here, theoretical teaching and practical training go on.

In case of Traditional Education only practical training go on with a little of oral theory. Quoranic Education is also done in special classrooms called the mosques. There is reading and writing. This is not like School Education where formal teaching to on. They specialize in the teaching of the Quoran.

Banjos S. A (1971 p.1)[4] writes about the purpose of Education which the African puts at the promotion of material advantage for the child and the parents and the secondary aim as what can be enjoyed at a later date. He stated that: "some people probably enter the teaching profession without having in their minds any clear idea of the purpose of education. The book to suggest ways in which such an attitude may be avoided. He also indicates that any parent who sends a child to school wants the child to have a position of honour and dignity in the community and to enable his daughter to marry in due course a man of high social standing.

Banjo further describes education as an investment which will yield handsome profit in future so that when parents become old and infirm they may be able to lean comfortably on their children. True education as he stresses should train a child to live usefully as a child, to speak wisely as a child, to feel correctly as a child and to think rationally as a child; so that when he becomes a man he will live, speak, feel and think similarly as a man.

Banjo admits that education, which does not result in some material advantage to the person educated, can not be described as completely successful. He indicates further that; "man is not body only; he is body mind and spirit and his education must seek the welfare of the three aspects of life" man does not live, by, for himself alone. He is a social and political animal and education must take account of this. Education develops the child as a desirable

and useful member of his community. Banjo concludes that the teacher must lead the child to drink deep out of the fountain of western knowledge and culture, while learning the history, customs and traditions of his own country and doing his best to preserve all that is good and of value in them.

In summary, the researcher would like to stress that people should not be made teachers without planning to teach. A mere transfer of knowledge without adequate training to teach is a disadvantage. All that long writing thesis as far as he is concerned is to help the K.N.U.S.T to sustain an image of progress after fifty years existence as an institution of high learning. It is also necessary where the University clocks years above a golden Jubilee.

WIDEN F. Marvin and Andrews Ian (1987 p.1)5 state categorically that: "Efforts to improve the schools continue both from within institutions and from without. Each year beings a new set of reports about how schools have failed, another set of prescriptions or innovations   for adoption, and new mandate designed to improve teaching and learning through legislative means. The driving force behind such efforts, which of late have taken on much more serious turn than in the past, is the perception that schools can and must be improved. While change in society has become common place, the schools remain much as they always were; we appear to be preparing children for a type of future that may not come to pass. For the past several decades, despite huge efforts, the educational establishment at   all levels has shown a remarkable inability to implement and maintain more effective ways of teaching or to create school settings that are productive and exciting learning environments for all children".

Staff Development
To improve the teaching situation at KNUST, teaching staff development is emphasized in the book under reference, which also quotes Sparks, (1984 p. 72)[5]. It states among other things that staff development in school is "any training activity that helps teachers improve teaching skills". Some others describe it as in-service training. A workshop is organized for a number of teachers on instructional theory at a conductive place with air of good feeling.

Wideen Marvin indicate/that teachers are placed at the centre of any improvement effort and assumes that the work of the teacher, and the visions that teachers have about improving their work, provide the starting point. It sees collaboration, collegiality and mutual adoption as necessary ingredients in any school improvement plan. The necessity for staff development as argued by the

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author in question hints on the increase in knowledge base the new social complexities in which schools find themselves today and the continued need for self-renewal

CARR V. (1989 p. 79)[6] Assets that quality in teaching indicates that efficient production is believed to depend on concise specification of objectifiable goals, the effective application of skills and rigorous systems of appraisal, which will provide a guarantee of excellence. The production process is; therefore, dependent upon sophisticated management justified in terms of "economic imperatives"

2.2 **Curriculum**

Definition – Longman English Dictionary of contemporary English (2001 p. 332) defines curriculum as "the subjects that are taught by a school or college" Collins Dictionary (1973)[8] defines it as "all the learning experiences deliberately planned to meet the educational needs of pupils and students" Psacharopoulos (1987)[10] calls curriculum as "all that is taught in schools and colleges"

As cited by Owusu-Asamoah J. A. 1995 UNESCO (1983)[9] describes the technical and vocational education curriculum as "the key for unlocking doors which are otherwise closed to the students in transition from schooling to the work place". Unesco believes that the key is in the hands of well trained and educated technical/vocational education teachers.

The researcher views curriculum as a collection of syllabuses of courses taught in schools and colleges. It is prepared by subject panels representatives of government industry and commerce (graduate employment base) Exam body and relevant professional bodies. Highly educated personnel sit and plan curriculum to be based on the needs of the people concerned. If the Curriculum is not based on the needs of the people, the society can not develop. Planners of curriculum ensure that it is also based on their beliefs and values. For the society to be able to move along with the developing world, they set objectives and work towards it. Curriculum also caters for the theories of the society.

Below is a format for drawing curriculum:
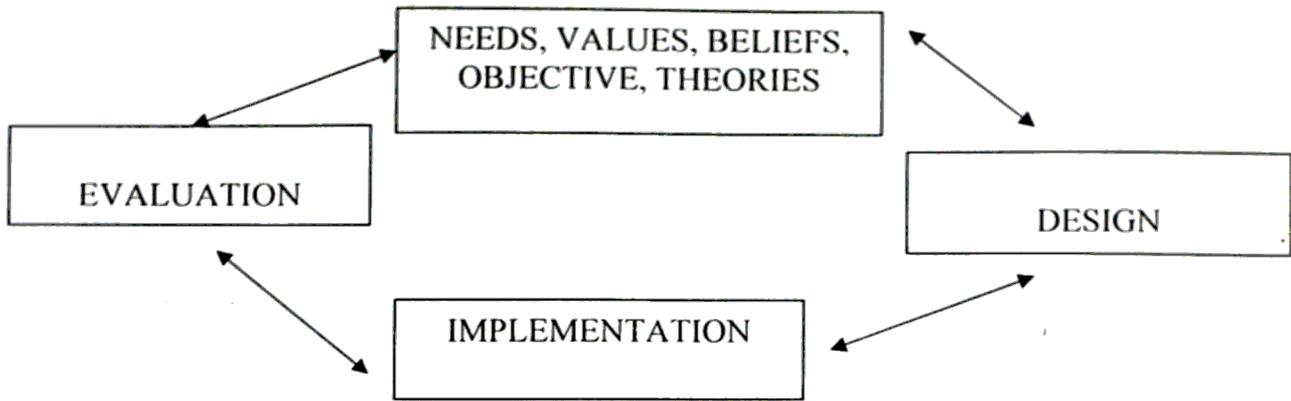
Fig 1 Format for Curriculum

The designers of Curriculum consider or take into account the needs values, beliefs, objectives and theories. Highly qualified personnel are drawn from all the corners of the country. The implementer of curriculum is the competent teacher, who uses all the available resources to the advantage of the learner. At the end of teaching and learning, tests are conducted to find out learning outcomes to discover whether the set goals have been achieved or not. Evaluation tests the teacher as well as the learner, Evaluation makes it possible for the designers to know whether the teacher failed or the curriculum is not suitable. After evaluation, the curriculum can be adopted, modified or be changed.

Purpose of the curriculum

In effect, curriculum should essentially serve at least the following purposes:

a) It should communicate the intention of the planners.

b) It should provide adequate information for transmitting plans into practice.

c) It could be used as a basis for scrutiny and improvement.

2.3 Types of Curriculum

1. Explicit Curriculum

   Owusu Asamoah further cites Elliot Eisner, finders et. al (1986)[11] that schools 'teach' three curricula Explicit, official or formal curriculum which are those programmes of study that the schools advertise that they are capable of providing

2. Actual curriculum

The actual curriculum is what is practiced in the school. Planners can deliberately attract more students and what is offered appears more attractive than what actually goes on.

3. Hidden Curriculum

They are other learning experiences that are not officially included in the Curriculum but students go through them as relevant e.g. Eating, personal hygiene, bathing pasting sports, etc

4. Effective Curriculum

The main item that the student takes home at the end of the course is what John Kelly (1982)[13] describes as the effective curriculum.

2.4 Syllabus

Sackey J. K. N. (1994 p. 4)[13] indicates that syllabus is a non-detailed statement of the content of a course of study and communicates certain portions of the curriculum. From this point of view, a syllabus refers to a description or a list of statements of topics expected to be covered for each subject for a course or programme. Other expressions by Sackey are outlined below as necessary ingredients for this thesis. They are labeled between 2.4 and 2.40.

2.4. 1 Reasons for Having a Syllabus

Sackey again indicates that:

a) A syllabus serves as a guide for both teachers and learners as to what topics are to be covered.

b) It facilitates scheme of work planned ever the duration of the course.

c) It ensures standerdised courses to be held at different institutions.

d) It ensures standardised assessment at different centres.

2.5 Content of a Syllabus

a) A complete syllabus may consist of an introductory statement expressing the importance and the need for offering the subject/course, its relationship with other courses and how it fits into the overall programme of the college/institute or centre

b) The objectives to be achieved

As in the case of KNUST – its objective is to produce graduates with scientific and technical know-how to assist in the general development of Ghana.

c) Guide lines regarding the methods of assessment.

d) A proposed list of the major activities and projects the students are to undertake

e) A list of the teaching and learning materials to be used, such as textbooks visual aids etc.

f) An up-to-date bibliography of useful references for the teacher and the student.

2.6 Breaking down the syllabus

Not withstanding the examination (traditional) syllabus serving as a guide to the teacher and the pupil/student as to what extent and content the course is , it does not provide certain pertinent information they may need to know.

i.   As a result of the above, a proper order for the treatment must be made.

ii. The depth which the topics are to be treated is to be indicated.

iii. The appropriate teaching method should be indicated.

iv. The best approach for assessing whether or not the student has grasped what has been taught.

v.   A competency-based syllabus which is the breaking down of the syllabus into a teaching syllabus ought to be made.

vi. A scheme of work is to be made. This is known as a termly forecast (or work to be done in the term)

2.7 The competency based syllabus

A competency based syllabus is translation of the examination (traditional) syllabus which is subjective based into an objective based syllabus, also known as a teaching syllabus. It has dimension: competency, approach and measure

2.8 The competency

This is the expected learning outcome or the terminal behaviour required of student, when the topic under consideration has been taught.

2.9 The Approach

It refers to the most appropriate teaching strategy or method the teacher employs in order to effect the stated competency or terminal behaviour.

2.10 The measure

This involves the appropriate means of assessing whether or not the stated competence has been achieved what the teaching strategy has been applied.

2.11 Procedure for preparing the competency based syllabus is as follows

1. Examine the main topics in the traditional syllabus and list them in logical sequence or order.

2. Break each topic into sub-headings where necessary.

3. Consider all the desirable information, skills attitudes etc which the students should know about or acquire from each topic and form sentences in the third person singular to show the action or behaviour the student is expected to demonstrate as having acquired the knowledge, understood the principle or mastered or intended. Note that action words verbs should be used for formulating the sentences (in the competency column)

4. Against each competence, state in an instructional form, the most effective means (method by which the stated competence (objective) could be transmitted to the student in the approach column.

5. Show by a statement how to measure (assess) the competence to, ascertain whether or not the student has acquired or achieved the stated competence (in the measure column).

   The above format of a lesson plan is only to show what the professional teacher followed in time past to give a systematic approach to teaching.

2.12 Taxonomies of Educational Objectives Source Blooms 1956/2001

The classification of Educational Goals; 2001/2007

Taxonomy is defined as the laws or principles of things done as ion education. For the purpose of determining the appropriate education for courses and lessons, Sackey refers to Bloom, Krathwohohl and Simpson who had distinguished three domains or areas of psychological functioning:

The cognitive domain, where emphasis is placed on the functions of remembering, reasoning concept formation and creative thinking; the affective domain, where the concern is upon emotion, feeling, attitudes, and interest. The psychomotor domain, relating to muscular and motor skills, manipulation and physical activities.

The objectives for each of these domains are divided into broad of hierarchical order as shown below:

2.13 **Bloom's Taxonomy of Educational Objectives in the Cognitive Domain**

Educational objectives in the cognitive domain, according to Bloom, are classified into six categories of increasing complexity.

Knowledge – the student repeats basic facts.

Comprehension – the student puts work into his/her own words.

Application – the student applies learnt martial into new situation

Analysis – the student picks out main ideas or arguments

Synthesis - the student reiterates ideas in a new form.

Evaluation – the student judges the value or pros and cons of a situation.

2.14 **Krathwohohl and Bloom's Taxonomy of Affective Objectives**

Educational objectives in the affective domain, are grouped into five categories as follows:

Receiving – the student passively listens

Responding - the student willing answers questions, reads, etc

Valuing – the student appears to display an attitude

Organization – the student questions his/her old and new values.

Characterization – the student over the long term displays consistency in holding new values.

2.15 **Simpson's Taxonomy of Psychomotor Objective**

According to Simpson, educational objectives in the psychomotor domain are classified into seven categories as stated below.

Perception – the student relates to a situation

Set – the student moves appropriately.

Guided Response – the student displays performance as demonstrated by the teacher.

Mechanism – the student displays performance without assistance with skill and   confidence.

Complex Overt Response - the student displays performance with skill and confidence

Adaptation – the student modifies performance to suit given conditions

Origination – The student creates or innovates his/her own design

Examples of words used for stating General and Specific Objectives for Cognitive Domain of the Taxonomy.

General Words for stating general
Instructional Objectives

Behavioural Terms for stating
Specific Objectives

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Instructional Objectives	Specific Objectives
Knowledge: knows	Outlines, defines, selects, names, Identifies, lists, states, labels, matches, Reproduces, etc
Comprehension: Understands Interprets, justifies, translates Estimate	Describes distinguishes, extends explains, predicts, summarises, differentiates, gives examples, converts Writes, defends, etc
Applications: Applies, solves, constructs Demonstrate	Demonstrates, changes, modifies, produces, manipulates, discovers
General Words for stating general Instructional objectives	Behavioural Terms for stating

Instructional Objectives	Specific Objectives
Knowledge: Knows	Outlines, define, selects, names Identifies lists, states, labels, matches Reproduce, etc
Comprehension: Understands Interprets, justifies translates Estimates	Describes, distinguishes, extends explains, predicts, summaries differentiates, gives examples, converts Writes, defends etc
Application: Applies, solves, constructs Demonstrates	Demonstrates, changes, modifies produces, manipulates, discovers
General Words for stating general Instructional Objectives	Behavioural Terms for stating specific objectives

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Analysis: Analysis, recognizes
Distinguishes
Illustrates, points out, sub-divides

Discriminates, outlines, selects,
distinguishes, separates, break down,

Synthesis: Proposes, formulates, integrates combines, Composes, creates, revises, designs, generates, plans, reconstructs, rearranges, reorganizes, devices, modifies, summaries etc

Evaluates: Judges

Compares, criticizes, appraises, contrasts
Concludes, interprets, discriminates supports, justifies, summaries, relates explains.

Examples of Words used for stating general and specific objectives in the Affective Domain of the Taxonomy.

2.16	General Words for stating general Instructional objectives	Behavioural Terms for stating Specific Objectives
	Receiving: Listens, shows, accepts attends	Chooses, follows, gives, holds, asks, identifies, selects, uses, replies, Names, etc
	Responding: Completes, volunteers Participates, shows, enjoys	Complies, labels performs, helps, Practices, reads, reports, writes Present, Recites, selects, answers
	Value: Appreciate demonstrates	Describes, differentiates, explains Follows shows initiative, forms, Justifies, invites, joins, proposes, shares, Works, reports, reads, Studies, selects, etc
	Organisation: Accepts, recognizes, Understands	Organises, arranges, orders, alters, compares, adheres, defends, relates Generalises, prepares, identities

Modifies

Characterisation: Displays, practices, uses, Demonstrates, maintains

Synthesises, explains integrates, etc

Discriminates verities, displays, acts, influences, performs, listens, questions Modifies, qualifies, revise, solves serves

Examples of words used for stating general and specific objectives in the psychomotor Domains of the Taxonomy

2.17 **General words for stating general Instructional Objectives**

Perception: Illustrates, Relates

Behavioural Terms for stating Specific objectives

Detects, identifies, separates, relates, Selects, isolates, choose, describes distinguishes, differentiates, etc.

Set: Demonstrates, knows shows

Volunteers, proceeds, begins Explains, reacts, responds, starts, Moves, displays shows, etc

Guided Response: Applies, performs

Dismantles, displays, builds, construct determines Assembles, fastens, calibrate, fixes, turns, drills, mends, mends measures, grinds, heats, sketches, manipulates, organises, works, chisels,

Mechanism: Operates, demonstrates.

The same action words used for guided set up, writes response are applicable

Complex Overt Response: Repairs Operates demonstrates, performs,

The same action words as those for Guided response above.

Adaptation: Adjusts, modifies, adapts

Alters, changes, revises, varies adapts, Re-organises, re-arranges,

Origination; Designs, creates, inverts

Originates constructs, composes, arranges, designs, etc

It should be noted that the above words are just few examples and they are not in any way exhaustive. The student can choose his / her own appropriate words. Care must however be taken to ensure that a word chosen falls within the right domain and at the correct level.

2.17.0 Teaching and learning strategies

2.17 Introduction

In the past, the responsibility for selecting teaching / learning methods was that of the teacher while the curriculum developers were expected to develop the instructional materials to be used by the teacher in recent times, the choice for the appropriate teaching/learning strategies has become an integral part of the curriculum development process. It is felt that the selection of the appropriate methods should precede the production of the instructional materials. Information drawn from the web is as follows:

(http;//Honolulu.hawaii.intranet/committees/FaacDevCom/guidebk/teachtp/quizzes ... 23/03/2006

The curriculum developer may decide to utilize a single instructional strategy for the entire programme or employ a variety of learning strategies, either as alternative modes for learning certain skills or as sequential activities for learning different sections of the same programme. The use of variety of learning strategic, or methods is recommended because of two reasons.

Firstly, a particular method that may be effective for transmitting certain types knowledge, may be less suitable for others. Secondly, some students learn more easily with particular method, while due to individual differences, other students may find another method more beneficial.

In this chapter, an attempt has been made to introduce some basic general teaching and learning strategies. Some may be considered suitable for teaching information (theory) and others may be more appropriate for teaching of skills (practical).

In addition to the above UNESCO publication drawn from the internet sourced on 10/04/09 indicates that:

At the heart of all learning is the way we process our experiences, especially our critical reflections on our experiences. This module introduces experiential education as a key approach to student-centred learning for a sustainable future.

Experiential learning engages students in critical thinking, problem solving and decision making in contexts that are personally relevant to them. This approach to learning also involves

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making opportunities for debriefing and consolidation of ideas and skills through feedback, reflection, and the application of the ideas and skills to new situations.

Objectives

- To appreciate the value of student-centre experiential learning;
- To analyse the elements of experiential learning;
- To develop guidelines for teaching through experiential approaches; and
- To relate experiential learning to education for sustainable futures.

Journal

Experiential learning is often thought of as a learning cycle with experience and reflection being the first two phases.

The idea of experiential learning as a cycle was suggested by prominent educationalists such as Jean Plaget, John Dewey and David Kolb.

The experiential learning cycle involves four phases:

- Experience: Engaging in an experience in a particular situation and then observing its effects.
- Processing the experience: Understanding what we did, though and felt during the experience.
- Generalising: Understanding the general principle (called a generalization) behind the relationship between the action and its effects
- Applying: Applying the principle or generalization to a new situation.

Interaction: Identify the four phases in the experiential learning cycle.

Q. 16: Reflect on 'Possum Picnic' and identify what you did in each of the four phases of the experiential learning cycle Journal

Q.17: Suggest some guidelines for helping students learn in each of the four phases

See some suggested guidelines

Guidelines for Experiential learning

Stages   Guidelines for Teachers

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1. Experiencing – Set up the activity and provide clear instructions.

- Disclose any risk

- Provide a safe environment both a physical and emotional level.

- Answer clarification questions before and during the activity.

- Move around the class actively directing learners, working co-operatively with them, and allow self-directed learning to take over.

2. Processing - Make sure you have provided interactions between learner/learner, learner/content, learner/facilitator and facilitator/content. Think of question you can ask.

- Observe how students respond and act during the experience.

- Allow for students reflection time within the activity.

3. Generalising – Ask individual students to describe what they have experienced and to analyse the implications for themselves.

- Provide feedback in a positive and open way.

- Ask students to identify what their concerns are rather than tell them what you expect.

- Applying ask student to identify ways they can use what they have learnt.

- Lead students to identify any changes they can make to their behaviour after considering this experience

- Provide further opportunities to apply or discuss their learning with others

2.18 Expository teaching –web 23/03/05

Expository teaching is a straight forward transmission of information to students by means of lectures, printed materials or by combination of both. The adoption of both lecture and printed material has several advantages and disadvantages.

2.19 Advantages of Expository Teaching

A large number of students can be handled at the same time through a lecture thereby saving time and personal resources.

A relatively large amount of material or area can be covered jn a short time, if there is less interruption of irrelevant questions or remarks.

The reading material can serve to reinforce the student's understanding. It can also enable those students who may be absent at the lecture to cover up

Difficult concepts can be explained and at the same time, the material can be related to current issues or events. The students may be allowed to ask questions about issues that are not fully understood. From the students interactions, the teacher can get a feel for whether or not they have understood the lecture/lesson. This may enable the teacher to adapt his / her lecture to the needs of the students.

2.20 Disadvantages of Expository Teaching

Where the students are not permitted to ask questions and contribute to the lecture/lesson, they remain passive resulting in less absorption or understanding. If the students remain passive for a long time, a tense climate may be created in the classroom and the student's mind will dwindle away.

2.21 Enquiry Learning

In enquiry learning, the students are required to do more than passively absorbing information to be repeated at the teachers request. By this approach, the student is required to organise information in a meaningful way so as to provide solutions to specified problems. This technique may include all forms of research work such as dissertation, long essay or a design problem. There are three levels of approach to this strategy.

2.22 1 First level of Enquiry

This is the simplest form of enquiry assignment, where the student may be given the problem and the method for its solution. The task of the student is therefore to find the solution.

2.23 2 Second level of Enquiry

An enquiry assignment of this level is higher than the first one. In this case, the student is given only the problem and the student is left to select for himself or herself an adequate method for arriving at a solution.

2.24 3 Third Level of Enquiry

This is the highest level of enquiry assignment where the student is required to find or define the problem which is the subject of his or her enquiry and also select for himself or herself an appropriate method for arriving at a solution.

2.25 4 Advantages

A knowledge acquired by a student through the method of enquiry, is more likely to be retained and applied in other situations. A student is likely to derive more satisfaction from learning through an enquiry method and she/he may be sufficiently motivated to learn more. The student learns rules and acquires experience for solving other problems.

2.26 Small Group Teaching

It is possible and most convenient to teach certain subjects or topics by dividing the students into smaller groups, each working independently. It is expected that in such a situation, each student can assume an active role. He/she may participate in the planning and as well in carrying it out. The role of the teacher in this situation turns from a transmitter of knowledge to a co-ordinator of the activities and a guide to information and its processing. A small group teaching can take place in different ways. For instance, each group may be given the same assignment to perform, or it is possible to assign different task to each group. Where the problem involves a broad area, each group can be required to work on a segment. A small group teaching can be adopted for a theory form of lesson as well as for a practical lesson. There is a need for adequate preparation and supervision.

.27 Group Discussion

This is a method whereby the students are divided into groups to engage in exploring or examining a given topic or issue in a tree flow argument. In this way, the students digest and express their candid opinions about the topic in a co-operative manner, trying to understand the topic or issue. The discussion should be informal and must not follow any rigid rules. It needs to be carefully planned and controlled by the teacher.

The teacher must take cognizance of the fact that, a discussion must have a clear objective and that the students need to have a prerequisite knowledge of the topic or issue to be discussed. This will

avoid the result being made a mere exchange of loose thinking and vague generalities. It is also important for the teacher to ensure that every member of the group participate actively. The significance of this method lies, largely, from its democratic, permissive and collaborative nature and can be effectively employed to verify information, clarify ideas, and to stimulate thinking.

To achieve success, it is essential for the teacher to:

- Prepare ahead of time, the questions around which the discussion will be developed;
- Ensure participation of all members of the group in the discussion;
- Ensure that the discussion does not wander off the main issues at stake;
- Write the key points clearly on the chalkboard;
- ensure the discussion does not generate into debate or argument;
- summarise on the chalkboard at intervals and at the end;
- ensure the discussion is unnecessarily prolonged;
- ensure that definite conclusions are arrived at.

  The final summary should include all the main points derived from the various groups taking note of the important areas of the agreement and the disagreement.

2.28 Role – Play

Role – play is a technique of teaching and learning which requires some of the students to act the roles of other characters in a given situation. The situation which should be realistic and not too complex, may be described verbally or in writing to the students or the class. It is essential that each participant is assigned a different role with possibly conflicting information.

Some Essential points to note

- Each participant needs to study, carefully, the information he/she has been assigned.
- All participants may be required to gather at one place and act their individual roles in an attempt of achieving the stated objectives.
- A considerable level of maturity is require of the participants.
- The whole class should be assembled to discuss and analyse the whole process, taking into account all the technical points raised.
- The teacher has the responsibility to prepare, monitor ad evaluate the exercise.

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- The teacher needs to have a clear and well defined objective for the exercise, even if it is open ended.

Advantages
- It promotes interest and thereby helps learning.
- It affords the students the opportunity to play individual roles.
- It facilities a development of inter-personal skills.
- It enables the students to understand other people's opinions or views.

Disadvantages
- It requires a long period of time
- Students may lose sight of the learning points when they become engrossed in their roles.
- It is only suitable for a small group of people.
- Not all students are very good in acting out roles.
- It is not easy for a teacher to appropriately allocate roles to students.

2.29 Simulation

Simulation is a method of learning whereby the student is presented with a hypothetical problem, seeming like a real-life situation, and asked to work out a solution. This compels the student to try out a number of possible solutions, comparing their elative advantages before finally choosing a particular solution. A simulation may sometimes, overlap with a role-play or a case-study. Example of a simulation activity: Conducting a board of directors meeting of a student operated manufacturing organization.

2.30 Purpose
- It promotes an active form of students participation.
- It provides an opportunity for the development of communication or verbal
- It promotes creative student behaviour.
- It gives the student different kinds of opportunities for success and recognition among peers
- It gives the teacher an opportunity to observe students in a more life-like participation where various forms of talent and behaviour may be identified. ,
- It provides fun and enjoyment as well as rich and relevant content as part of the programme.

2.31 2 Procedure for conducting a simulation activity

- Clearly state the objectives for the simulation activity and they must be understood by all parties, such as, the students, teachers, and also administrators and parents.
- Endeavour to promote as much reality as possible in the simulation activity.
- Involve the students in the proposing, planning, setting up, executing, and evaluation of the simulation experience.

2.32 3 Roles of the Teacher

- Examining the nees of the students and also the direction of the programme so that appropriate methods and procedures are adopted.
- Planning with the students the development of a simulated learning activity.
- Explaining the objectives and responsibilities in the development of the experience. Communicating to all persons the nature of the activity and its purpose in the programme.
- Helping the students into heir background development leading up to the actual simulation activity.
- Facilitating the students' participation.

2.33.0 Anno Kwaku (2001 p. 123) further identifies and discusses selected methods of teaching.

2.33 The Lecture or Telling method

This is the oral transmission of material to learners. For this method to be successful, I the teacher must:

- ❖ Have an outline of his talk to guide him
- ❖ Adapt language to the level of understanding of the learners.

In this section we shall discuss the lecture method. We shall do this be examining its main characteristics, outlining some of its strengths and shortcomings and suggesting ways of improving it. Remembers the outline in Chapter 3, pages 91 to 93, where the impact of lecturing on student learning is explained.

2.34 What is a lecture?

Very simply, a lecture is an organized verbal presentation of subject matter often augmented by visual aids. According to Biigh (1872), a lecture is a period of more or less uninterrupted talk from a teacher,. A more detailed definition is found in Percival and Ellington (1988) who state that a lecture is a didactic instructional method, involving one-way communication from the active presenter to the more or less passive audience'. Perhaps unkindly we should also include the student who described a lecture as 'an occasion to sleep whilst someone talks'.

2.35 History and Background

Historically the lecture can be traced back to the 5th century BC when it was popular with the Greeks. It was widely adopted in the early Christian and Muslim Universities in medieval times when books were scarce, and even today, it is the most common teaching method in higher education. The term lecture comes from the Latin *lecture,* to read aloud, which identifies it as an expository or 'telling' method.

Whilst the lecture largely consists of one-way communication from the teacher, this does not mean that there can be no discussion or dialogue between lecturer and students. Often such two-way communication is limited to the teacher asking questions to establish that the subject matter has been assimilated but many skilled lecturers are able to make their lectures more thought provoking and interactive, so that deeper learning is possible. This is to be encouraged and we shall return to how this can be achieved later in this chapter.

Research on Lectures

Much has been written about lectures and lecturing and it may help our understanding if we examine briefly what research has established. Three main trends may be noted, the first comparing their effectiveness with other methods, the second detailing the views of students and lecturers and the third focusing on learning in lectures. So what does the literature tell us about the lecture?
In comparing the lecture with other methods we find that:

- The lecture is the most common method used in universities:
- It is as effective as other methods for imparting knowledge up to comprehension level but less effective for higher cognitive levels;
- It is less effective for teaching practical skills than demonstrations and laboratory work;
- Discussions are more effective than lectures for changing attitudes.

From an educational or learning view point, several limitations of the lecture method are reported in research, many of which are frequently made worse by poor lecturing skills. For example:

- Research indicates that lectures need to be augmented with more active and participatory learning approaches;
- Lectures tend to encourage 'surface' learning only, which facilitates memorization but is unsuitable for 'deep' learning required for understanding and problem solving skills.

2.37 Learning from lectures

One way of improving lectures is to examine the process of teaching and learning that takes place, for in doing this we find there are several techniques and skills for enhancing this method. So how do students learn in lectures?

Very simply, students learn in two ways: firstly, from the information presented by the lecturer, and secondly, by the way they process and restructure the information received to suit their own interpretation. Thus the degree of understanding will vary according to the way the information is transmitted, received and processed. A lecture can facilitate learning by being well structured, interesting and meaningful or it can inhibit learning by being confused, boring and meaningless. Let us examine this process a little deeper.

A lecturer sends information in many ways.

Verbal: through explanation, definitions, examples, descriptions or comments.

Extra-verbal: through the lecturer's vocal qualities such as clarity, audibility, fluency and speed.

Non-verbal: through gestures, facial expressions or body movements,

Visual: through the use of visual aids.

Students also learn by listening, observing, note-taking, discussing and restructuring information. The effectiveness of learning, however, is dependent on how well they receive and process the information, together with the quality of the message received.

Question and self-evaluations

Students should be encouraged to read and think about all aspects of a laboratory activity. You may facilitate this by asking them question before elaborating on an experiment or task and again afterwards. Such questions provide clues for important points. They also motivate students to check whether they have carried out procedures correctly.

A self-evaluation check list is a useful tool in this respect. It can be used to direct students to assess how well they have carried out a task, what its implications are and how they might improve. If they are working groups they may wish to evaluate each other using such a list

Which of the suggestions for improving laboratory teaching could you apply in your own classes?

2.38 Small Group Teaching

We now turn to a range of teaching methods in which co-operative activity and joint participation feature strongly. These methods differ from the traditional passive and exposition methods which rely on the sole efforts on the lecturer, for small group teaching achieves skills from the collective contribution of the teacher and class members. You may compare the following ideas to the proposal for group activities in Chapter 3, pages 93 to 95. We have deliberately used the generic title *small group teaching* for this section because it emphasizes that students learn in an integrated small group. Sometimes this method is referred to as 'discover Georgina

2.39 What is small Group Teaching?

Most of us are familiar with some form of small group teaching, for example the tutorial, which has a long history in universities, Tutorials can be traced back to Socrates who led his students in critical inquiry to insight through discussion. This is a method we would all like to use with our own students.   If we had to explain small group teaching and its implications but were only allowed to make three   points we would select the following:

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- Discussion in some form or other underpins all small group teaching for these methods seek to examine a topic or problem through the free flow of argument: in which participants learn from each other by pooling ideas. As such it is an attempt to better understand knowledge and solve problems rather than acquire new factual information; thus it is discussion with a purpose'.

- Teaching small groups is more complex and challenging than generally realized because it calls for more flexibility and adaptability, higher facilitative and interactive skills, as well as superior planning and organizational competencies. The means the effectiveness of the teacher is more critical for successful learning than in other methods and, at the same time, perhaps more risk and less controllable.

- Trends in recent year show that the use of small group teaching is increasing in universities. This is because, since early days, it has always been well-suited to the development of deep and meaningful learning at higher cognitive levels, but now it has been found equally beneficial for the development of a range of professional competencies, personal skills and desirable attitudinal Traits. More specifically, learning in interactive groups enhances critical thinking, problem-solving, communication skills, innovativeness, and both inter-personal and team skills. All of these are much in demand today with current external pressures and market forces affecting university practices.

Definitions

Some definitions might help our understanding. George Brown (1988) describes small group teaching as 'Getting students to talk and think,' which we feel is a useful and succinct description. An American author, G.D. Borich (1988), emphasizes the key characteristics of *inquiry, discovery* and *problem-solving*. These initiate 'a process of generalization and discrimination which requires students to re-arrange and elaborate their understanding of a topic'. This is echoed by Curzon (1990 who talks of 'collective exploration and public evaluation of ideas'.

Perhaps, you might care to formulate your own interpretation
from those just given.

The researcher of this thesis feels that the small group method may not be entirely effective since some students do not talk and contribute to thinking.

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2.40 Small-Group Teaching Methods

The common labels for small group teaching are tutorials, seminars and problem-solving classes, but this is, perhaps, too general for classification purposes. Five separate types have been identified to describe the full range of techniques, namely:

Buzz Sessions, Which refer to short discussions by very small groups within a lesson (also referred to as buzz groups or brainstorming).

Group Discussions. Which consist of various forms of in-depth discussions, such as tutorials or seminars.

Problem Solving activities, which cover a range of games, simulations and participative exercises such as case studies, role plays, business games.

Medicated Feedback Sessions, in which specific skills are practiced, analysed and discussed, such as micro-teaching and interactive skills training.

Group Projects, whereby a small group undertakes a co-operative task of a practical nature, such as laboratory or field project.

Here is a classification of the techniques we have just described below in table 1

Mode	Type	Method
Discussion	Buzz Sessions	Buzz Group
	Group Discussions	Tutorial
		Seminar
Medicated Activity	Problem Solving Activities	Case Study Role play Business Game
	Feedback Session	Micro Teaching Interactive Skills
Independent Activity	Internal Projects External Projects	Laboratory projects Field Projects

Table 1

You will probably have noted that small group teaching can be grouped broadly into two main modes, namely Discussion and Activity, We have still not listed the whole range of methods, but

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may are merely refinements of a basic method and it is unlikely that any lecturer will use the whole range on a regular basic. How to conduct some of these small group sessions has been explained in Chapter 2 on pages 63 to 66. A more sophisticated description of group teaching methods and their application is presented on page 216.

Table 2 is an overview of the most commonly used small group methods.

Method	Description
Brainstorming	A technique for generating many ideas uncritically with Comment and evaluation only considered later
Buzz Groups	A short period during a lesson in which several small groups Groups intensively discuss a given issue, often followed by plenary feedback
Case Study	An in-depth analysis of real or simulated problems for Students to identify principles or suggest solutions.
Controlled Discussion	A discussion in which students may raise questions or comments But the tutor controls the general direction.
Fishbowl	A discussion group in an inner circle surrounded by a silent 'observation' group. Often followed by plenary session or role reversal.
Free Group Discussions	A group discussion in which topics and direction are largely Controlled by members not tutor.
Problem-centre Group	A group with a specific open ended task which is discussed, with findings reported at plenary session or summarized on a poster
Projects	A practical group exercise or scholarly activity involving investigation of a problem
Pyramid (Also called Snowball)	An 'idea' generating technique whereby groups of two briefly discuss a problem, then form groups of four for further discussion prior to reporting back.
Questions	Tutor displays questions (on BB or OHP) gives time to think and then elicits answers for discussion and elaboration by group. Can be used as quiz with teams.
Role Play	A technique in which participants act out different roles in particular situations and later discuss their feelings and aspect

	of the problem.
Seminar	Group discussion of a paper presented by a student
Simulation and Games	An exercise involving essential characteristics of a specific and real situation where participants re-enact specific roles.
Step-by-step Discussions	A discussion organized around a carefully prepared sequence of issues and questions to draw out the required information From students.
Syndicate	Several sub-groups forming part of a larger group each working on a problem for a set time and reporting later to the whole group.
Tutorial	A meeting with a small group, often based on a pre-set topic or previous lecture.
Workshop	A 'hands-on' participating experience involving several methods and directed at developing skills or attitudes.

2.41 Constraints on Small Group Teaching

We need to note that several constraints and prerequisites impose limitations on small group teaching. We shall mention size, group knowledge, and environmental factors.

2.42 Limitations of size

Size limitations are clearly necessary due to the interactive nature of small group teaching. Group size is dictated by the type of interaction desired and by practical and economic considerations. Most authorities cite 'not more than ten students if full benefits are to be obtained', but recognizing economic reality in Africa, we would suggest this figure can

Table 3 shows the type of interaction you may achieve with various group sizes.

Size	Type of interaction
Very small groups of five persons	Personal instruction (individual tutorial, buzz group
Small groups of 6 to 17 persons	Group instruction (tutorial, brainstorming, case study
Medium groups of 18 to 29 persons	Class instruction (seminar, problem solving activities)
Large groups of 30 to 49 persons	Workshop instruction (syndicates, small group/plenary
Very large groups of 60 or more	Mass instruction (only limited group work)

From table 3 Size limitations for small group teaching

1. In which of your classes could you use small group teaching?
2. For what purpose would you use it?
3. What would be the size of the groups into which you will divide your class?
4. What limitations are there on the size of groups you have selected?

2.43 Instructional Media Generally Available
in Universities – Source "Teach Your Best" (1995).

Media range from the simple and available, such as chalkboards, to the complex and costly, such as television or video, film or filmstrips. You are not likely to use all the instructional media that we discuss in this book. In fact, you should not attempt to. However, after considering the factors in media selection, compare what you already have with the media described here. Select a few that are feasible. You can change them after carrying out an evaluation such as the one discussed at the end of this chapter. You can also incorporate some of the ideas suggested here to modify media currently in use. From our experience, the novice lecturer tends to use too many instructional media, leading to confusion among the students. On the other hand, the old professor tends to resist trying out new technologies, and sticks to old, tried methods, which may prove unexciting. A middle course is the best. Now let's move on to discuss some specific media.

2.44 The Chalkboard

The chalkboard will probably be your most widely used display or static medium. Chalkboards are usually painted concrete, plaster, plastic or wood surfaces. Most boards are painted black,

although you might encounter green, brown or white ones. The same principles apply regardless of the surface of the chalkboard.

The chalkboard may be used to supplement a talk or slide show; emphasize important points, words and definitions; draw attention to important issues; summarize a discussion or leave a reminder (Laver, 1990).
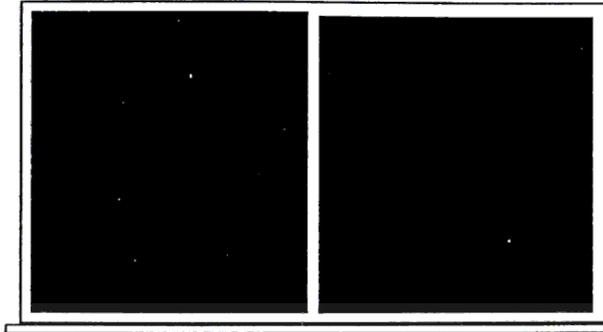
Figure 2 Always clean the chalkboard after your lecture

Figure 2 shows a chalkboard which is in fact the very first teaching aid ever used universally. The researcher considers the use of the chalkboard as vital from the basic to higher levels.

2.45 Practical Hints for Using the Chalkboard

You will improve your teaching sessions if you

Plan your teaching session in advance;

Are neat and tidy, and ensure that your writing can be seen by all students. Keep a straight line when you write, and avoid sentences that trail off the board;

Erase irrelevant words and phrases properly. Half rubbed out words are irritating to any audience. Avoid erasing information with your fingers as you write;

Print or encircle important words as you build up the theme.

Use colours to highlight points, but not too many at once;

Always clean the board after your lecture.

2.46 Advantages and Disadvantages of the Chalkboard

The major advantages include ready availability, low cost, and ease of maintenance. Maintenance usually ranges from cleaning to smoothening and re-surfacing the chalkboard, especially if the

surface is rough wood or concrete. If felt pens are used on white or green boards, they should be protected against drying by replacing the caps when not in use.

The major drawback of the chalkboard is that the information written on the board is temporary. This is particularly a problem if your discipline involves complex illustrations such as maps, chemical reactions, mathematical formulas and complex diagrams. In such case you will probably want to use more permanent media, such as flip charts and posters, for these illustrations.

In addition, you spend more time during lectures writing than when you use handouts, slides or the overhead projector (OHP). This slows you down, although some students might benefit from this slop pace. Some people have a tendency to talk to the board as they write and this can be annoying to many students, especially those at the back of the room who cannot hear what you are saying. With large classes, too, it may be hard for students at the back to read what is on the chalkboard.

2.47 Printed Media

Printed media are materials used to inform, motivate or instruct learners. Kemp and Dayton (1985: 159) classify printed media into three types:

Learning aids, Guide sheets, job aids, picture series.

Training materials, Handouts, study guides, 'instructors'

Information materials: Brochures, newsletters and reports

If you are new to university teaching, or if you have never produced instruction media, you may follow the recommendations in this section to produce your own printed media.

Advantages and Disadvantages of Printed Media

As discussed by Lewis and Paine (1986), the advantages include that these media are:

Easy to carry and use;

Easy to generate, produce, modify and update;

Cheap, especially if the media are black and white.

Colour, as a rule, is more expensive;

Familiar to your students.

The disadvantages of printed media are that:

They may be too familiar and be ignored because they look like high school materials;

It may be difficult to teach skills or convey emotions and feelings through print;

They will be difficult to update if they printed material is bound as a book.

2.48 Planning Stage in the production of Printed Media

Before you produce any instructional material, including printed media, you should plan carefully. Take into consideration the objectives you intend to achieve, your target audience, whether printed is the most appropriate medium for your lecture and whether the printed media will be used alone or in combination with other media. Your planning here needs to be more elaborate than that for display media such as the chalkboard, posters and transparencies. There are three stages in this planning: pre-design, design and post-design. Kemp and Dayton (1985) propose that you make a check list for this preliminary planning before instructional material is written.

During the pre-design stage, try to be creative and take decisions that are based on perception and learning theory. Kemp and Dayton suggest that you:

Are the Instructional Media Available in your institution?

Contact colleagues, the library, or, if established, the audiovisual unit. Find out whether they can provide you with the necessary media. If you get what you need, check whether it is appropriate. Take it as it is or modify it if possible.

Are the instructional materials available somewhere else?

If you cannot get media in your institution, then search somewhere else. Colleague, former students, research publications or magazines are good sources of information on whom to contact. Be persistent and do not give up easily. Possible contacts include:

Other teaching institutions;

National and international media centres;

Government ministries, national projects, research centres;

International organizations (FAO, WHO, UNESCO);

Non-governmental organization (NGOs);

International companies.

Is co-production with other institutions or organizations possible?

Other institutions or organizations may be interested in acquiring instructional media, just as you are. If this is so, try to combine your efforts in the production of media. Co-production is always preferable to self-production because of the savings involved.

Can you or your institution produce the particular medium?

If your efforts in co-production are unsuccessful, check the possibility of self-production of the media, self-production requires technical skill and materials, depending largely on the media chosen. Wall charts require much less skill and materials than a slide series, for example, which in turn, require less skill than making a video.

Obtaining Appropriate Media

The process of getting appropriate media is very tiresome and work-intensive, particularly in the beginning, and success cannot always be guaranteed. First of all, make sure that your institution, faculty or department is interested in media and supports you. Then develop a strategy to get what you need. Ensure that it is based on information exchange, co-operation, and a combination of interest.

Your success in getting appropriate media will depend largely on your own efforts and initiative. In your search for appropriate media, you will need to make a number of decisions. Figures 3 and 6.23 will assist you to make these decisions.
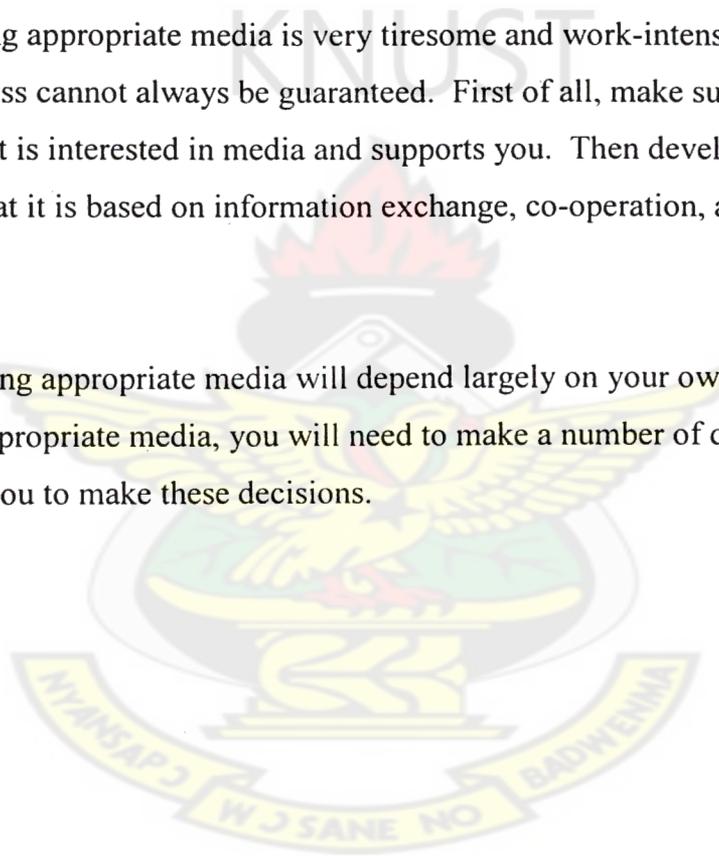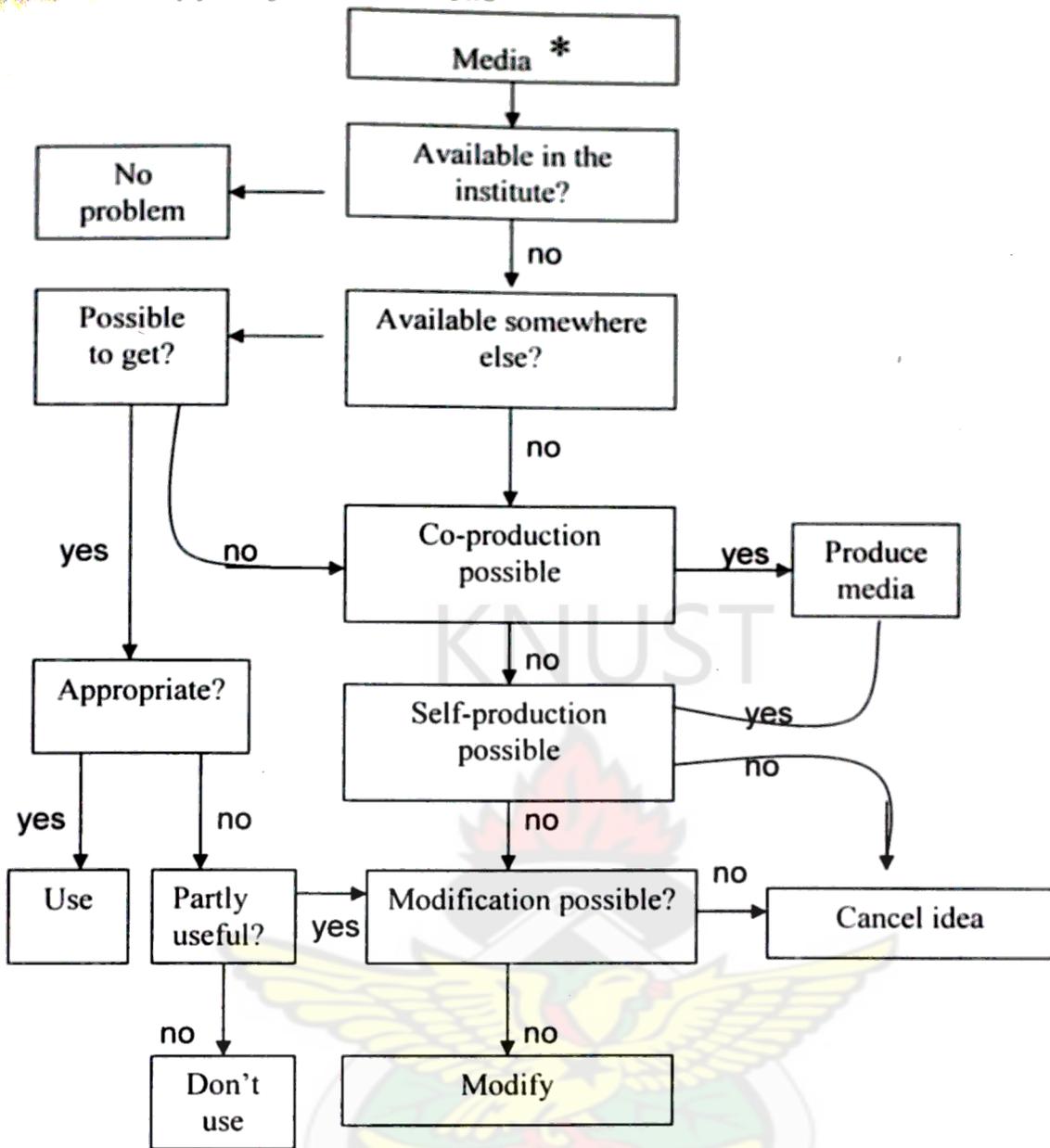
Figure 3 Decision tree (algorithm on how to get appropriate media)

2.49 **Other Media For Teaching** As read from Teach Your Best, aside the chalk board and printed media are the manual or electronic type writer which until recently was the commonest piece of equipment in the production of hand outs. The latest word processor is the computer which assists learning. Some others are film and video which can demonstrate motion and sound simultaneously, wall charts and wall posters, flip charts, photographs, slides and film strips, overhead projectors, duplicator machines and the photocopiers.

Selection of teaching methods

Few will disagree with the importance of using the right method in teaching. Because there is no simple and instant way of selecting a teaching method, we must consider several factors. In this section we shall first discuss the purpose or objective or learning and the level required, followed by group size, local constraints such as time available and facilities, the degree of autonomy of the learners, and finally, any preferences or dislikes of the lecturer. In dealing with purpose, we need an appreciation of formulating objectives in order to determine the level of learning required.

2.50 Objectives of learning

The specification of learning objectives is important ins selecting an appropriate teaching method, for these serve as targets for our teaching. There is general agreement on the need for stating objective but much less on the degree of specificity which is appropriate. Formulation of objectives is also discussed in the previous chapter (pages 130 to 137). Several models are available but the taxonomy developed by Bloom *et al.* (1956) is perhaps the best known. At universities we are mainly concerned with knowledge or the cognitive domain, but of more importance is the hierarchy of levels and explains requirements according to Bloom's mode as interpreted by a more recent authority. It needs to be noted that many of us often tend to select a higher level of objective than is really required.
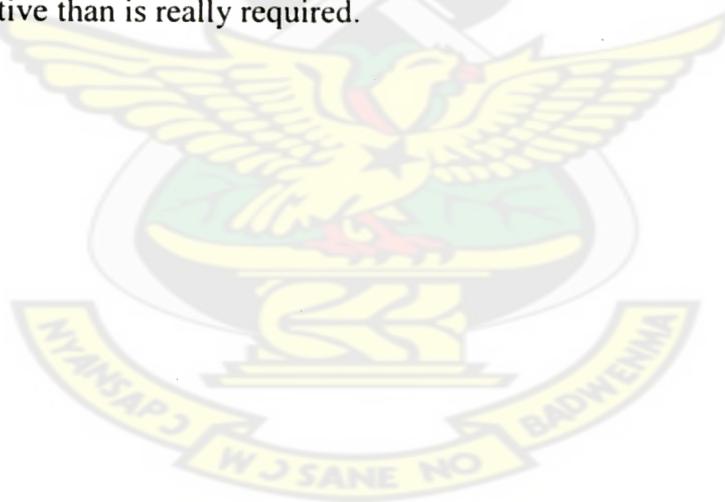
Table 4

Levels of knowledge	Description	Learning methods	
1. Memory (knowledge)	Learning can recall facts, definitions, procedures, actions, behaviours she/he can identify, define and describe	Lectures Talks programmed learning Demonstrations Reading	Algorithms Check lists information maps laboratory work Directed study
2. Understanding	Learner has grasp of Concepts, ideas, procedures and techniques s/he can explain, compare, justify and give examples examples	Explanations Discussions Case studies Group feedback analysis Seminars	Assignments projects Business games Tutorials Quizzes
3. Application	Learner can use the concept concepts, ideas and Techniques in standard situations. S/he can use or apply things in the correct prescribed way	Demonstration and practice Role play simulations Discussions	Syndicates Coaching Assignments projects Field trips
4. Transfer (analysis synthesis and evaluation)	From all the concepts Ideas, procedures and Techniques ever learned, the student can select the one most appropriate to a new non-standard situation. S/he can modify or create new hypotheses, ideas or tools to cope with unique situations where there are no 'right' or established answer.	Brainstorming Discussions Dialogue Group exercise sensitivity training problem solving	Counseling Secondment Assignment Diagnostic instruments and feedback project

Source: Adapted from huczynski, 1983

Figure 4 Objectives of learning strategy is indirect, with the teacher helping the learner to find out by posing questions, guiding, indicating sources of information and sharing ideas, problems and solutions. Here one searches for meaning and attempts to answer the question why 'why'. A colleague of ours describes the former as 'instruction' and the latter as 'beyond instruction', which we believe sums it up well. Look at table 5 and study the differences between teacher-centred and learner-centred characteristics.

Table 5

FOCUS	TEACHER-CENTRE	LEARNER-CENTRE
Approach	Expository: 'talk and chalk'	discovery: 'dialogue and Inquiry'
Purpose	Transfer of information	Development of individual Potential
Rationale	Education as technology	Education as liberating Process
Strategy	surface learning	Deep learning
Teaching link	Direct	Indirect
Teaching role	Authoritative 'all knowing expert'	Facilitative 'developer'
Teacher activity	Telling, checking, Correcting	Guiding on route, resources, interpretations
Student role	Rote learning	Self-direction for meaning
Student activity	Listening, note-taking	Exploring, reflecting, Questioning
Methods	Lecture, seminars, Demonstrations	Discussions, simulations problem-solving

Source: Adapted from Ramsden, 1992.

Let us now come much closer to the real life situation of teaching at the university by giving you details of eight methods and their characteristics (see table 6). This figure can be used for reference purposes, and will help in selecting methods later. Most of these are used within universities to a lesser or greater degree but it is unlikely that such a range is found in any one faculty or department. The eight methods listed are perhaps modest in number, for one authority, Huczynski, describes over 300 methods.

Past teaching in universities was largely didactic, with the lecturer telling and the learner listening passively, and in many universities this still remains the general practice. It works very well when there is a limited amount of information to be acquired and it is well presented, but difficulties arise when course content becomes excessive, student numbers are large, or when time constraints exist, which is often the position today. This is not to suggest we should throw out lectures but we do need to be aware of their limitations so that we can avoid weaknesses.

Table 6

Method	Strength	Weakness
Directed study of textbooks	☐ Effective way of teaching basic facts ☐ Allows learner to work at own pace ☐ Needs no specialized Facilities	☐ Requires careful planning and structuring ☐ Dependent on suitable text being available in sufficient numbers to cater for the size of the class ☐ Not suitable for achieving many higher cognitive and non-cognitive objectives
Programmed text	☐ Same basic advantages as directed study of books ☐ Allows learners to interact with the material	☐ Preparing suitable material is very time-consuming ☐ Not suitable for achieving many higher cognitive and non-cognitive objectives
Self-instruction using audio visual media and computer based learning	☐ Enables a wide range of educational objectives to be achieved (especially lower cognitive) ☐ Allows learner to work at own pace ☐ Can save teachers from having to carry out repetitive, time consuming work ☐ Allows interaction between learner and instructional programme and can be highly stimulating	☐ Ideal ready-made course were seldom available ☐ Preparation can be time consuming, expensive and requires specialist skills ☐ Not suitable for achieving many higher cognitive and non-cognitive objectives ☐ Cannot be used unless suitable hardware is available, which can be expensive
Lectures and Similar Expository techniques affective such as demonstration	☐ Cost effective in terms of staff/student ratio ☐ Strong in achieving lower cognitive objectives ☐ Generally popular with students and staff ☐ ideal for introductory of overview purposes	☐ strongly dependent on skill of lecturer ☐ weak in achieving most higher cognitive and objectives ☐ Not suitable for achieving psychomotor objectives or developing communication or interpersonal skills ☐ Student involvement low or

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		non-existent
		☐ Pace controlled by teacher
		☐ Most lectures are too long For the concentration span of students
Buzz sessions	☐ Excellent method of Introducing variety into a Lecture, thus helping to Maintain student atten-tion ☐ Can achieve a wide Range of objectives, both Cognitive and non Cognitive ☐ Students are actively Involved in lesson ☐ Allows feedback to take pace	☐ Only useful in a supportive role as a part of a larger lesson ☐ Requires skilled facilitator
Class discussions seminars and tutorials	☐ Same basic advantages as buzz sessions ☐ In addition, the greater length allows a wider range of objectives to be achieved, often of a high level ☐ Enables relevant topics to be examined in depth	☐ Danger that not all the class takes an active short ☐ Can cause timetabling problem if a class has to be split up ☐ Danger of tutor dominating discussion
Participative exercise of game/simula-tion/case study type	☐ Can be used to achieve a wide range of objective, both cognitive and non-cognitive, often of a high level ☐ High student involvement ☐ Stimulating and motiva-ting if properly design ☐ Ideal for cross-discipline any work	☐ Only useful in a supportive or illustrative role ☐ can be difficult to fit in, especially with long exercise. ☐ Must be relevant to be of educational value ☐ Requires briefing and debriefing skills
Group project	☐ Suitable for developing a wide range of objectives. both cognitive and non-cognitive, often of a ☐ Ideal for developing inter-personal and group skills ☐ Ideal for cross-disciplinary work	☐ Danger that not all Members will pull their weight ☐ Assessment of contribution made by individual student may be problematic

Adapted from Percival add Ellington, 1988

From table 6 Characteristics of some main instructional methods

Advantages

a. It is a fast method of presenting facts.

b. It saves time

c. It can be used to teach large classes

Disadvantages

a. Students contribution is minimal

b. It appeals to only one sense (hearing) and so it is not sufficient on its own.

2.51 Demonstration Method

It consists of showing the learners how a new skill should be performed. The showing is done by the teacher while the learners observe. The showing is accompanied by explanation of how the skill is demonstrated. This method is based on the assumption that by seeing exactly what takes place, the student will learn more effectively.

For a good demonstration teaching, the teacher must:

▪ Arrange the group so that all can hear and see clearly.

▪ Have all needed materials and equipment at hand and properly arranged

State objectives to motivate students.

Advantages

a. Permits firsthand experience in the operation of equipment being used.

b. Watching and being briefed on the use of an equipment that the students will themselves be using takes advantage of realism in the learning situation.

Disadvantages

a. Requires large and closely outlay of physical equipment.

b. Best suited to vocational skills training.

c. "know how" is stressed at the expense of "Know why"

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2.52 Class Discussion Method

This is a method which can be used with the entire class to review information, to clarify ideas and to solve problems. It is conducted as a period of oral comments, questions and answers led by the teacher in which class members actively participate.

Discussion can often be used during the presentation stage of a lesson, following some other means of presenting information. It may sometimes also be effective during the application stage of a lesson in developing with the class the application to specific situations of information previously presented.

For discussion to be successful, the teacher must:
- Give the class topic in advance to consider.
- Prepare in advance the questions around which to develop the discussion.
- Secure the participation of all the learners in the discussion.

2.53 Group Discussion Method source (Anno Kwaku)

In this method, the teacher divides the students into small groups for the purpose of reviewing information or problem solving. Each group is given or chooses leader. For a group discussion to be successful, the leaders must be taught how to lead a discussion. Also the teacher must be certain that the topic is one which can be carried to a satisfactory conclusion within the time given for the discussion. He must summarize the result of the discussion and present them to the groups after all satisfied with the conclusions that have been reached.

Advantages
a. Students become active rather than passive learners.
b. The retention time of learned material is increased
c. Leaders to a rapid and satisfactory solution to a problem.

Disadvantages
a. Could be time consuming
b. Not suitable for teaching skill subjects

2.54 Inductive – Deductive Method

This method can also be used conveniently by teachers to make teaching effective.

This method leads learners to formulate a rule, a formula, a law or a principle and then apply the rule or formula discovered to particular cases.

In the inductive aspect of this method, the teacher leads the learners to examine a number of cases which eventually leads to the establishment of a rule or formula. And so in this learner proceed from the particular to the general.

In the Deductive phase (application step), the learners apply the rule or the formula discovered or established to particular cases not used in the step. And so in this, the learners proceed from the general to the particular.

The procedure of this method must show the following steps

- Leading learners to study a series of examples.
- Helping learners to discover common elements in the examples studied.
- The establishment or statement of a rule out of the discovery.
- Learners apply the rule established to deal with particular cases not already used.

The inductive-deductive method is frequently used in Grammar to establish rules and in many topics in Environmental Studies and Mathematics.

Advantages

a. There are abundant activities planned and directed by the teacher. These activities make it possible for the learners to advance directly from the "Known to the Unknown.

b. It makes lessons clear and understandable.

c. There is active participation of learners in the lesson and this creates interest in the lesson.

Disadvantages

a. It is not easy to apply to all subjects and all topics in a subject.

b. It has "sometimes been adversely criticized on the ground that it limits the initiative of the teacher and restricts his use of original ideas and techniques"

2.55 Experimental Method

This method lends itself particularly well to the teaching of the sciences. It is accomplished by presenting directly some basic principles and then giving the learners opportunity to verify the principles by experimental means i.e. by verifying the principles using suitable equipment and materials for the sake of emphasis and complete understanding of known principles and to impress them on the minds of the learners.

An experiment can be performed by the teacher for the benefit of the entire class or it can be performed by the learners in small groups, in pairs or individually.

For learners to use the experimental method successfully, the teacher must:

- Present clearly the principle to be verified by experiment.
- Outline in detail the procedure to be followed in testing the truth of the principle.

Advantages

a. Helps to establish principles firmly in the minds of students and to make them more meaningful and significant.

b. There is an aura of realism attached to an experiment.

c. Students develop critical attitude and the habit of weighing evidence.

Disadvantages

a. Not suitable for teaching skills

b. Some students are not suited to the performance of experiments on individual basis

2.56 Project Method

In this method of teaching, students learn by working our projects. This consists of all the educational activities, or in groups. Some of the projects or activities which learners can undertake are farming, weaving mats, collecting materials for the writing of the history of their locality etc. learners can undertake are farming, weaving mats, collecting materials for the writing of the history of their locality etc.

For a project method to be successful:

- The teacher must ensure that the learners undertaking an activity understand well what they are to do.

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- The teacher must ensure that he secures the equipment and the facilities for the project before it starts.

Advantages

a. Creates in learners a sense of responsibility.

b. Develops in them such social skills as co-operation.

c. Learners become purposefully occupied.

Disadvantages

a. It is time consuming.

b. The covering of the syllabus is a problem in project work

c. It disorganizes the school time-table.

2.57 Dramatic Method

In this method, the learner learns by imitating or putting himself in the place of others. This method can be conveniently used in subjects like Literature, History, Civics and Religious Knowledge.

Where a learner puts himself in the place of others, he will:

a. Remember more of the material learned.

b. Form a greater understanding of the subject than mere words could impress upon him.

c. Thoroughly enjoy himself.

2.58 Questioning Method

This method is also called the Socratic Dialogue. It involves students being led through questioning to discover for themselves.

Socratic Dialogue is operationalised, specifying guidelines such as,

a. Starting with what is known.

b. Asking for multiple reasons.

c. Forming general rule from specific cases,

d. Picking counters examples when insufficient reason is given.

A teacher can use this method for several purposes to inform, to make decisions, to establish truths, to review lessons and as aid to other methods. But it is time consuming

2.59 Inquiry / Problem solving Method

In this method, learners inquire into a problem with a view to finding some answers or reasons why a problem exists. Some examples of problems that could be presented to students to search for answers are "The characteristics of a good teacher" and "The principles of effective teaching". Learners try to obtain their answers using accepted data comprising:

- statement of problem.

- Analysing the problem.

- Finding alternative solutions to the problem.

- Considering the merits and demerits of each solution.

- Actual testing of selected solution.

Advantages

a. Generates interest and enthusiasm in learners.

b. Since learners find things out for themselves, they remember them better.

c. Enhances critical thinking.

Disadvantages

a. It is time consuming.

b. Favours intuitive and creative learners

c. Suitable for mature learners.

d. Not suitable for teaching skills.

Instructional media in universities

Examinations

2.60 Strategies and types of test as drawn from the

Internet on org/requet 05,2003 indicate that:

Many teachers dislike preparing and grading exams, and most students dread taking theme. Yet tests are powerful educational tools that serve at least four functions. First, tests help you evaluate students and assess whether they are learning what you are expecting them to learn.

Second, well-designed tests serve to motivate and help students structure their academic efforts Crook (1988), McKeachie (1986), and Wergin (1988 report that students study in ways that reflect

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Try to make your tests valid, reliable, and balanced. A test is valid if its results are appropriate and useful for making decisions about an aspect of students' achievement (Gronlund and Linn, 1990). Technically, validity refers to the appropriateness of the interpretation of the results and not to the test itself, though colloquially we speak about a test being valid.

Validity is a matter of degree and considered in relation to specific use or interpretation (Grounlund and Linn, 1990), for example, the results of a writing test may have a high degree of validity for indicating the level of a student's composition skills, a moderate degree of validity for predicting success in later composition courses, and essentially no validity for predicting success in mathematics or physics. Validity can be difficult to determine. A practical approach is to focus on content validity, the extent to which the content of the test represents an adequate sampling of the knowledge and skills taught in the course. If you design the test to cover information in lectures and readings in proportion to their importance in the course, then the interpretation of test scores are likely to have greater validity. An exam that consists of only a few difficult items, however, will not yield valid interpretation of what students know.

A test is reliable if it accurately and consistently evaluates a student's performance. The purest measure of reliability would entail having a group of students take the same test twice and get the same scores (assuring that we could erase their memories of test items from the first administration). This is impractical, of course, but there are technical procedures for determining reliability. In general, ambiguous questions, unclear directions, and vague scoring criteria threaten reliability. Very short tests are also unlikely to be balanced: to cover most of the main ideas and important concepts in proportion to the emphasis they received in class.

2.62 **Use a variety of testing methods.** Research shows that students vary in their preferences for different formats, so using a variety of methods will help students to their best (Jacobs and Chase, 1992). Multiple-choice or short answer questions are appropriate for assessing students' mastery of details and specific knowledge, while easy questions assess comprehension, the ability to integrate and synthesize, and the ability to apply information new situations. A single test can have several formats. Try to avoid introducing a new format on the final exam. If you have given all multiple-choice quizzes or midterms, don't ask students to write on all-1986; Svinicki, 1987)

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2.63 Write questions that test skills other than recall. Research shows that most tests administered by faculty rely too heavily on students' recall of information (Milton, Pollio, and Eison, 1986). Bloom (1956) argues that is important for tests to measure higher-learning as well. Fuhrmann et al (1983, p. 170)[15] have adapted Bloom's taxonomy for test development. Here is a condensation of their list:

To measure knowledge (common terms, facts, principles, procedure), ask these kinds of questions: Define, Describe, Identify, Label, List, Match, Name, Outline, Reproduce, Select, State, Example: "List the steps involved in titration.

To measure comprehension (understanding of facts and principles, interpretation of material), ask these kinds of questions: Convert, Defend Distinguish, Estimate, Explain, Extend, Generalize, Give examples, Infer, Predict, Summarize, Example: "Summarize the basic tenets of deconstructionism."

To measure application (solving problems, applying concepts and principles to new situations), ask these kinds of questions: Demonstrate. Modify, Operate prepare, Produce, Relate, Show, Solve. Use. Example Calculate the deflection of a beam under uniform loading"

To measure analysis (recognition of unstated assumptions or logical fallacies, ability to distinguish between facts and inferences), ask these kinds of questions: Diagram, Differentiate, Distinguish, Illustrate, Infer, point out, Relate, Select, Separate, Subdivide. Example: "In the president's State of the Union Address, which statements are based on facts and which are based on assumptions?"

To measure synthesis (integrate learning from different areas or solve problems by creative thinking), ask these kinds of questions: Categorize, Combine, Compile, Devise, Design, Explain, generate, Organize, Plan, Rearrange, Reconstruct, Revise, Tell. Example: 'How would you restructure the school day to reflect children's developmental needs?"

To measure evaluation (judging and assessing) ask these kinds of questions: appraise, Compare, Conclude, Contrast, Describe, Discriminate, Explain, Justify, Interpret, Support. Example: "Why is Bach's Mass in B Minor acknowledged as a classic?"

Many faculty members have found it difficult to apply this six-level taxonomy and some educators have simplified and collapsed the taxonomy into three general levels (Crooks, 1988): the first category knowledge (recall or recognition of specific information). The second category combines comprehension and application. The third category is described as "problem solving," transferring existing knowledge and skills to new situations.

If your course has graduate student instructors (GSIs), involved them in the designing of exams. At the least, ask your GSIs to read your draft of the exam and comment on it. Better still, involve them in creating the exam. Not only will they have useful suggestions, but their participation in designing an exam will help them grade the exam.

2.64 0 Take precautions to avoid cheating. See "Preventing Academic Dishonesty
Types of Tests

2.64 Multiple-choice tests. Multiple-choice items can used to measure both simple knowledge and complex concepts. Since multiple-choice questions can be answered quickly, you can assess students' mastery of many topics on an hour exam. In addition, the items can be easily and reliably scored. Good multiple-choice questions are difficult to write-see "multiple – choice and matching tests"

2.65 True-false tests. Because random guessing will produce the correct answer half the time true-false tests are less reliable than other types of exams. However, these item are appropriate for occasional use. Some faculty who use true-false question add an "explain" column in which students write one or two sentences justifying their response.

2.66 Matching tests. The matching format is an effective way to test student's recognition of the relationship between words and definitions, events and dates, categories and examples, and so on. Se "multiple-choice and Matching Tests" for suggestions about developing this type of test.

2.67 Essay tests. Essay tests enable you to judge students' abilities to organize, integrate, interpret material, and express themselves in their own words. Research indicates that students study more efficiently for essay-type examinations than for section (multiple-choice) tests: students preparing

for essay tests focus on broad issues, general concepts, and interrelationships rather than on specific details, and this studying results in somewhat better performance regardless of the type of exam they are given (McKeachie, 1986). Essay test also give you an opportunity to comment on students' progress, the quality of their thinking, the depth of their understanding, and the difficulties they may be having. However, because essay tests post only a few questions, their content validity may be low. In addition, the reliability of essay tests is compromised by subjectivity or inconsistencies in grading. For specific advice, see "Short-Answer and Essay Tests", (source: Ericksen, 1969, McKeachie, 1986).

2.68 Short-answer tests. Depending on your objectives, short-answer questions can call for one or two sentences or a long paragraph. Short-answer tests are easier to write, though they take longer to score, than multiple-choice tests.

They also give you opportunity to see how well students can express their thoughts though they are not as useful as longer essay responses for this purpose. See "Short-Answer and Essay Tests" for detailed guidelines.

2.69 Problem sets. In courses in mathematics and the sciences, your tests can include problem sets. As a rule of thumb, allow students ten minutes to solve a problem you can do in two minutes. See "homework: Problem Sets" for advice on creating and grading problem sets.

2.70 Oral exams. Though common at the graduate level, oral exams are rarely used for undergraduates except in foreign language classes. In other classes they are usually time-consuming, too anxiety provoking for students, and difficult to score unless the instructor type-records the answers. However, a math professor has experimented with individual and are allowed to drop one of their choosing. During the oral exam, the professor probes students' level of understanding of the Theory and principles behind the theorems. He reports that about eight students per day can be tested.

2.71 Performance tests. Performance rests ask students to demonstrate proficiency in conducting an experiment, executing a series of steps in a reasonable amount of time following instructions, creating drawings, manipulating materials or equipment, or reacting to real or simulated situations.

Performance tests can be administered individually or in groups. They are seldom used in colleges and universities because they are logistically difficult to set up, hard to score, and me content of most courses does not necessarily lend itself to this type of testing. However, performance tests can be useful in classes that require students to demonstrate their skills (for example, health fields, the sciences education). If you use performance tests, Anderson (1987). P. 43) recommends that you do the following (I have slightly modified her list).

➤ Specify the criteria to be used for rating or scoring (for example the level of accuracy in performing the steps in sequence or completing the task within a specified time limit).
➤ State the problem so that students know exactly what they are supposed to do (if possible, conditions of a performance test should mirror a real-life situation).
➤ Give students a chance to perform the task more than once or to perform several task samples.

2.72 10 "Create-a-game" exams. For one midterm, ask students to create either a board game, word game, or trivia game that covers the range of information relevant to your course. Students must include the rules, game board, gave pieces and whatever else is needed to play. For example students in a history of psychology class created "Frued's Inner Circle," in which students moves taking such a small cigars and toilet seats around a board each time they answer a question have a full have of theoretically compatible psychological theories, beliefs or assumptions. (Source: Berrentberg and Prosser, 1991).

Alternative Testing Modes

2.73 11 Take-Home test. Take-home test allow students to work at their own space with assess to books and materials. Take-home tests also permit longer and more involved questions, without sacrificing valuable class time for exams. Problem sets, short answers and essays are the most appropriate kinds of take-home exams. Be wary, tough if designing a take-home exams that is too difficult or exams that does not include limits on the number of words or time spent (Jedrey, 1984). Also, be sure to give student explicit instructions on what they can and cannot do; for example are they allowed to talk to other students about their answers? A variation of a take-home test is to give the topics in advance but ask the students to write their answers in class. Some faculty hand out ten or twelve questions week before an exams and announce that three of those questions will appear on the exams.

2.74 12. Open – Book Test. Open-book test simulates the situations professionals face every day, when they use resources to solve problems, prepare reports, or write memos. Open-book test tend to be inappropriate in introductory courses in which facts must be learned or skilled thoroughly mastered as the student is to progress to more complicated concepts and techniques in advance courses. On an open-book test, students who are lacking basic knowledge may waste too much of their time consulting their references rather than writing. Open-book test appears to reduce stress (Boniface, 1988, 1985; Liska and Simonson, 1991), but research showed that students do not necessarily perform significantly better on open-book test (Cliff and Imrie, 1981; Crooks, 1988) Further, open-book test seem to reduce students motivation to study. A compromised between open-and close-book testing is to let students bring an index card or one page of notes to the exam or to distribute appropriate reference material such as equations of formulas as part of the test.

2.75 Group exams. Some faculty have successfully experimented with group exams, either in class or as take-home projects. Faculty report that groups outperform individuals and that students respond positively to group exams (Geiger, 1991; Hendrickson, 1990; Keyworth, 1989; Toppins 1989) For example, for a fifty-minute in-class exam, use a multiple-choice. Test of about twenty to twenty-five items. For the first test, the groups can be randomly divided. Groups of three to five students seem to work best. For subsequent tests, you may want to assign students to groups in ways that minimize difference between group scores and balance talkative and quiet students. Or you might want to group students who are performing at or near the same level (based on students' performance on individual tests). Some faculties make students complete the test individually before meeting as a group. Others just let the groups discuss the test, item by item. In the first case, if the group score is higher that the individual score of any member, bonus points are added to each individual's score. In the second case, each student receives the score of the group. Faculty who use group exams offer the following tips.

- Ask students to discuss each question fully and weigh the merits of each answer rather than simply vote on an answer.
- If you assign problems, have each student work a problem and then compare results.
- If you want students to take the exam individually first, consider devoting two class periods to tests; one for individual work and the other for group.
- Show students the distribution of their scores as individuals and as groups; in most cases group scores will be higher than any single individual score.

A variation of this idea is to have student's first work on an exam in groups outside of class. Students then complete the exam individually during class time and receive their own score. Some portion of the test items are derived from the group exam. The rest are new questions. Or let students know in advance what you will be asking them to justify a few of their responses; this will keep students from blithely relying on their group work for all the answers. (Sources: Geiger. 1991; Hendrickson, 1990; Keyworth, 1989; Murray, 1990; Toppins, 1989)

2.76 **3. Paired testing.** For paired exams, pairs of students work on a single essay exams and the two students turn in one paper. Some students may be reluctant to share a grade, but good students will most likely earn the same grade they would have working alone. Pairs can be self-selected or assigned. For example, pairing a student who is doing well in the course with one not doing well allows for some peer teaching. A variation is to have students work in teams but submit individual answer sheets. (Source: Murray, 1990)

2.77 **14. Portfolios.** A portfolio is not a specific test but rather a cumulative collection of a student's work. Students decide what examples to include that characterize their growth and accomplishment over the term. While most common in composition classes, portfolios are beginning to be used in other disciples to provide a fuller picture of students' achievements. A student's portfolio might include sample papers (first drafts and revisions), journal entries essay exams, and other work representative of the student's progress. You can assign portfolios a letter grade or a pass / not pass. If you do grade portfolios, you will need to establish clear criteria. (Source: Jacobs and Chase, 1992).

2.78 **Construction of Effective exams**

Prepare new exams each time you teach a course. Though it is time consuming to develop tests a past exam may not reflect changes in how you have presented the material or which topics you have emphasized in the course. If you do write a new exam, you can make copies of the old exam available to students.

Make up test items throughout the term. Don't wait until a week or so before the exam. One way to make sure the exam reflects the topics emphasized in the course is to write test questions at the end of each class session and place them on index cards or computer files for later sorting. Software that allows you to create test banks of items and generate exams from the pool is now available.

Ask students to submit test questions. Faculties who use this technique limit the number of items a student can submit and receive credit for. Here is an example (adapted from Buchanan and Rogers, 1990, p. 72).

You can submit two questions per exam. Each question must be typed or legibly printed on a separate 5" x 8" card. The correct answer and the source (that is page of the text, date of lecture, and so on) must be provided for each question. Questions can be of the short-answer, multiple-choice, or essay type.

Students receive a few points of additional credit for each question they submit that is judged appropriately. Not all students will take advantage of this opportunity. You can select or adapt students' test items for the exam. If you have a large lecture class, tell your students that you might not review all items but will draw randomly from the pool until you have enough questions for the exam. (Sources: Buchanan and Rogers, 1990; Fuhrman and Grasha, 1983).

2.791. **Cull items from colleagues; exams.** Ask colleagues at other institutions for copies of their exams. Be careful, though, about using items from test given by colleagues on your own campus. Some of your students may have previously seen these tests.

2.80 2. **Consider making your tests cumulative.** Cumulative tests require students to review material they have already studied, thus reinforcing what they have learned. Cumulative test also give students a chance to integrate and synthesize course content. (sources: Crooks, 1988; Jacobs and Chase, 1992, Svinicki, 1987)

2.81 3. **Prepare clear instructions.** Test your instructions by asking a colleague (or one of your graduate student instructors) to read them.

2.82 4. Include a few words of advice and encouragement on the exam. For example, give students advice on how much time to spend on each section or offer a hint at the beginning of an essay question or wish students good luck. (source: "Exams: Alternative ideas and Approaches, " 1989)

2.83 5. Put some easy items first. Place several questions all your students can answer near the beginning of the exam. Answering easier questions helps students overcome their nervousness and may help them feel confident that they can succeed on the exam. You can also use the first few questions to identify students in serious academic difficulty. (Source: Savitz, 1985)

2.84 6. Challenge your best students. Some instructions like to include at least one very difficult question, though not a trick question or a trivial one, to challenge the interest of the best students. They place that question at a (a) near the end of the exam.

2.85 7. Try out the timing. No purpose is served by creating a test too long for even well prepared students to finish and review before turning it in. As a rule of thumb, allow about one-half minute per item for true-false tests, one minute per item for multiple-choice tests, two minutes per short-answer requiring a few sentence, ten or fifteen minutes for a limited essay question, and about thirty minutes for a broader essay question. Allow another five or ten minutes for students to review their work, and factor in time to distribute and collect the tests. Another rule of thumb is to allow students about four times as long as it takes you (or a graduate student instructor) to complete the test. (Source: Mckeachie, 1986)

2.86 Give some thought to the layout of the test. Use margins and line spacing that make the test easy to read if items are worth different number of points, indicate the point value nest to each item. Group similar types of items, such as all true-false questions, together. Keep in mind that the amount of space you leave for short-answer questions often signifies to the students the length of the answer expected of them. If students are to write on the exam rather than in a blue book, leave space at the top of each page for the student's name (and section, if appropriate). If each page I identified, the exams can be separated so that each graduate student instructor can grade the same questions on every test paper, for courses that have GSIs.

2.87he nature of Formative Evaluation

Barry Beyer (1955) p7[22] suggests on how to conduct a formative evaluation simply put to mean" evaluating or assessing a product while that product is in the process of being created and shaped. Formative evaluation serves development rather than implementation purposes. The primary goal of formative evaluation is to improve the quality of the product being developed so that it will be as likely as possible in everyday use to achieve the objectives it was designed for. Product revision takes place in light of the information generated by the evaluation and before the product takes final form'.

Formative evaluation is distinguished by three features:

- It is ongoing
- It involves assessment.
- It seeks specific information as well as judgments.

Formative evaluation is ongoing in that it occurs repeatedly various stages throughout the development process, from the design of platform stage through the prototype (draft), pilot, and field trail stages of the product. It involves assessment, making informed judgments focusing on how well the product, at whatever stage of development it is in when being assessed, meets criteria indicating the extent to which it is likely to produce the results intended

Finally, because the information secured from each formative assessment is to be used to restructure or otherwise modify the product, formative evaluation seeks specific information as well as judgments or opinions. Those judgments and information together serve as feedback for product improvement rather than for purposes of "grading"

2.88 Annoh Kwaku (1995 p. 63) further indicates that we have summative assessment which is usually test-based and is end of term or course assessment and formative assessment and formative assessment which is the regular or frequent monitoring of a students performance. It is also rather than external. Usually, it is on assignments and not test-based. Work is marked by the teacher himself.

Summary

The researcher found evaluation of students' and lecturers' performance necessary in his thesis because it is used to determine students' / lecturers' performance at the beginning of instruction. It

also monitors learning progress during instruction (formative evaluation). It predicts students' future performance, learning difficulties and serves as a guide to learners in their choice of courses. On the whole, the review of related literature has helped to draw information on education, curriculum, teaching methods and forms of assessment: all together, they have enhanced the achievement of purpose for the research.

'Teach your best' outlines the functions of University lecturers as that the teacher:

a) Is an authority in his discipline.

b) Is the planner and manger of time

c) Is the academic guide to students

d) Is adviser and counsellor

e) Is a researcher

f) Is a consultant

The researcher comments that, as the man in authority whatever the teacher instructs must be complied with by students and if the teacher plans his lessons and manages his time well, he can deliver well. As a guide, the teacher directs students where they should go. He advises students and helps them to understand themselves. A simple research will help the teacher to know whether students are doing well and maintaining standards. The researcher also believes in the teacher as "a mountain of knowledge" and he imparts it as a consultant does.

Much commendation is given to Anno Kwaku's book on Education, Sackey's book on General Principles and Practice for teachers and Teach your best. They have been of tremendous help in the sourcing of review of literature for this thesis.

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CHAPTER THREE
RESEARCH METHODOLOGY

In this chapter, the researcher outlined the methods he adopted for the research.

3.1 Research Design

The researcher used qualitative and quantitative methods in the study. A twenty item questionnaire was sent to thirty selected departments listed below. Ten persons were interviewed when they were not in the position to fill in the questionnaire due to want to time and misplacement of questionnaire

List of selected departments for the study:
2. Department of Animal Science
3. Department of Horticulture
4. Department of Agric. Economics and Extension
5. Department of Agro Forestry
6. Department of Maths
7. Department of Physics
8. Department of Biochemistry and Biotechnology
9. Department of Optometry and Visual Science
10. Department of Pharmaceutics
11. Department of Pharmacology
12. Department of anatomy
13. Centre for Cultural and African Studies
14. Department of Chemical Engineering
15. Department of Civil Engineering
16. Department of Electrical Engineering
17. Department of Agric, Engineering
18. Technology Consultancy Centre
19. Department of Planning
20. Department of land Economy
21. Department of Building Technology and Mang.
22. Department of Painting and Sculpture
23. Department of General Art Studies

24. Department of Industrial Art
25. Department of Integrated Rural Art and Industry
26. Department of Social Studies
27. Department of English
28. Department of Economics
29. Department of Public Law
30. Department of Wood Science and Technology.

3.1 Justification and suitability for this research

The research design was justified because qualitative research implied a field study, participant observer, a natural situation, field report, the field being KNUST. The researcher was the observer. It was also quantitative research because he used numbers in his description.

3.2 Library Research

Valuable information was drawn from the University Library of KNUST and that of UE-Winneba-Kumasi Campus

3.3 Population, Sampling, the Sample

Of the over ninety departments and centres in the University, twenty-nine departments and one centre were chosen. The population of study was the ninety departments which formed the primary sample frame and since it was not possible to consider all the teachers or lecturers in all the ninety departments, a secondary sample frame of thirty departments was considered. The thirty department comprised many lecturers to deal with so a tertiary sample frame was adopted thus bringing down the number of lecturers. This method of sampling is the multistage or cluster sampling.

Five of the twenty item questionnaires were sent to the selected departments to seek the co-operation of Provosts Deans, professors, Senior Lecturers, Lecturers, Demonstrators and Research Fellows. Apart from the questionnaire which would help find the number of professional teachers in the K.N.U.S.T., the Vice-Chancellor's report for the thirty-ninth congregation and the quality assurance report was observed as a reliable assessment of the performance of lecturers.

3.4 Validity of Instruments

It is anticipated that an honest response to the questionnaire could show the true position of a lecturer or respondent. The questionnaire was the best means to get information from the respondents. Apart from the filling in of the questionnaire the researcher interviewed some of the lecturers especially those who were too busy and could not fill in the questionnaire. He also observed the trend of appointment of lectures and Teaching Assistants.

3.5 Administration of Instruments

All the one hundred and fifty copies of questionnaire were self-administered. Lecturers who were not present had theirs slotted in their pigeon holes. Simple and straight forward questions were set to make the respondents understand themselves, draw conclusions and respond correctly. The questionnaire was to identify how many of the respondents were professors, Deans, Senior Lecturers, Provosts, Lecturers, Demonstrators and Research Fellows; their teaching experience and how many could be "pupil-teachers". The observation sought to find out those who had been teaching well and students" response to tests and learning. The response started coming in just after a day. For the rest of the questionnaire, collection was quite smooth, time and energy were spent to facilitate maximum collection. The one week given to the respondents was just enough to enable them complete the questionnaire without hindrance. The return rate was very poor as respondents pleaded for more time to present questions impending University examinations, departmental reports, marking compilation of results. Ill-health did not permit the researcher to work due to an excruciating neck pain which hanged on for over two months.

3.6 Population of study

The concept of population is basic to descriptive and qualitative research. Busha and Harter (1980) defined population as ..... "any set of persons or objects that possessed at least one common characteristic". Campbell Emma, (2000) Longman Active Study Dictionary also defines population as; "The number of people living in an area country etc". Due to the above, the researcher felt that a sampled population from the Provosts, Deans Pro Lessons, Senior Lecturers. Lecturer, Demonstrators, and so on could be said to constitute a population. A stratified sample was devised because the entire population of Provosts Deans, Professors, senior Lecturers and Demonstrators would have been too large to work with.

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They were picked as the population of interest. The minimum of 30% was chosen because it is the acceptable minimum percentage for any major research. The population was divided into three categories comprising:

A. Provosts, Dean and Professors, (the senior officers of the institution of learning)

B. Senior Lecturers

C. Lecturers Demonstrators and Research Fellows

The categories are indicated in table 7 below:

1. Category A	(Stratum 1	22
2. Category B	(Stratum 2)	44
3. Category C	(Stratum 3)	84
Total	Strata	150

Table 7

3.7 Justification of sample picked

The potential population for this research was the total number of lecturers in the whole University that could be found in the many departments of the University. An average of five lecturers was randomly selected from thirty departments. This brought the targeted and accessible population to one hundred and fifty respondents. The reason for sampling up was to be able to work within time. Hence a multistage sampling was devised as seen from categories a, B and C which showed the different levels that came up.
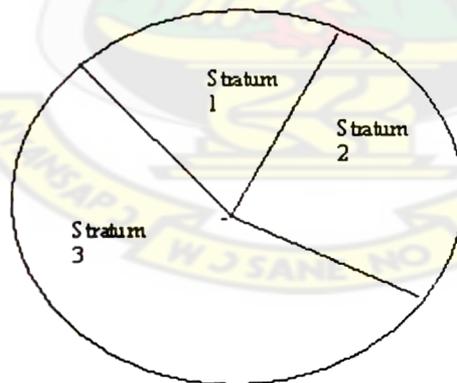
Fig. 4

3.8 Questionnaire Design

A two and a half-page item (sample in appendix 'A') was designed to seek relevant data from the population of study comprising (a) the Senior Members of the institution (Professors, Deans, Provosts and Senior Lecturers), (b) the Lecturers and (c) the Demonstrators / research Fellows. The questionnaire comprised personal particulars of respondents on the first page, following with general true / false and yes / no questions numbering twenty.

The respondents were asked to fill in their names, school, college – department in which they work and their professional qualification and where they pursued courses in education. Page two had short notes for the respondent to help him/her to understand and cautiously learned to accept that a non-professional teacher is "a pupil teacher". In simple terms, such a teacher does not use appropriate pedagogy of teaching.

Matters relating to curricular activities filled the latter part of page two. Here, the researcher asked questions such as the length of a semesters, number of students in a lecturer, assignments, students' performance (standard), type of tests and methods of teaching.

Table 8- Responses from Questionnaire

University Teachers	Respondents (population)	Return Rate	Percentage of favourable response	Percentage of total population
A Provosts, Deans Prof.	22	14 - 64%	23%	9.3%
B. Senior Lecturers	44	23 – 52&	38%	15.3%
C. Lecturer Demonstrators/ Research Fellows	84	24 – 28%	39%	16%
Total	150	61	100%	41%

Table 8

3.9 Data Collection

The researcher employed qualitative and quantitative research methodologies for the research. The primary data was solicited from all the one hundred and fifty respondents in the quest for their titles and professional teachers' status.

The secondary data were collected from documentary sources (books, brochures, charts and publications). Data collected from the libraries, officers and educationists were put together with critical analysis (evaluation) and conclusions drawn from them.

Assessment of lecturers

Assessment of lecturers by students of KNUST by the quality assurance and strategic planning Unit 'QAPU' Vol. 2 of KNUST for the year 2005 was the basis for assessment employed by the researcher. The publication covers a compilation of students' evaluation of courses and lecturers for the first and second semesters of the 2003 – 2004 academic year.

A critical study of the report indicated a direct coverage of the researcher's choice of departments of study, that is; the thirty selected Departments. The areas of study by the report hinted on:

1. Course presentation
2. Lecturers' bearing in class
3. Mode of delivery
4. Pedagogy
5. Learning environment

A compilation of the report is attached in the appendix and the findings would be addressed in chapter four (the next chapter).

Following the above write-up is the evaluation of Lecturer's performance in teaching and subject presentation drawn from the Quality assurance Report of the thirty-ninth Congregation presented by the Vice Chancellor.

3.10 Students' evaluation of courses and Lecturers

The office of the co-coordinator, Quality Assurance and Planning Unit of the KNUST was of great assistance in the provision of a copy of the Vol. 2 Vice-Chancellor's report for the thirty-ninth

congregation 2005. An up-to-date list of Provosts, Professors, Associate Professors, Senior Lecturers, Lecturers, Demonstrators and Research Fellows was found in the brochure. The Researcher relied on the validity of the Vice-chancellor's report in the assessment of Lecturers as indicated in the publication. A critical study of the Vice-chancellor's report on the second semester of the 2002/2003 academic year indicated that for course presentation: see appendix

A – Represented presentation of course overview

B – Represented course content has increased knowledge

C – Represented course content covered on schedule

D – Thorough knowledge of subject matter

Considering the restriction on pagination of the thesis report, a random sample of sections in the selected departments for the study was made. The findings are as represented in table 8 below for ten out of thirty departments and sections. The sample formed thirty-three one-third percent of the thirty departments selected.

From the Table given, it was found out that for the ten selected departments forming thirty-three percent of the thirty departments selected, seven courses in art Education. I, two in Agric Engineering IV, one in chemical Engineering IV, one in Language !!!, and three in Mechanical Engineering I, representing forty-five percent recorded very good performance for course representation identified as 'A', four courses in Biochemistry II, one in Building Technology I, Nine in Civil Engineering III, two in Industrial Art I, representing fifty-two, percent recorded good performance while in Architecture final years in one course representing three percent of the total recorded poor performance.

In 'B' represented as whether course content has increased knowledge, seven courses in Art Education. I one in Languages 111 Three in Mechanical Engineering I, represented thirty-five percent which was very good and two in Agric Engineering, IV four in Biochemistry 1 one in, Building technology 1 One, Chemical Engineering IV nine in, Civil Engineering III two in. Industrial Art 1 representing sixty-two presented recorded good performance while Architecture III representing three percent recorded average performance.

In 'C' represented as whether course content was covered on schedule. Two courses in Agric Engineering IV representing six percent recorded very good coverage while seven Art Education I four Biochemistry II, one in Building Technology I, nine in Civil Engineering III two industrial Art I, one in Languages III three in Mechanical Engineering I representing eighty-three percent recorded good coverage. One course in Architecture III represented three percent and had very poor coverage.

'D' represented as thorough knowledge of subject matter, seven courses in Art Education I two in. Agric Engineering, IV one in Languages III and 3 in Mechanical Engineering I representing forty-two percent recorded through knowledge. Four in Biochemistry II, one in building Technology I, one Chemical Engineering IV, nine in Civil Engineering III and two in Industrial Art I representing fifty-five percent recorded good through knowledge. Architecture representing three percent recorded an average performance.

The remarks forming the result of the general evaluation of lecturers indicated that seven courses in Art Education I, one in Languages III and three in Mechanical Engineering I were very good and were represented as thirty-five percent. Two in Agric Engineering IV, four in Biochemistry II, one in Building Technology I, one in Chemical Engineering IV, nine in Civil Engineering III and two in Industrial Art I representing sixty-two percent were evaluated as good. Architecture representing three percent was evaluated as poor.

The total remark indicated for thirty-one courses for the second semester of the 2002/2003 academic year graded Lecturers' performance as good except from appendix 3 of "QAPU"

acceptability of standards. Poor appearance of Lecturers could sway students and create lack of taste and interest for learning.

For thirty-five courses the total remark for all the five representations in the ten selected departments showed a performance which was slightly above good

(Table 10)

Lecturer's bearing in Class Semester 2 – 2002/2003

Name of Department	No of Course	A	B	C	D	E	D
Crop Science I	3	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Pharmaceutical Chemistry II	3	Very Good	Good	Good	Very Good	Good	Good
Physics	1	Very Good	Very Good	Very Good	Very Good	Good	Very Good
Planning III	4	Good	Good	Good	Good	Good	Good
Wood Science IV	2	Good	Good	Good	Good	Very Good	Good
Agro Forestry II	1	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Art Education I	2	Very Good	Good	Very Good	Very Good	Good	Good
Architecture III	12	Good	Good	Good	Good	Good	Good
Biochemistry I	4	Very Good	Very Good	Good	Very Good	Very Good	Very Good
Building Tech II	3	Good	Very Good	Good	Good	Good	Good

The number of courses for the ten (10) selected departments as drawn from the Appendix 3 was thirty-five (35)

The general remark for Lecturer's bearing in class was good and forty percent representing Crop Science, Physics, Agro Forestry and Biochemistry recorded as very good. Hence Pharmaceutical Chemistry, Planning Wood Science, Art Education, Architecture and Building Technology represented six percent and it was good. (learning environment in the University was just the average. In the mode of delivery where:

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A- Represented that Lecturer is clear and understood.
B- Represented that Lecturer links lecture material and field work (where applicable)
C- Lecturer's presentation inspires class to be interested in subject matter
D- Lecture's ability outside classroom for consultation on matters relating to courses.

For 'A' on clarity and understanding, four courses in Languages one, two in Painting / Sculpture two, two in Pharmacology two and two in Wood Science four representing thirty-one percent recorded very good for clarity and six courses in Electrical Engineering one, tow in Industrial Art one, three in Maths two, six in Mechanical Engineering three, four in Pharmacognosy one and one in Physics four representing sixty nine percent recorded good clarity and understanding.

For 'B' where Lecturer links lecture material and field work, languages one and Physics four representing sixteen percent recorded very good performance while Electrical Engineering one Industrial Art one, Mechanical Engineering three, Painting and Sculpture two, Pharmacognosy one pharmacology two and Wood Science four representing seventy five percent recorded good performances, Mathematics two representing ten percent recorded an average performance.

For 'C' on class interest, Languages one and Painting/ Sculpture two representing nineteen percent recorded very good performance, Industrial Art one, Pharmacognosy one, Pharmacology two, Physics four and Wood Science four representing thirty-four percent recorded good performance, Electrical Engineering one Mathematics two and Mechanical Engineering three representing forty-seven percent was average.

The total remark indicated good performance of Lecturers.

3.12 Mode of Delivery Semester 2 – 2002-2003

Table II

Name of Department	No of Courses	A	B	C	D	Remarks
Electrical Eng I	6	Good	Good	Average	Average	Good
Industrial Art I	2	Good	Good	Good	Average	Good
Language I	4	Very Good	Very Good	Very Good	Good	Very Good
Mathematics II	3	Good	Average	Average	Good	Average
Mech. Engineering II	6	Good	Good	Average	Average	Good
Painting / Sculpture II	2	Very Good	Good	Very Good	Good	Very Good
Pharmacognosy I	4	Good	Good	Good	Good	Good
Pharmacology II	2	Very Good	Good	Good	Good	Good
Physics IV	1	Good	Very Good	Good	Average	Good
Wood Science IV	2	Very Good	Good	Good	Good	Good

Pedagogy is the right method of teaching and is represented in :

A – As monitoring progress of the class

B – Lecturer gives assignments which facilitates understanding

C – Lecturer appears fair in grading students.

For the evaluation of Lecturers monitoring of progress of the classes, it was only in two courses for second year Mathematics that recorded an average performance. Two courses in third year agric Engineering; eight in first year Languages, one in final year Mechanical Engineering, seven in Biochemistry one, two in Civil Engineering three, one in animal Science four, ten in Law one, six in planning one, two in Economics one representing ninety five percent recorded good performance and two Mathematics courses representing five percent recorded average performance.

For 'B' as giving of assignment for understanding all forty-one courses representing hundred percent recorded good performance.

For 'C' Lecturer's fairness in grading students, forty courses comprising two in Agric Engineering, three, eight in Languages one, one in Mechanical Engineering four seven in Biochemistry two in Civil Engineering three, ten in Law one, six in planning one, two in Maths two and two in

Economics one representing ninety-eight percent recorded good performance while one course in Animal Science four representing two percent recorded very good performance

A total remark for the three areas indicated an averagely good performance of Lecturers

3.13 Pedagogy in teaching

(Table 12)

Department/Section	No of Courses	A	B	C	Remarks
Agric Engineering III	2	Good	Good	Good	Good
Language I	8	Good	Good	Good	Good
Mechanical Engineering IV	1	Good	Good	Good	Good
Biochemistry I	7	Good	Good	Good	Good
Civil Engineering III	2	Good	Good	Good	Good
Animal Science IV	1	Good	Good	Very good	Good
Law I	10	Good	Good	Good	Good
Planning I	6	Good	Good	Good	Good
Maths II	2	Average	Good	Good	Good
Economics I	2	Good	Good	Good	Good

A total of forty-one courses were represented

A total of thirty-two (32) courses drawn from appendix three (3)

From a bar chart drawn from appendix 4, fig, 1 of the "OAPIF" report overall performance of academic staff from the second semester 2002-04 rose from 1-61648 (2002/03) through 2,07603 1

In 2003/04 academic year to 2,0882936 by 2003/2004 academic year, that was an ^ | indication of a rise in performance.
Appendix 4 figs 2 compared performance in course presentation, Lecturer bearing in class, mode of delivery and pedagogy.

The bar chart showed a rise from 1,8330663 to 2.016699 then to 2,052529 in course presentation for the year 2002-2004. Indications from the bar chart showed Lecturer's bearing rising from

1,703367 to 1,93438 but dropped to 1,841778. Indications for mode of delivery showed a rise from 2,107384 in 2003/2003 semester two and one of 2003/04, then a rise from 2,231963 to 2,250189.

Pedagogy showed a rise from 2,140144 m semester 2, 2002/03, semester 1 2003/04 slightly going up to 2,155457 top a high rise of 2,336279.

The representations from the two charts indicated that necessary upward performances which go to support the representation made from appendix 3 which recorded good performance of lecturers.

Figs 3 and 4 also in appendix 4 made indications of rises all in favour of Lecturers performances for the second semester of 2002/03 first semester of 2003/04 and the second semester of 2003/04 academic years.

Indications found in appendix 5 on attrition rates for some courses over a period of ten years (1994-2004) showed that in Pharmacy, sixty-two withdrawals were made out of a total of seven thousand six hundred and fifty-eight starting from 1997/68 academic year. In Art, forty-two withdrawals from nineteen thousand, five hundred and sixty-five was recorded for the 1977/98 to 2004. That explains that Lecturers are not only teaching and monitored but they in turn maintain standards in a "checks and balances"

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CHAPTER FOUR
RESULTS: ANALYSIS, DISCUSSION AND INTERPRETATION OF DATA

4.0 Introduction

In chapter three, the researcher wrote about the methodology used for the thesis. He mentioned the research design as qualitative and quantitative research sourcing information from the libraries on reviewed literature. How he arrived at the sample population, interview, questionnaire and collection of data were highlighted. In this chapter, the assembling of data, analyzing, interpreting, confirmation of test of hypothesis, conclusions and recommendations will be highlighted.

4.1 Assembling the data

In this chapter, stratum I (Category A) representing provosts, Deans and Professors were twenty to represented as fifteen per cent of the population of study returned fourteen copies of questionnaire.

Stratum 2 (Category B) representing senior lectures were forty-four which was twenty-nine percent of the total population and stratum 3 (Category C) comprised Lectures, Research fellows and Demonstrations who formed fifty six percent of the total population. The actual workable population thus became sixty-one respondents of which stratum I responded about twenty nine percent. Stratum 2 responded about thirty eight percent and stratum 3 responded about thirty-nine percent.

4.1 Analysis and Interpretation of findings from questionnaire

a) Out of the questionnaire given out stratum 1 (provosts, Deans profession) indicated that they are non-professional teachers except one but six out of the number have attended short courses of averagely two weeks duration (1b) for senior lecturers in stratum 2 (category B) eight are professional teachers and eight have attended short courses in education at K.N.U.S.T.

In stratum 3 (lecturers, Demonstrators and research fellows) ten respondents are professional teachers while eight respondents have attended short courses in Education at KNUST. Out of the actual population for the study (6) respondents) nineteen are professional teachers who form thirty-one percent of the responded. It was found out that most of the lecturers at KNUST are not professional teachers (test of hypothesis)

(Test of hypothesis) A total of twenty respondents said they some difference in teaching after going through teacher's course (Id). Two said they started teaching as professionals so they couldn't make a difference while thirty-nine non-professional teachers ticked N/A (not applicable).

Analysis from the data collected on responses to the questionnaire showed that nineteen of the lectures were professional teachers and represented about thirty-one percent of the total number respondents. From the total of sixty-one the remaining forty-two formed sixty-nine percent.

4.3 Interpretation of data

From the above interpretation it was found out that KNUST was far less than the non-professional teachers. That meant that most of the teachers, in KNUST were non-professional teachers who had not undergone teacher's training. Consequently, they did not use the principles of pedagogy.

4.4 Test of hypothesis / confirmation

The researcher stated in his hypothesis that he was of the conviction that a larger number of teachers in KNUST might be non-professional teachers because he was of the opinion that graduates were appointed as lecturers based on their high performance while on the courses of study. The outcome of the responses to the questionnaire confirmed the statement of the hypothesis as show below.

Table 13

Status	Number	Percent of population of study
Professional Teachers	19	31%
Non-Professional Teachers	42	69%

4.5 Teaching Experience

Most of the Provosts, Professors and Deans have long teaching experience. Indications from questions (IC) showed that of the fourteen representatives for provosts, professors and Deans who responded, two had not taught before but the remaining twelve had taught between twenty-four and thirty-seven years. On the average, the fourteen had taught for twenty seven years for a total of three hundred and seventy-eight years. Twenty-three senior lecturers responded and indicated that only one had taught for eight years one had taught for fifteen years while two had taught for six-teen years and two had taught for eighteen years while the rest had taught for over twenty

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years. With one from college of Art housing the highest of forty-eight years with an average of twenty-three point eight years.

Response for questionnaire (2b) in respect of Lecturers, Demonstrators and Research fellows, only one research fellow indicated that he had taught for three years. The rest had taught for over ten years with the highest being thirty-six years. They had taught for a total of five hundred and ninety-three years and their average stood as twenty four point seven years.

The total average for the three strata was seventy-six years and their average was twenty five point three years which is slightly about twenty-five years four months. That is represented in a Table X below:

Table 14

University Teachers	Respondents	Teaching experience Total no of years	Average teaching
Category A Stratum 1 Provosts/Deans/Prof	14	378 years	27 years
Category B Stratum 2 Senior Lecturer	23	548	23.8 years
Category C Lectures/Demonstration Research fellow	24	593 years	24.7 years
Total	61	1519 years	76 years

The study revealed that averagely, long experience of university teachers accounted for their good performance as recorded in the QUPU REPORT. At least, a professor of Agriculture and a Senior Lecturer in Land Economy wanted University teachers to go professional right at the time of recruitment because after teaching for one or two years a university teacher will feel secured and find no need for going through courses for teaching. The researcher recommends that going

through professional teachers-training should be a conditional requirement for the appointment of lecturers. Forty—eight respondents ticked that the professional teacher is expected to give optimum results at the end of teaching and six respondents indicated that it is false; while seven found it not applicable. The researcher noted from the above that a trained teacher must be able to teach better. For questionnaire number four, a non-professional as stated can give partial result. Many respondents found it uneasy to respond to the question because most of them in principle were non professionals. How could the experienced teacher who had taught for over twenty years give partial result? According to the results that was one reason for low response to the general questionnaire, but he goes on to stress that a person who has not gone though the fundamentals of teaching no matter what or how can not give the optimum result at the end of teaching.

As a result, twenty-eight professional teachers and a few non-professional ticked question 4 as true, thirty ticked false and the remaining three were neutral.

Fifty-seven respondent ticked yes for question five and the rest, four in number ticked no for a question which stated that being good in a subject area did not make one good a teacher.

4.6 Methodology of Teaching

Question six expected the professional teacher to follow teaching methods for good subject delivery and fifty-nine respondents indicate true while the remaining three ticked false. 4.4 proposal for professional teachers' course in KNUST.

4.7 For question seven on the introduction of a professional teachers' course in KNUST

Fourteen senior lecturers ticked yes representing twenty-three per cent. Lecturers and demonstrators ticked twenty-four in favour representing thirty-nine per cent while ten provosts, Deans and professors ticked yes representing sixteen percent. A total of forty-eighth respondents ticked yes for the introduction of professional teachers Course in KNUST. That represented seventy-eight point six percent of the total number of respondents. Thus it could be confirmed that professionalism in teaching in KNUST is sure to come

For question seven (a) Two respondents chose full time course in Education is introduced in KNUST and that was fourteen point percent (5%). Thirteen senior lecturers want a sandwich

course (7b) and that represents twenty-one percent (21%) of the total, while lecturers / Demonstrations and research fellows numbering twenty-two respondents (35%) thirty-six percent wanted a sandwich course. In all, seventy-two percent of the total number of respondents wanted a sandwich course for KNUST. Twenty-four point seven percent did not till n for questionnaires seven(a) & (b)

4.8 International recognition of KNUST

Thirty-seven respondents agreed that KNUST is internationally acclaimed as world class technical University. That was sixty-one percent of the total number of respondents. Fifteen respondents representing twenty-four percent ticked false for question eight.

Two indicated that the University used to be recognized internationally, that was three point three percent, while the remaining seven had no idea about that recognition. That was eleven point five percent of the total of sixty-one respondent.

4.9 Life after fifty years of K.N.U.S.T.

To maintain international recognition and for future growth, teaching methods would have to be modified. Fifty-four respondents indicated yes for the questionnaire while lour said no and three were undecided.

4.10 For 10(a) An Adequate Preparation for Teaching

All sixty one respondents ticked yes and all except two ticked yes for 10 b on provision of relevant teaching and learning materials and the same was indicated for 10c on motivation for teachers. For question eleven. Fifty out of the sixty one respondents indicated that they were able to meet their set target at the end of the semester. Seven said they were unable due to the large numbers. Four did not respond at all. Thirty respondents indicated that in question 12 (a) semester is sixteen weeks, twenty-seven said it is fourteen weeks plus two weeks preparation. Four said it is thirteen weeks. Item thirteen on the questionnaire asked whether lecturers were able to give assignments on every topic.

Twenty-two respondents stated that they were able to give assignments on each topic while thirty-nine said no. Item fourteen was on the number of students in a lecture and twenty-nine

respondents indicated figures above two-hundred students in a lecture, that representation amounts to forty eight percent of the total number of respondents. Twenty-eight respondents indicated figures above hundred but less than two-hundred students in a lecture. That was forty-six percent of the total number of respondents, an indication that lectures are fully overloaded. The remaining six percent recorded figures below twenty students in a lecture. Fifty respondents stated that they were able to mark all assignments. That is a high eighty-two percent. Indications were that some of such lecturers had some assistance in their markings. Eight respondents ticked no for their response in question fifteen and that amount to thirteen percent of the total number of respondents. The remaining three respondents did not answer at all. At least one indicated that it did not apply to him just because he had not taught before. The three represented five percent of the total number of respondents.

4.10 (b) Kind of Test given to students

Item sixteen was on type of examination questions given to students. Four respondents indicated that they use (a d f) which were, objective tests with answers, essay and performance test. Three used objective without answer, quizzes and essays (b c d). Three used objectives with answers, quizzes, essays performance and oral tests. (a, c, d, f, g). Another three used objective tests without answers and essays (b d, c q). Three used essays and take home tests (d h) while another four used objective with or without answers and true & false tests (a b e).

One respondent used quizzes, essay, true-false and take-home tests (c d e h), three used essays only and another three used objectives with or without answers and essays (a b d). Three used objective tests with answers and essays (a d). Three used quizzes, essays, performance tests, take-home tests and open-book tests.

(c d f h i). Two respondents used essay, performance of practical tests and oral test (d I, g), two used objective tests with or without answers, quizzes and essays (a b c d) in their test delivery. Two used objectives with answers quizzes performance tests, take-home tests and open-book tests (a c f h i) Two provosts indicated that they had not taught before so they did not conduct tests. Two others indicated that they used objective tests, essays, true-false tests that they made use of multiples of tests, objectives with or without answers, quizzes, essays, true-false tests.

4.11 Performance tests and take home tests

One respondent indicated that he used only true-false test, two respondents wrote that they used objective test with answers, quizzes, essays, true-false tests and take-home t.-sis Another two indicated that they used objective test with answers, quizzes, essay and take home tests. Another two indicated that they used objective test with answers, quizzes, essay and take-home tests. Two wrote that they used objective tests with answers, oral tests and take-home tests. Two used only objective test with answers. Two others wrote for all the test provided except (f) which is performance or practical tests. Two respondents went on to indicate that they used objective test without answers, essays true-false test and take-home test (b d e f) the last two said they used objectives tests without answers essays, performance tests, take-home tests, open-book test (a d f h i).

From the above indications, the researcher comments that lecturers of KNUST used all forms of tests in the evaluation of students performance and are considered valid tests.

4.12 Assessment of Students

The response on the performance of students as indicated by eight (8) respondents showed very good performance of students. That was thirteen percent of the total response while thirty-four respondents representing fifty-six percent indicated good performance. That was the true reflection, of the QAPU report which gave a general good performance of lecturers. This indicates that the performance of lecturers was good but not excellent. Fifteen respondents representing twenty-five percent ticked that the students performance was on the average. Four of the respondents who formed six percent of the total of sixty-one did not tick anything on students' performance.

From the above questionnaire number eighteen was generally guessed, yes that students understood the teaching and tests, delivered by lecturers. The good performance of students as found in questionnaire number seventeen enabled the researcher to know that questionnaire number nineteen on performance of students after tests indicated a high number of passes.

Thirty-seven respondents forming sixty one percent indicate that many students passed their test. Nine respondents forming fifteen percent indicated that students' assessment was above standard. The remaining fifteen respondents forming twenty four percent did not tick anything at all.

4.13 Methods of teaching

Twenty six respondents indicated that they used a combination of more than four of the methods of teaching namely:

a) lecture method

b) demonstration method

c) dictation

d) class discussion

e) group discussion

f) dramatic method

g) project method

h) questioning

that was forty-three percent of the total of sixty-one respondents. Eleven respondents forming eighteen percent use only one method to teach. Nine respondents representing fifteen percent indicated that they use two methods to teach. Another seven representing eleven percent wrote that they use three methods in their teaching. The remaining eight representing thirteen percent of the total of sixty-one respondents did not make any indication of the methods used in teaching.

The summary, conclusions and recommendations on the dissertation will be considered in chapter five which follows next.
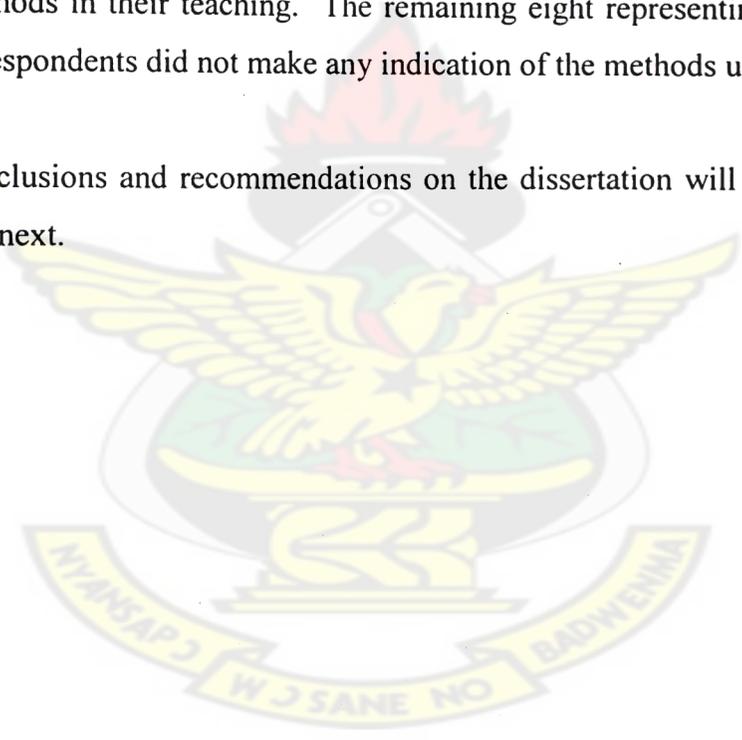
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In chapter four, the data from the responses of the questionnaire sent to the selected departments of KNUST were analyzed to find out how many lecturers were professionally trained and whether the lecturers perform, well in their subject delivery.

5.1 Summary, of the study

The thesis topic was on Professionalism in teaching at selected departments of KNUST. The main objective was to find out how many lecturers of KNUST were professional teachers and their performance and to suggest a curriculum framework for an introduction of professional teachers' course. Definition of words, abbreviations and references were highlighted. Review of Related Literature sourced from libraries and the websites formed the supportive base for the thesis. Definitions of education, General Principles of teaching, methods of teaching, types of tests and measurement formed the line of direction. A twenty item questionnaire was the main test of hypothesis for the thesis.

5.2 Major findings

Five questionnaires were sent to each of the thirty selected departments and only sixty-one responses were received. That enabled the researcher to find out that of the number, nineteen were professional teachers. Few had undergone short courses related to teaching about two weeks on the average and forty-two were non-professionals (test of hypothesis). Forty-eight respondents representing seventy-nine percent of the respondents indicated that the introduction of professional teachers' cause in KNUST was necessary.

A large number use many teaching methods. QAPU report indicated good performance of lecturers. Weaker students were withdrawn. The lecturers want teaching methods modified and that lectures be motivated adequately. Student's performance was averagely good.

The researcher conducted a random sampling comprising hundred students' from ten departments to backup the students' assessment of lecturers as indicated in the QAPU report

The department were:

Mathematics, Optometry, Building Technology, Pharmacy, Civil Engineering, Chemical engineering, Economics and Industrial Management, Textiles and Publishing Studies .

Students were interviewed on one-to-one basis and all of them said that lecturers performed well above sixty percent. Students of Civil Engineering and chemical Engineering said they lacked practical training. Students in Optometry hinted that some old lecturers gave lesser attention to teaching and were busier on their private consultancy work. As a result, they shifted the work on Teaching Assistants. Students of Textiles indicated that older lecturers taught better than the new ones.

5.3 Problems coming out of the Quality Assurance Evaluation

Many factors that contribute to effective teaching and learning include good remuneration, motivation and adequate supply of teaching materials. Lecturers of KNUST enjoy average remuneration and motivation levels. Teaching materials and lectures rooms are woefully in adequate and cannot be the basis for lecturers' poor performance as a recorded for industrial Art in the QAPU report. On the part of students some factors that contribute to effective learning. These are:

Heredity, motivation, parental support, provision of teaching learning materials, and government policy. Most of the departments in the KNUST are ill equipped with teaching learning materials. At least the Industrial Art department is an example. Government's policy of charging academic and residential facility user fee drain students' financial base. Students and lecturers cannot be blamed for poor performance when they are faced with too many problems.

5.4 Conclusions

The researcher viewed the writing of this thesis as quite relevant to the development of Human Resource base of the University. The tools of research were of great relevance to the topic and that made his findings true to prove his hypothesis that most the lecturers of KNUST are non-professionals. That calls for systematic training of lecturers from time to time.

5.5 Recommendations

Based on the findings, the researcher recommends that all lecturers in KNUST whether experienced or not must go through professional training on Sandwich basis. Even though students placed lecturers' performance high staff development has to be promoted from time to

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time to be breast with new changes. The curriculum used by the Department of Art Education needs to be adopted for the proposed staff development exercise. In view of that, brief outlines of courses offered in Education are indicated below:

5.6 The history of Education

The researcher found the study of the history of Education very important. It shows how Education was started in the then Gold Coast using the Castle first as training of Missionaries for the spread of Christianity and for educating the children of the whites to help them in their trading activities.

5.7 Assessment

Assessment of any form be it summative assessment (done at the end of term or semester) or formative or continuing assessment which tests both the teacher and student and it helps to know what has been learnt or taught. The teacher will be exposed to type of tests and know how to apply them.

5.8 Curriculum

The study of Curriculum by the teacher is important since it is the key for unlocking doors which are otherwise closed to the Student: Subject content bases on the needs, beliefs and values of the society as a whole. Having knowledge of its design, implementation and evaluation are of vital importance to the teacher.

5.9 Educational Psychology

The study of Educational psychology helps the teacher to study the mind of the people they interact with so that they can understand why people do what they do.

5.10 Sociology

Sociology of Education studies students' behavior and how to solve problems. In the school situation, it deals with how people mix up with others or how they socialize.

5.11 Guidance and Counselling

Guidance and Counseling like Sociology is a whole course of study. People grow to become Sociologist and Guidance co-ordinators. Guidance co-ordinator helps a student to understand

himself and the people around him. Co-ordinator counsels a student to enable him take his own decisions'

5.12 Educational Administration

The teacher needs to study or become an administrator. That enables him or her to organize and manage school activity well.

5.13 Educational Technology

The need to study and use educational gadgets like computers, over head projectors, videos and others in education enhance good teaching.

The proposed curriculum as discussed above are as found in the department of Art Education-KNUST and University of Cape Coast. The researcher finds it useful and recommends its use as a means of enhancing quality education in KNUST.
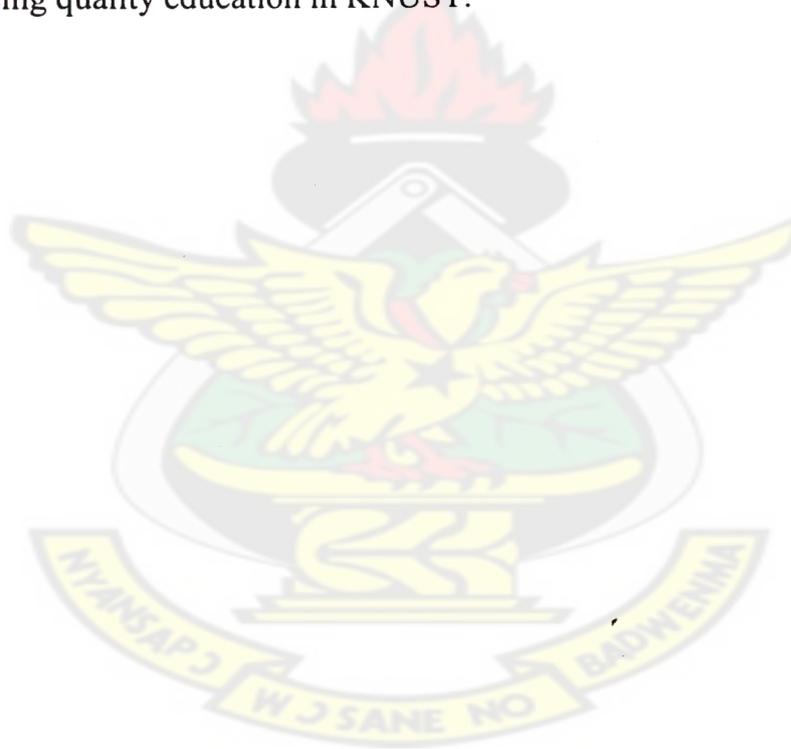
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF ART AND SOCIAL SCIENCES, FAC OF FINE ART
DEPARTMENT OF ART EDUCATION

QUESTIONNAIRE FOR UNIVERSITY TEACHERS / HEADS OF DEPARTMENTS / DEANS / PROVOST'S / TEACHING ASSISTANTS

This Questionnaire is designed to help the Researcher to collect data on the topic:

PROFESSIONALISM IN TEACHING AT SELECTED DEPARTMENTS OF THE KNUST

I would be very grateful if you could kindly respond to this questionnaire intended for a research in Art Education. Any information given will be confidently treated.

Name of Respondent:...

(including titles etc)   (first name)   (mid name)   (last name)

SCHOOL OR COLLEGE...

FACULTY DEPARTMENT / SECTION...

1.   PROFESSIONAL QUALIFICATION:...

(a) Are you a professional teacher? Yes [ ] No [ ] (tick as appropriate)

(b) Have you attended any course in education for teaching? [Yes] [No]

(c) How long? State years or number of months or weeks.................................

(d) Is there any difference in performance between non-professional stage and when you became a professional teacher?...

2.   INSTITUTION ATTENDED: (Please underline as appropriate)

   a. University of Cape Coast, (b) University of Education Winneba, (c) KNUST (d) Others Training College (insert Place)...

   b. How long have you been teaching whether (1a) is Yes or No?

3.   A professional teacher is expected to give optimum result in teaching True[ ] False[ ]

4.   A non-professional teacher can give partial result. Compared to 3 above True[ ] False [ ].

5.   Being good in a subject area does not make one a good teacher. Do you agree tick

       Yes [ ] No [ ]?

6.   A professional teacher ought to follow teaching methods which will enhance good delivery of subject matter True [ ] False [ ].

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A professional teacher by principle has to prepare for what he teaches. He breaks down the Syllabus into a Competency based syllabus in levels from low to high. i.e.; from the known to the unknown for easy absorption of the educand.

He prepares a lesson plan, a lesson order, and a scheme of work. A plan is systematic, the student gets to know by defining then he will understand before he can describe. So he can analyse and synthesize.

The lesson order is arranged systematically for the teacher to follow through days and weeks. The scheme covers all the plans within a semester or term.

From the above notes, a non-professional teacher is a pupil teacher because he has not been trained to follow the teaching procedures mentioned above. On the other hand he does not use the pedagogy of teaching.

7. Do you advocate for the introduction of a professional teacher's Course for teachers in KNUST? YES [ ]   NO [ ]

   If yes, which one is appropriate? (a) full time (b) sandwich

8. KNUST is inter-nationally acclaimed as world class technical university True [ ] False [ ]?

9. To maintain this feat for positive results, do you agree for a change in teaching methods? Yes [ ] No [ ]

10. The teaching profession is a challenging and interesting job.

    (a) As a result of the above, adequate preparation should be made for it...
       Yes [ ] No [ ] (Please tick)

    (b) Relevant teaching and learning materials need to be provided... Yes [ ] No [ ]

    (c) With a view to enhancing performances and productivity, teachers need to be adequately motivated Yes [ ] No [ ]

The Curriculum

The syllabus is drawn from the Curriculum

11. With the use of a syllabus are you able to meet your set target at the end of a semester? [Yes] [No]

12. How long is a semester on the average.

13. Are you able to give assignments on each topic? Yes [ ] No [ ]

14. How many students do you handle in a class or lecture on the average?

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15. Are you able to mark all assignments? Yes [ ] No [ ]
16. What type of questions do you give to students?

    (a) Objective tests with answers, (b) objective tests without answers (c) Quizzes

    (d) Essays (e) true-faults tests (f) Performance tests (g) oral test (h) take-home tests

    (I) open-book tests (j) others (indicate)
17. What is the general performance of students?. (a) Excellent   (b) Very Good

    (c) Good   (d) Average   (e) Below average
18. Do students understand your teaching and tests guess [Yes] [No]
19. How do you assess your students after testing?   (a) Many pass   (b) All pass

    (c) above standard (d) below average
20. Which of the following methods do you use to teach?   (a) lecture method

    (b) demonstration method   (c) dictation   (d) Class discussion

    (e) group discussion   (f) Dramatic   (g) Project

    (h) Questioning   (I) Others

Respondents to Note:
Please return your response to your Faculty/ Department or College office for collection.

Researcher : <u>R. K. Brobbey Yeboah</u>
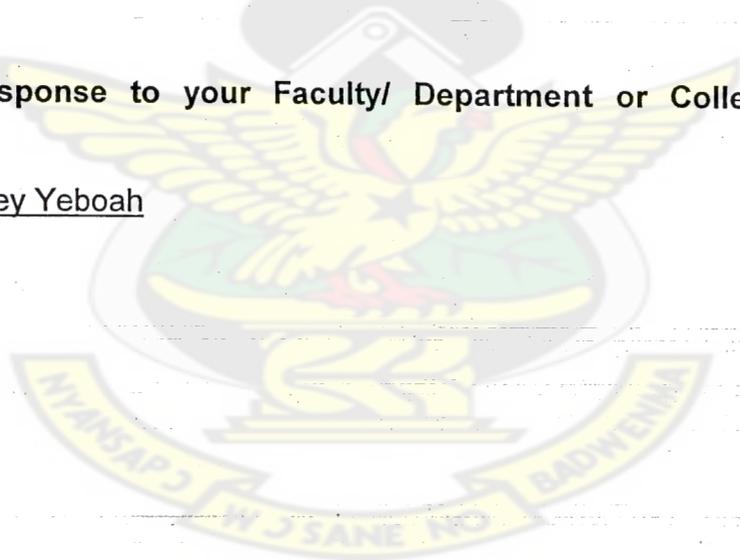
89 b

89c

KNUST

QUALITY ASSURANCE BULLETIN

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI
STUDENT EVALUATION OF COURSE AND LECTURER

e purpose of this questionnaire is to offer you the opportunity to assess the lecturer and the urse being taught Please tick the response that you think is most appropriate to each statement

OURSE CODE & TITLE...

AME OF LECTURER:... ....

Lecturer/Course	Very Good	Good	Average	Poor	Very Poor
	1	2	3	4	5
Course Presentation					
Presentation of course overview.					
Course content has increased knowledge about the subject matter.					
Course content covered on schedule.					
Thorough knowledge of subject matter demonstrated by lecturer.					
Lecturer's Bearing in class					
Lecturer's general punctuality at lectures.					
Lecturer follows the course outline.					
Lecturer effectively presents the course in class.					
Lecturer's regularity in class.					
Lecturer's general appearance in class.					
Mode of Delivery					
Lecturer is clear and understandable during lectures.					
Lecturer links lecture material to practical and field works (where applicable)					
Lecturer's presentation inspires class to be interested in the subject matter.					
Lecturer's availability outside classroom for consultation on course related matters.					
Pedagogy					
Lecturer monitors progress of the class.					
Lecturer gives assignments which facilitate understanding of the subject matter.					
Lecturer appears fair in grading students work.					
Learning Environment					
Comfort in class due to class size, space or seats.					
Adequacy of materials required for course e.g. maps, computers, tables, diagrams, etc.					
Availability of reading list, recommended textbooks etc.					
Availability of audio visuals and PA System.					

other comment about the course or lecturer

APPENDIX 2: EXPLANATION AND ANALYSIS OF THE INSTRUMENT

EXPLANATION OF THE ASSESSMENT INSTRUMENT AND THE ANALYSIS

The assessment instrument was developed with inputs from academic staff and students, as well as, research on the internet and books to determine what pertains in other Universities and the major indicators used in assessing teaching. The instrument has two main sections, namely the introduction and factors for the assessment. The former gives the purpose and identification of the lecturer/course being assessed, and the latter also indicate the factors and grades. This part has five sections namely the performance indicators and each has 4-5 factors.

The Performance indicators accepted for the assessment are; *Course Presentation*, *Lecturer's bearing in Class*, *Mode of Delivery*, *Pedagogy*, and *Learning Environment*. There are twenty factors in all and students express their perception by shading/ ticking the grade most appropriate to each factor. Five blank/empty cells corresponding to the grades have been provided and students are expected to tick/shade only one. The penile grading system is employed in the assessment and the analysis. The grades for the responses range from 1- 5 and details are as follows;

- **Very Good** is graded as **1**;

- **Good** is graded as **2**;

- **Average** is graded as **3;**

- **Poor** is graded as **4**; and

- **Very Poor** is graded as **5**.

The grading system is sometimes modified to; *Excellent, Very good, good, Average* and *Poor* depending on what appears on the assessment instrument.

Thus, if a student is *very satisfied* with the performance of a lecturer with respect to a factor the response would be *Very good* (*1*). If the student is *satisfied,* the response would be *Good* (*2*). However, if the performance is found to *just satisfactory* the response is graded as *average* (*3*). If the performance is found to *unsatisfactory* or *unacceptable* the response would be graded as *Poor* (*4*) or *Very Poor* (*5*) respectively. Enough space has also been provided after the 20th factor, for students to comment on the lecturer /course. These comments are compiled and attached to the results. A sample of the instrument has been attached.

Analysis of Data

The given number of responses are analysed in three ways, namely;

i)   Analysis of responses of each factor considered under the various indicators is carried-out. The mean of the responses are computed, and based on the scale given one could easily determine his/her performance with respect to a particular factor.

The mean of the responses of each factor is determined by multiplying the respective responses by the corresponding grades, summed and divided by the total of the responses for that factor. This is expressed as;

$$\textbf{AVERAGE (A)} = \frac{(A*1) + (B*2) + (C*3) + (D*4) + (E*5)}{(A+B+C+D+E)}$$

Where *A, B, C, D and E* are the responses for *Very good, Good, Average, Poor* and *Very poor*.

Scale

Based on the mean obtained one could check from the scale below his/her performance.

Very Good: *1 ≤ 1.5*
Good: *1.5 < 2.5*
Average: *2.5 ≤ 3.5*
Poor: *3.5 < 4.0*
Very Poor: *> 4*

The scale is sometimes modified to *Excellent, Very good, Good, Average and Poor* according to what appears on the instrument.

Determination of Performance with respect to a factor

The performance of a lecturer/course for *Question 1*, under Course Presentation was assessed as follows;

Presentation of course overview;

1	2	3	4	5	TOTAL(T)	AVG(A)
56	13	4	0	0	73	1.3

The mean or average was computed as;

$$= \frac{(56*1) + (13*2) + (4*3) + (0*4) + (0*5)}{56+13+4+0+0}$$

$$= 1.3$$

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The performance with respect to **question 1** could be classified as **Very good** since it is less than 1.5 and is within the range; $1 \leq 1.5$.

ii) Analysis of the performance indicators; the mean of the means of the factors for each indicator is computed and based on the figure obtained, ones performance with respect to the indicators could be classified as *Very good, Good, Average, Poor* and *Very poor*. This is mathematically expressed as ;

$$\frac{\sum(TOTAL(T)) * AVERAGE(A)}{\sum(TOTAL(T))}$$

For example, the performance of a lecturer for *Course Presentation* was graded as **1.3** which was *Very good*. The computation was done as follows:

Factor	1	2	3	4	5	TOTAL(T)	AVG(A)	$\sum T*A/\sum T$
1	56	13	4	0	0	73	1.3	
2	54	17	1	0	0	72	1.3	:
3	36	25	9	1	0	71	1.6	
4	63	8	2	0	0	73	1.2	1.3

The mean of the means of the factors under Course Presentation is given as ;

$$\frac{\sum T*A}{\sum T} = \frac{(73*1.3)+(72*1.3)+(71*1.6)+(73*1.2)}{(73+72+71+73)}$$

$$= 1.3$$

iii) Determination of Overall Performance

Like the indicators, the overall performance is computed by finding the mean of the means of factors 1-16. The *Learning Environment* is excluded since its the responsibility of the University authorities to provide an enabling environment for teaching and learning. Mathematically the overall performance is expressed as;

$$\frac{\sum(TOTAL(T)) * AVRG(A)}{\sum(TOTAL(A))}$$

iv) Computation of Overall Performance of the various departments.

The computation of the overall performances of the various departments was carried out with the same formula.

89 g

The $\sum R$ is the sum of the number of responses for all courses assessed in the department in the semester and $\sum RS$ is the sum of responses multiplied by the respective grades. To obtain the performance for each indicator, $\sum RS$ has to be divided by $\sum R$. The overall performance was computed by finding the mean of the means of questions 1-16 for all the courses assessed in the semester. The Remarks is the grade based on the figure obtained as indicated by the scale.

v)   Comments

Students are also offered the opportunity to comment on the performance of the lecturer/course as well as anything which may influence academic work. These comments are compiled and attached to the results of the assessment.

A sample of the questionnaire has been attached.
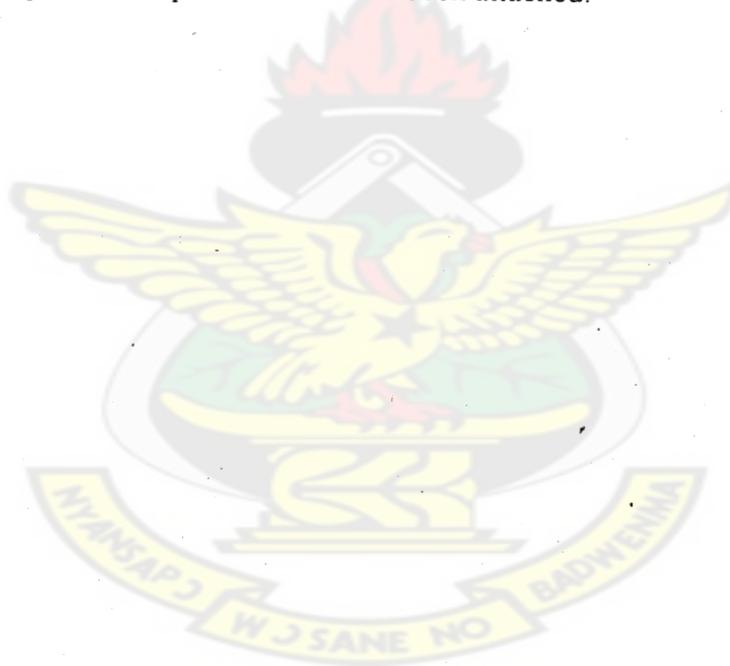
APPENDIX 4

Fig 1 : OVERALL PERFORMANCE OF ACADEMIC STAFF-(2002-04).

Grade

Value
1.91648
2.076031
2.0882936

Sem. 2(2002/3)   Sem. 1(2003/4)   Sem. 2(2003/4)

89 i
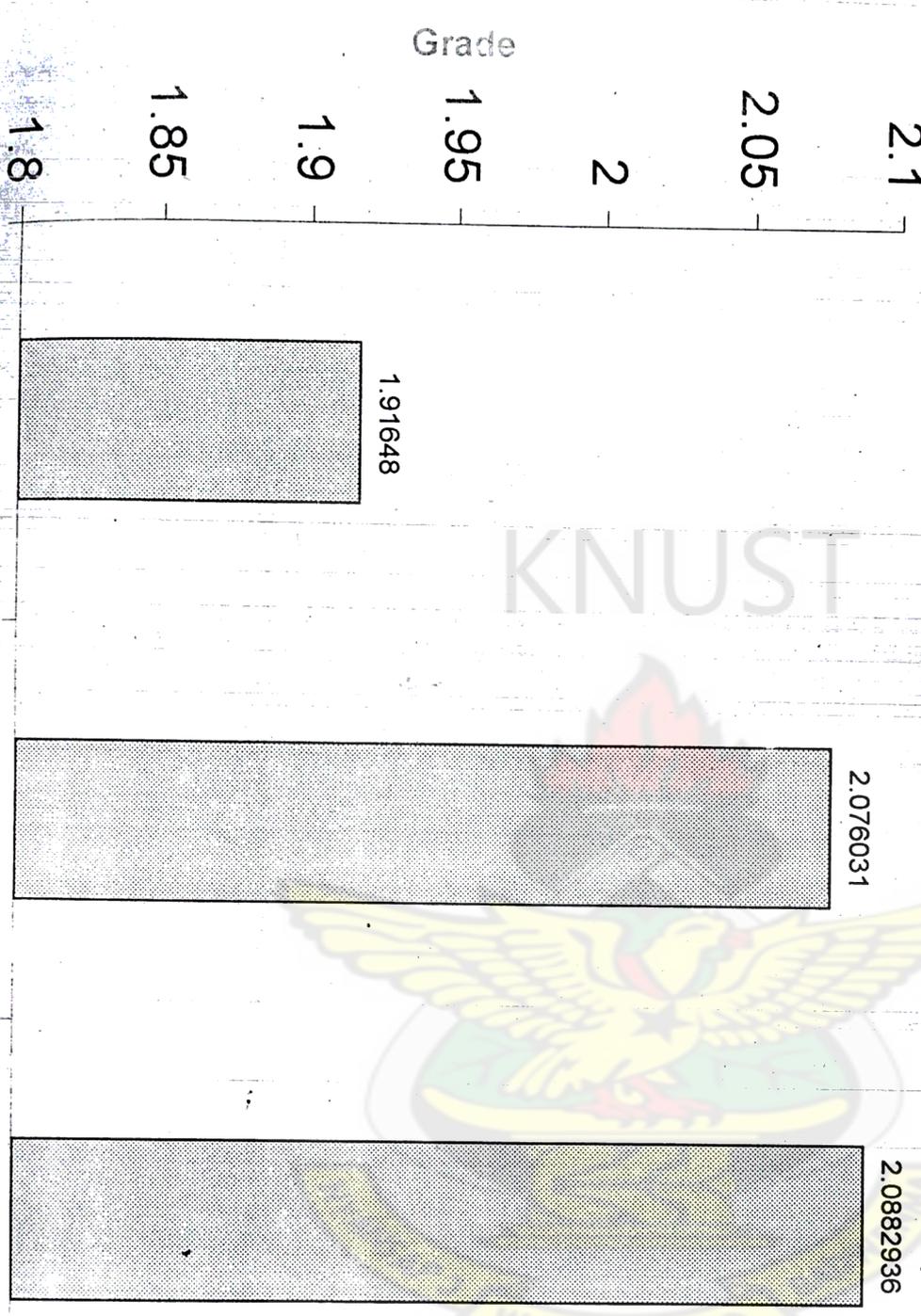
APPENDIX 4

Fig 2 : Comparison of Performance indicators

Legend:
☐ Sem 2 (2002/3) ▨ Sem 1(2003/4) ☐ Sem 2(2003/4)

Categories: Course Presentation, Lecturer bearing, Mode of delivery, Pedagogy

indicators

Course Presentation: 1.833066, 2.01669, 2.052519
Lecturer bearing: 1.703357, 1.934381, 1.841778
Mode of delivery: 2.107384, 2.231963, 2.250189
Pedagogy: 2.140144, 2.155457, 2.338279
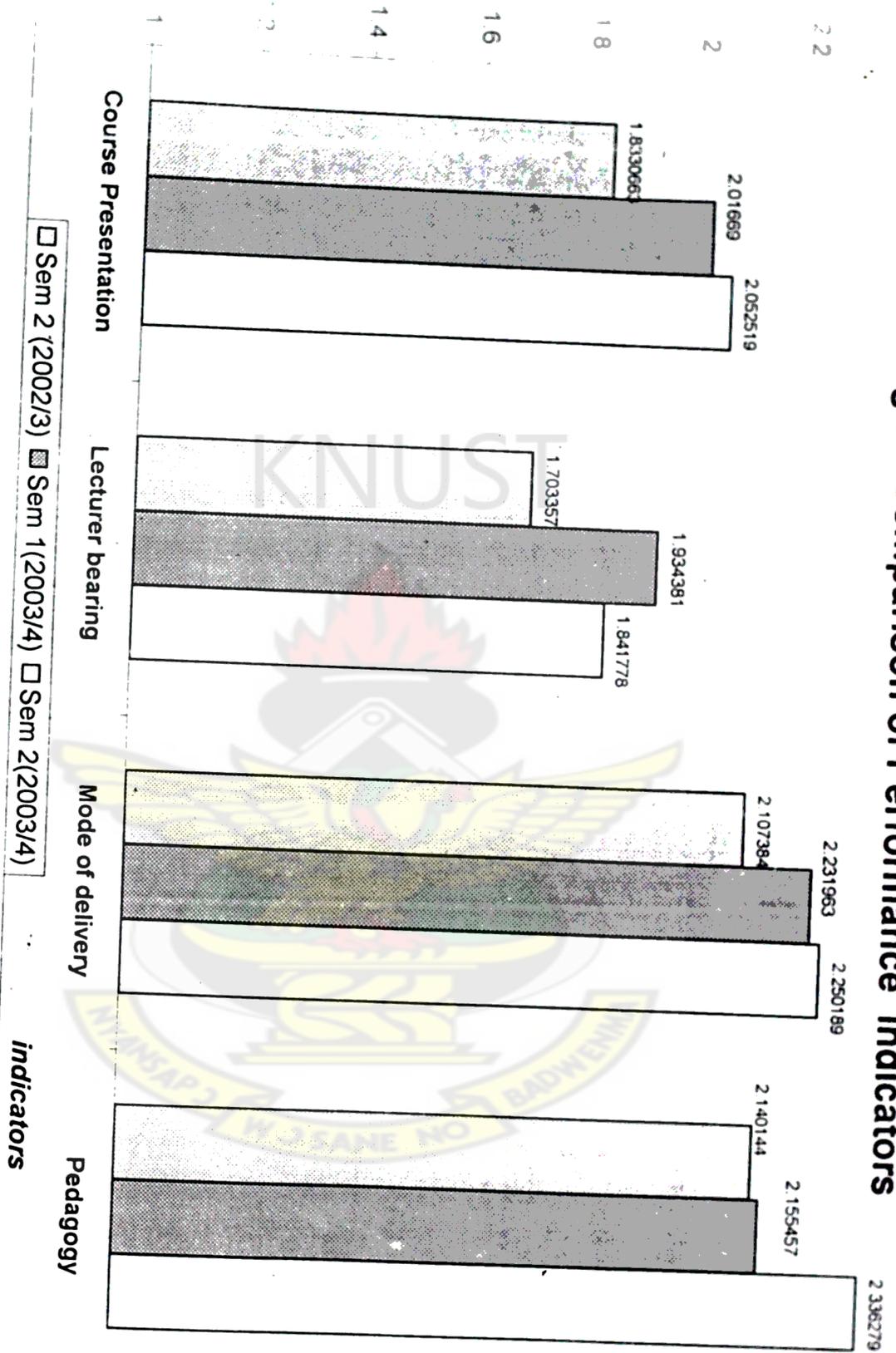
Fig 3: Trends in Performance indicators used in the assessment of academic staff

Figure data points:
- Course Presentation: 1.8330663, 2.052519, 2.01669
- Lecturer bearing: 1.703357, 1.841778, 1.934381
- Mode of delivery: 2.107384, 2.250189, 2.231963
- Pedagogy: 2.336279, 2.155457, 2.140144

Legend:
- Sem 2 (2002/3)
- Sem 1 (2003/4)
- Sem 2(2003/4)

KNUST

Fig 4 : OVERALL PERFORMANCE OF ACADEMIC STAFF (2002-2004).

2.1
2.05
2
1.95
1.9
1.85
1.8
1.68

1.91648
2.07603
2.0882936
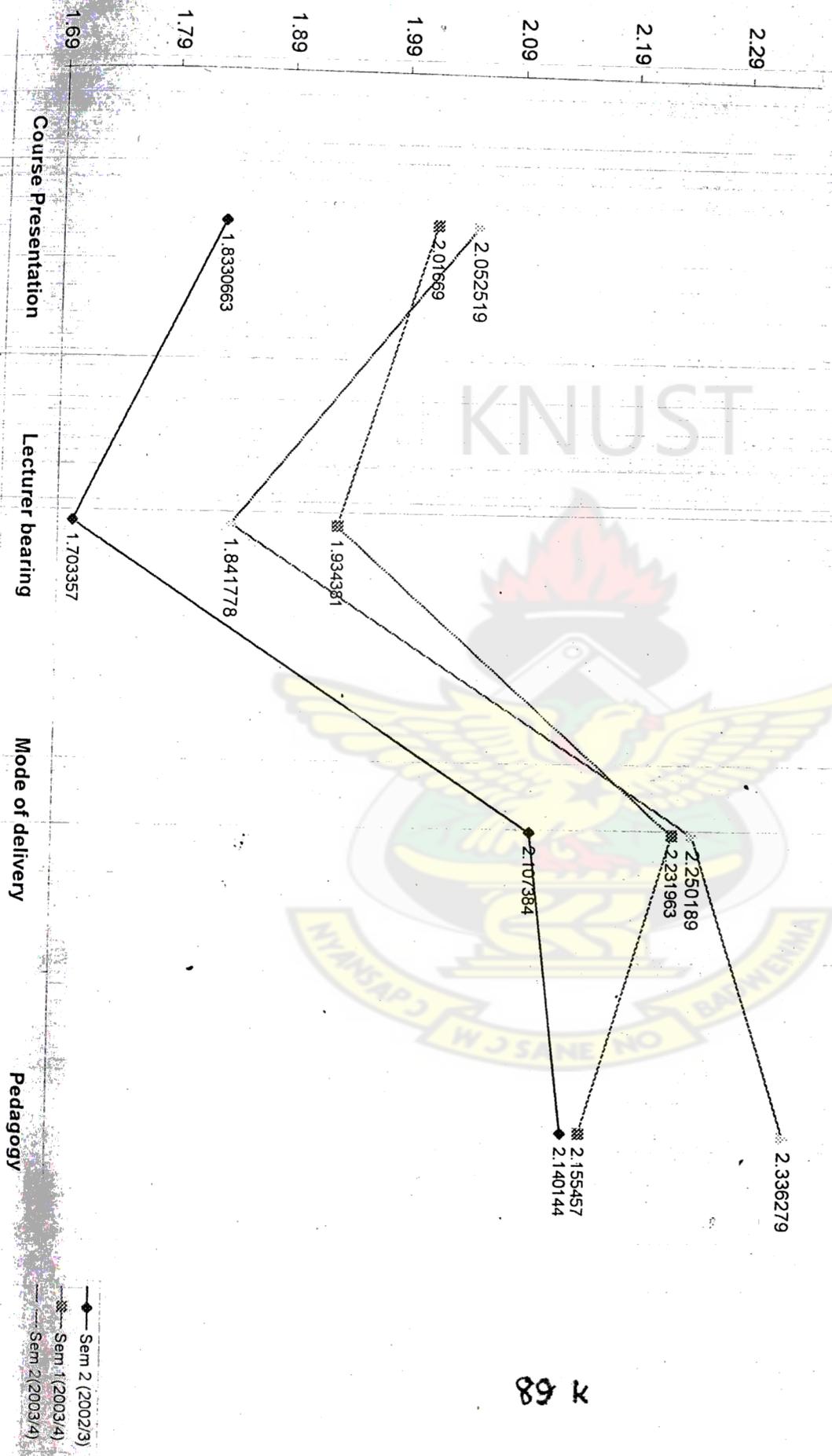
OVERALL PERF.

Sem. 2(2002/3)   Sem. 1(2003/4)   Sem. 2(2003/4)
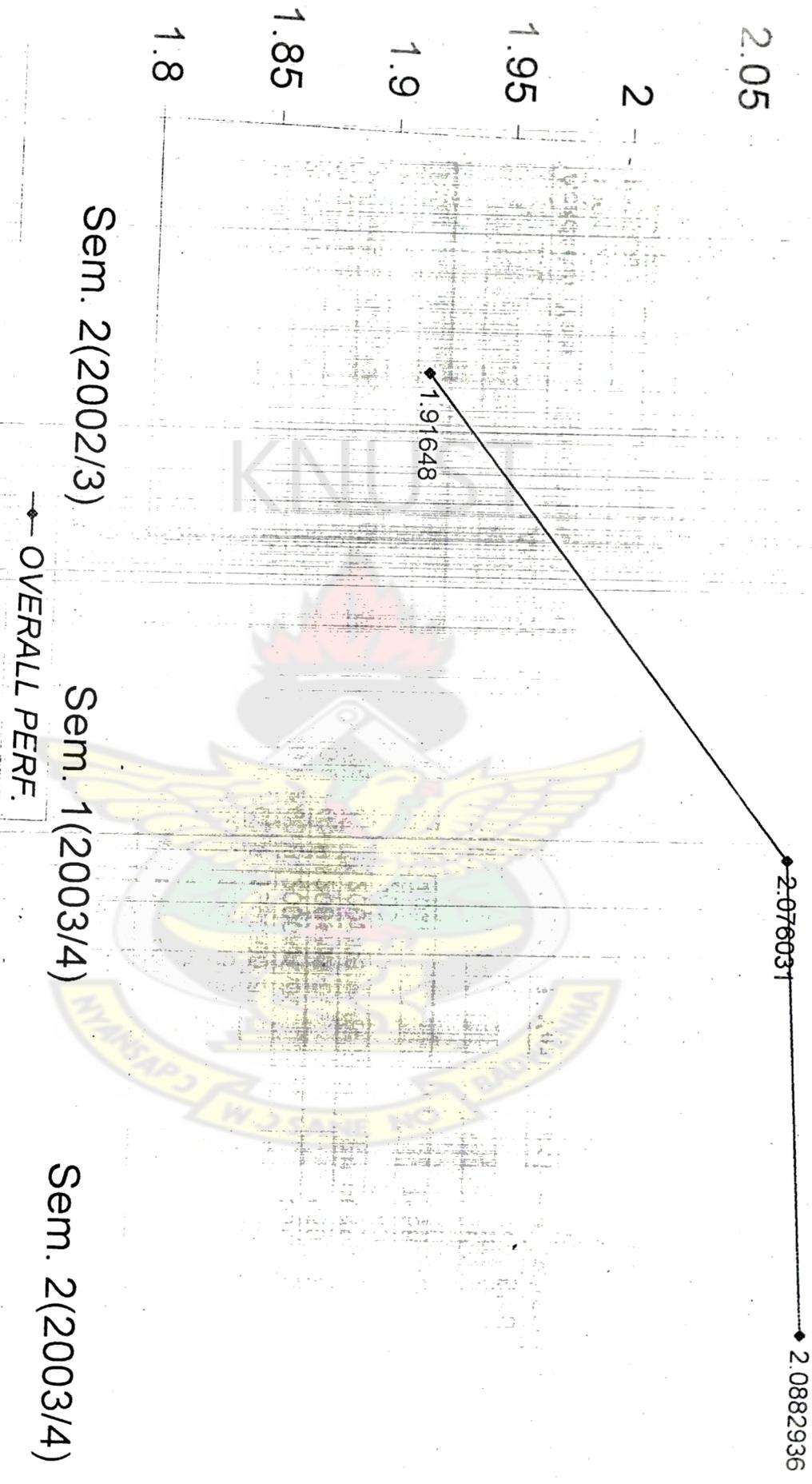
APPENDIX 5: ATTRITION RATES FOR THE FACULTIES(1994-2004)

LAW

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	0	0	0.00%
1996/97	0	0	0.00%
1997/98	0	0	0.00%
1998/99	0	0	0.00%
1999/00	0	0	0.00%
2000/01	0	0	0.00%
2001/02	0	0	0.00%
2002/03	57	0	0.00%
2003/04	57	0	0.00%
Total	114	0	0.00%

PHARMACY

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	328	0	0.00%
1996/97	365	0	0.00%
1997/98	408	0	0.00%
1998/99	418	4	0.38%
1999/00	425	7	1.65%
2000/01	534	6	1.12%
2001/02	559	4	0.72%
2002/03	641	7	1.09%
2003/04	3980	31	0.31%
Total	7658	62	0.81%

LAND ECONOMY

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	0	0	0.00%
1996/97	0	0	0.00%
1997/98	343	1	0.00%
1998/99	365	0	0.00%
1999/00	395	0	0.00%
2000/01	373	2	0.54%
2001/02	339	0	0.00%
2002/03	360	2	0.56%
2003/04	2175	5	0.23%
Total	4350	10	0.23%

SMS

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	322	0	0.00%
1996/97	427	0	0.00%
1997/98	539	0	0.00%
1998/99	633	3	0.47%
1999/00	755	0	0.00%
2000/01	915	3	0.33%
2001/02	1010	0	0.00%
2002/03	1040	0	0.00%
2003/04	5926	6	0.00%
Total	11567	12	0.10%

APPENDIX 5: ATTRITION RATES FOR THE FACULTIES(1994-2004)

FEDS

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	525	0	0.00%
1996/97	637	0	0.00%
1997/98	763	2	0.00%
1998/99	848	2	0.24%
1999/00	907	0	0.00%
2000/01	1081	14	1.30%
2001/02	1290	0	0.00%
2002/03	1411	0	0.00%
2003/04	7895	18	0.23%
Total	15357	36	0.23%

IRNR

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	302	0	0.00%
1996/97	312	3	0.00%
1997/98	395	3	0.76%
1998/99	449	4	0.89%
1999/00	499	10	2.00%
2000/01	584	4	0.68%
2001/02	607	4	0.66%
2002/03	649	8	1.23%
2003/04	4021	36	0.90%
Total	7818	72	0.92%

SOCIAL SCIENCES

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	1104	0	0.00%
1996/97	1412	0	0.00%
1997/98	940	0	0.00%
1998/99	1044	8	0.77%
1999/00	1078	0	0.00%
2000/01	1488	9	0.60%
2001/02	1632	1	0.06%
2002/03	1857	0	0.00%
2003/04	11355	18	0.16%
Total	21910	36	0.16%

ART

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	592	0	0.00%
1996/97	732	0	0.00%
1997/98	885	2	0.00%
1998/99	1067	3	0.28%
1999/00	1230	0	0.00%
2000/01	1245	15	1.20%
2001/02	1775	1	0.06%
2002/03	1992	0	0.00%
2003/04	10047	21	0.21%
Total	19565	42	0.21%

APPENDIX 5: ATTRITION RATES FOR THE FACULTIES(1994-2004)

SCIENCE

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	1139	3	0.00%
1996/97	1312	21	1.60%
1997/98	1579	44	2.79%
1998/99	1752	17	0.97%
1999/00	1959	65	3.32%
2000/01	2321	56	2.41%
2001/02	2613	54	2.07%
2002/03	2846	69	2.42%
2003/04	1245	346	27.79%
Total	16766	675	4.03%

AGRICULTURE

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	483	0	0.00%
1996/97	591	6	1.02%
1997/98	616	12	1.95%
1998/99	678	6	0.88%
1999/00	725	10	1.38%
2000/01	692	18	2.60%
2001/02	744	21	2.82%
2002/03	745	23	3.09%
2003/04	5629	96	1.71%
Total	10903	192	1.76%

IMME

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	188	0	0.00%
1996/97	279	0	0.00%
1997/98	319	4	1.25%
1998/99	334	5	1.50%
1999/00	332	0	0.00%
2000/01	259	4	1.54%
2001/02	180	0	0.00%
2002/03	127	13	10.24%
2003/04	1949	26	1.33%
Total	3967	52	1.31%

ENGINEERING

Academic Year	Enrolment	Withdrawal	Rate
1994/95	0	0	0.00%
1995/96	849	0	0.00%
1996/97	1144	0	0.00%
1997/98	1300	7	0.54%
1998/99	1389	8	0.58%
1999/00	1499	2	0.13%
2000/01	1764	9	0.51%
2001/02	2280	1	0.04%
2002/03	2742	0	0.00%
2003/04	13905	27	0.19%
Total	26872	54	0.20%

APPENDIX 5: ATTRITION RATES FOR THE FACULTIES(1994-2004)

	Law	Pharmacy	ILMAD	SMS	FEDS	IRNR	Soc. Sci.	Art	Science	Agric.	IMME	Sch. Of Eng.	Overall Total
Enrolment	114	7658	4350	11567	15357	7818	21910	19565	16766	10903	3967	26872	146847
Withdrawal	0	62	10	12	36	72	36	42	675	192	52	54	1243
Rate	0.00%	0.81%	0.23%	0.10%	0.23%	0.92%	0.16%	0.21%	4.03%	1.76%	1.31%	0.20%	0.85%

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