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AN EDUCATIONAL TECHNOLOGY AND COMMUNICATION SYSTEM FOR UNIVERSITY EDUCATION IN BAHRAIN

by

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IN CANDIDATURE FOR THE DEGREE OF PHILOSOPHIAE DOCTOR
1984

DECLARATION

This is to certify that this dissertation is the result of my own independent investigation, except where I have indicated my indeptedness to other sources.

.....

Abbas Adiby

.....

Professor Andrew Taylor

This is to certify that this dissertation has not already been accepted in substance nor is being concurently submitted in candidature for any other degree.

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ABSTRACT

The rate of scientific and technological discovery and the increasing rapid dissemination of new knowledge demand that educational systems seek more effective and efficient instructional procedures. The proper use of educational technology can enhance instructional effectiveness.

The examination of educational technology programmes provided in the University College of Bahrain has revealed that this has not yet been accepted as a hardware approach is used, whilst the communication courses are considered not as currently appropriate, despite the fact that educational technology is not confined to audiovisual aids rather it implies the design of effective learning procedures.

The main concern in this study has been to construct a model for the application and promotion of educational technology, including the required media services for university education in Bahrain.

The model emerged from a thorough review of literature covering various aspects of the educational technology and communication fields, from an analysis

of two questionnaires one distributed among staff of the University College of Bahrain, advisors and teachers from Ministry of Education and the other distributed among the university and secondary school students, an analysis of interviews with selected higher Ministry of Education and Ministry of Information officials and senior University College of Bahrain staff together with a review of educational technology programmes in the University College of Bahrain.

The model has three phases, with the provision of courses and services growing from one phase to the next. The model system contains objectives, content of the courses to be provided, the responsibilities and function for suggested posts, the physical facilities together with an evaluation programme.

To my Father, mother,
brothers and sisters,
small recompense for
years of isolation

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LIST OF ABBREVIATIONS

A	Agree
ALBA	Aluminium Bahrain
ALECSO	Arab League Educational, Cultural and Scientific Organisation.
ASRY	Arab Shipbuilding and Repair Yard.
AVAs	Audio-Visual Aids.
B.Ed.	Bachelor of Education Degree.
B.Sc.	Bachelor of Science Degree.
CCTV	Closed-Circuit Televison.
Com (or Comm)	Communication
D	Disagree
Dip	Diploma
d.p.	Decimal point
D.W.T.	Deadweight
Ed.Tech.,	Educational Technology
M.Ed.,	Master of Education
Mn.of Ed.,	Ministry of Education
Mn.of Inf.	Ministry of Information
N	Neutral
OCBS	Ordinary Certificate, British Standard
PGDE	Post Graduate Diploma in Education
Q	Question
SD	Strongly Disagree
TV	Television
UCB	University College of Bahrain
UCC	University College of Cardiff

UNESCO	United Nations Educational Scientific and Cultural Organisation
UNICEF	United Nations International Children's Emergency Fund

DEFINITION OF TERMS

1. EDUCATIONAL TECHNOLOGY : is referred to as a field dealing with the design of instruction which would include such features as establishing objectives, planning learning experiences, selecting teaching strategies and appropriate media; and the evaluation of such activities for the purpose of future improvement and renewal.

2. COMMUNICATION : in this study refers to such courses as Communication Theories, Film-Making, Television Production, Photography, Broadcasting, Advertisements, Journalism, Public Relations, Tourism, and the like.

3. SYSTEM : in this study is referred to an organised professional team of faculty, facilities and

equipment for the provision of courses and services in the educational technology and communication fields.

4. UNIVERSITY EDUCATION : refers to higher education which offers courses leading to Bachelor and Master degrees, Ph.D and post graduate diplomas in various fields.

PART ONE

THE DIMENSIONS OF EDUCATIONAL TECHNOLOGY

CHAPTER 1

A_CONCEPTUAL_APPROACH_TO_EDUCATIONAL_TECHNOLOGY

1.1 INTRODUCTION

In many parts of the world, new techniques of teaching, skills and tools are being tested and applied at all levels of education in the hope that these will help revolutionise educational systems and set patterns which will have positive long-term influences on the future development of education. The application of these new techniques and the use of newly invented devices in the process of education has led to the development of Educational Technology as an area of study.

The parameters are not as yet clearly established (especially in developing countries) so that the term has come to mean different things to different people. The term itself has actually aroused an extraordinary amount of controversy and many different definitions have been provided, but on closer inspection, one gets the impression that there is no fundamental disagreement with respect to its importance in educational planning and provision. It is rather a matter of terminology or of differing linguistic specifications of Educational Technology which results in controversy. Romiszowski (1981,p.11) pointed this out:

> Why should the concept of 'the creative application of science' to educational purposes generate so much heated discussion? Well, of course, it does not. It is the misunderstanding of the concept that creates disagreement. This misunderstanding arises from two sources: 1. The different concepts that different people hold of technology, 2. The different concepts that they hold of education.

It is worthwhile however, to examine a variety of definitions.

> Wherever, for whatever educational purpose, people gather as a group to learn, education technology has a part to play, in the provision of learning resources in all forms, and in the design of appropriate and effective learning situations.
>
> And whenever there is a need for information, particularly for example in professional updating, the techniques we are developing for the classifying, cataloging, storing and retrieving information for educational purposes will have an important part to play.
>
> Hubbard in Evans (1975,p.21)

Lumsdain (1964) has suggested that the term 'educational technology' can be distinguished as educational technology (1) and educational technology (2)

> Educational technology (1) is essentially a hardware approach, stressing the importance of teaching aids, and its origin lies

> in the application of physical science to the education and training system. Educational technology (2) is essentially a software approach, and refers to the application of learning principles to the direct and deliberate shaping of behaviour. Its origin lies in the application of behavioural science to the problems of learning and motivation; mechanization is seen purely as a problem of presentation.
>
> quoted by Davies (1971,pp.5&6)

It is prudent to consider two points here. First is that the advent and undoubtedly increasing use of new electric and electronic devices has put some teachers in a situation where they consider these are the only media which are included in educational technology. Thus ingenious hand-made and hand-coloured teaching aids can be as effective as an animated motion film diagram. Chalk-boards, wallcharts, simple models and real objects are also of use as teaching aids, if they are used properly.

Secondly, for many, educational technology may be confined to audio-visual aids. However, educational techology goes far beyond this. It is also and in great deal concerned with designing the system as a whole.

Thus educational technology is a wide area of activity and can have a powerful catalytic influence

throughout an educational system if applied appropriately. It has entered education in both the product and the process senses. This is quite clear from the above definitions, especially that of educational technology (1) and (2) by Lumsdaine, which is concerned with the overall educational system. This includes identifying the needs of the total situation, establishing objectives, planning the learning environment, exploring and structuring the subject matter, selecting appropriate teaching strategies and learning media, evaluating the effectiveness of the whole system and using the results as an aid to improve the system for future planning. All this of course, demands sound managemet and organisation.

In fact one can note that many educationalists throughout the world now share the view that the sensible meaningful use of audio-visual media, and the recognition of the contribution that educational technology can make call for a new approach to teaching and learning. An example of this is the establishment of the Arab League Educational, Cultural and Scientific Organization (ALECSO) in 1976 for the development of modern educational approaches and technology in the Arab world.

1.2 THE IDEA OF A TECHNOLOGY FOR EDUCATION AND TRAINING

If educational technology is adequately covered in the previous definitions, then there is no reason why it should not be applied in an educational system at all levels. One of the serious problems which is being faced in the application of educational technology in developing countries is that it has been seen as basically a hardware approach. In country after country millions of dollars have been spent in providing media hardware and software of alien countries, for the emphasis on educational technology has been the purchase of media materials.

In actual fact educational technology should be regarded as developing within the educational system and in industrial and vocational training in terms of developing technical resource material. It should help serve educational planning, organisation and to provide design models for educational purposes. It has become increasingly apparent that such an area of study has important implications for educational practice. It is even possible that in the relatively near future it could modify profoundly many of the basic conceptions of instructional methods including the role of audio-visual materials and mass media in both the formal and informal educational processes.

The introduction of media into the educational context will inevitably create a demand for courses on the design and planning of instruction as well as on how to handle both hardware and software. It could be argued that teaching can be undertaken without recourse to such a tool or previous planning. However, if educators are to act as professionals then it is reasonable to expect them to want to improve their professional skills.

One important aspect of applying educational technology is of course defining the function of the teacher. In developing an adequate educational technology the responsible authorities need to have a clear understanding of teacher's role and knowledge of skills and responsibilities upon which new courses need to be designed. The function of educational technology in this is to achieve intended goals to the full, through efficient methods of teaching which combine human activity with hard and software. In this technology is not a replacement of the teacher, but an aid to increase his effectiveness. In this educational technology should involve people, ideas strategies, values, communication and the like, for human interaction plays a vital role in the learning process and is one which cannot be properly replaced

by machines :

> ....., we have, I think, to recognise that the core or nucleus of any true learning situation is the activity of a social group of interacting people, with the human teacher operating to some degree or other as the essential and irreplaceable catalyst. The individual one-tutor-one-student situation, 'the classical process of individual tutoring', in Crowder's words, is not the crowning learning situation. But having said this, we must hasten to add that, in so doing, we are not denying its diagnostic, therapeutic, remedial function. Nor, since different people acquire knowledge of concepts, skills, procedures, of the syntax and semantics of a subject, at different speeds, are we denying that it plays a key role in this phase of the overall learning process. What we are saying, among other things, is that programmed instruction and teaching machines, at their present level of development certainly, are neither so self-sufficient nor as self-contained as has been claimed.
>
> Goodman in Davies & Hartley (1972,p.53)

In recent years there has been much criticism of both teachers and teaching despite the fact that attempts have been made to try to improve this situation. This is a crucial issue for it is obvious that it is upon the teachers' professional expertise that educational improvement must be based. Nothing

can replace this key resource need to bring about a high level of efficiency. It is therefore essential that as programmes for improving the professional capability and standing of the teaching force become available, progress should be expected in increasing the effectiveness of the teacher's contact with the individual child.

Those responsible for policy decisions in higher education need also to be made aware of educational technology's potential for enabling improvements to be made in the structure of the system. The speed of technical development in some countries is bringing about changes which are putting and will put higher education increasingly under pressure to respond to their societies' new educational needs. If higher education is to meet the demand for a 'student-responsive' system, and especially for a greatly increased demand for updating and reorientation of courses for adult students returning to education at various points in their lives, it will need to adopt an educational technology which will help make far greater use of individualised and probably distant learning techniques.

In the pursuit of media based instruction many educational technology centres have been established

and equipped with sophisticated media systems. At times these have been funded internationally to make the supply of such equipment possible; but when this initial funding has ceased or when spares were needed, the hard currency for replacement has not always been available. The other problems have been the lack of suitably trained local manpower, uncertain electrical supplies, non availability of spares, at times teacher indifference and hostility and lack of relevant programmes. However what prevents educational technology from widespread acceptance in the developing country situation is the cost and unreliability of equipment, shortage of suitable software, reluctance to use it due to lack of trained personnel, and above all lack of an incentive to carry out active research to promote a suitable rationale for educational innovation.

Although many different types of sophisticated devices have been introduced in the last decade in many developing countries they have not added much to the effectiveness of the learning taking place in the classroom. Rather it has created an antagonism among administrators, teachers and students, resulting in wasted time and consequently discouraging their use. This is presumably because of a lack of understanding among educationists and teachers about the concept of

educational technology, for it is still widely held that educational technology is exclusively attached to tools technology, and thus its most important aspect has been ignored :

> Of course there has always been a technology of education. But it has been, and is still predominantly, a tool-technology, a technology of 'audio-visual aids'. My thesis here is that such a tool-technology is not enough. What is required today and especially tomorrow is a system, technology, a technology based not only upon support systems but itself also consciously applying the systems concept.
>
> Goodman in Davies & Hartley (1972,p.51)

It could well be the responsibility of higher education because of its leadership function to introduce an adequate and relevant form of educational technology by establishing centres for this purpose equipped with fully trained staff who can interpret it to customers, provide the necessary equipment and a well developed policy of continuing research in this field.

For such a centre to be productive it is essential to promote an educationally constructive interaction between the new facilities it can offer and the other elements of educational theory and

practice. It has to be able to identify and translate the emergence of new technical aids, new knowledge concerning learning and communicate these to users. In this it not only makes use of new equipment and techniques but should actively encourage their adoption to serve new patterns and systems of learning.

A university has a two-fold responsibility if this form of the application of educational technology is to be successful. First if advances in educational technology are to play their full part in higher education staff attitudes will need to be changed towards new teaching techniques and priorities. This demands the introduction to this field of study through seminars and workshops, in which staff should be encouraged to use hardware and be trained to produce their own software. It is also essential to help in organising an efficient system of intrauniversity communication, and to encourage conferences in the university to be attended by other higher educational establishments. An exchange of specialists in this field between the university College of Bahrain and other universities throughout the world is also an important task that could be undertaken by such a centre if set up in Bahrain.

Secondly (and this is its main role) is the provision of suitable courses in educational technology to future and serving teachers in all levels of education. In this it should also provide courses in communication theory and practice so as to prepare both men and women to enter employment in such fields as mass communication, communication research method, television production, advertising and the like.

If higher education accepts the relevance of courses in educational technology it becomes necessary to examine how far the teacher is and has to be involved. Does the teacher need to be acquainted with a theoretical and practical knowledge of educational technology? In other words, is he going to design, apply, evaluate and develop the systems and materials or will he be only asked to use what the educational technologist designs? If overall planning is the responsibility of educational technologist without teacher participation, then the problem to be faced is only one of the control:

> The educational technology attitude (or approach) has two prime values, both of which are facets of a management ideology. First, the processes of teaching/learning, as viewed by those who wish to manage such processes, are dissociated from

> the skills derived from the craft knowledge and traditions of teaching. The second supportive and interactive value relates to the separation of conception from execution - the educational technologist, as an expert in design, threatens to control production (curriculum content), the instruments of production (the hardware and software within schools or groups of schools) and indirectly styles the manner in which content is presented (often inherent in the decision made concerning production and the instruments of production).
>
> Nunan in Page & Whitlock (1979,p.181)

It could be argued, however, that whether the teacher is given opportunity to participate in the design and planning or not, he must have a good grasp of educational technology both theory and practice. Firstly because it is difficult to apply effectively what is not understood. Secondly the view of authorities and curriculum planners about teacher's participation in design and curriculum planning is changing. It is becoming accepted that those who are involved in everyday teaching or learning must have a voice in educational planning and instructional design. In this respect Taylor (1970,p.1) stated :

> Planning a course of study for pupils, and constructing the curriculum they will follow is central to the whole educational process. Upon this planning hinges a very great deal. It

> defines, directs and co-ordinates what the pupil is intended to learn, gives direction and purpose to teaching, provides it with justification and gives it order and coherence. About how this planning is done, what criteria may best be used to decide between alternative possibilities, and how to judge the effectiveness of the planning, we know next to nothing. In periods of educational continuity such knowledge may be unimportant but in times of educational change when teachers are being called on to develop new approaches to teaching and new courses of study it is likely to be of crucial value.... there is a need to make explicit the principles by which effective planning is achieved, and to communicate these principles so that they may become, in time, part of the professional expertise of all teachers.

One may hold then, that the design of instruction is an integral part of the teachers' task.

1.3 THE SYSTEMATIC APPROACH

It is widely accepted today that the traditional techniques used in the planning of educational system in many developing countries are too antiquated to cope with the speed of change, these traditional methods being more suited to a slowly changing or static society.

At the moment the world is undergoing more change within one generation than over the previous several centuries. Today efficiency in instruction must be

the prime factor of any educational system, more than ever before. Although numerous approaches to instruction have been proposed in the past, they have in the main been too limited in nature. In fact, one might say, that they have been aimed at treating the symptoms rather than the basic problem itself; for example lengthening the school year, manipulation of the teacher/student ratio, and the methods of handling such problems as absenteeism and punishment. There is no doubt that these problems must be dealt with, but it needs to be born in mind that genuine instructional efficiency can only be achieved through a thorough re-examination of instruction itself rather than by attempts to patch up supporting activities or uderstanding the problem on an isolated basis. This re-examinaion can be aided by the use of a 'systematic approach' which has become increasingly popular in recent years.

A systematic approach is one of the elements of a complete educational technology and is commonly regarded as an alternative to traditional approaches in planning educational and/or other systems as well as in designing specific courses. An attempt is made here to give a brief explanation of what is meant by a 'Systematic Approach'. Shaw (1975,p.73) provided a simple definition:

> "a set of parts/objects/components which are : (a) Connected in an organised way. (b) Interdependent. (c) Subject to change if they leave the system, or if a change occurs within the system. (d) Within a definable boundary."

Romiszowski (1970,p.11) has pointed out that to some a systems approach to education implies 'the use of educational hardware; closed circuit television, teaching machines, film projectors.' Others, define the systems approach as 'the application of programmed learning principles to all aspects of a course'. He added that some reserve the term 'systems approach' 'to describe the application of cybernetics to the teaching and learning processes.' Silvern (1968-b,pp.3-9) stated that the systems approach is a set of procedures which can be summarised into four stages: (1) analysis is undertaken on the current system to determine the parts and the interrelationships; (2) synthesis is undertaken to join these various elements together with the new elements previously unrelated; (3) models are planned and formed to predict the effectiveness of the system and (4) simulation is carried out before the implementation of the system in the real situation.

Coombs (1968,pp.9-11) suggested that an

educational system has a set of inputs which are subject to processes designed to achieve certain outputs. The outputs are expected to satisfy the system's objectives. He argued that items are usually dealt with one by one, without giving attention to seeing how these items impinge on each other. In other words items are examined in seriatim in isolation. However, the relationships between the components must also be examined in a unified manner, if one wants to assess a system for the sake of performance improvement. Twelve major components of an educational system were provided by Coombs: (1) aims and priorities; (2) students; (3) management; (4) structure; (5) content; (6) teachers; (7) learning aids; (8) facilities; (9) technology; (10) quality controls; (11) research; and (12) costs. To illustrate how these components interact with each other, one can take the example of Bahrain. Recently the Ministry of Education in Bahrain started o diversify secondary education to include new programmes to better suit market demands. This required far-reaching changes in the system's academic structure, the curriculum and teaching methods. The authorities organised in-service courses to train secondary school teachers to meet this new demand. This also required some adjustment in the distribution of teachers and flow of students in each newly

organised branch. There was a need to provide all secondary schools with new facilities and equipment. In short every component in the system was affected by the change.

In order to clarify the changes from input to output it is necessary first to identify the systems' objectives clearly and define both the input and output characteristics. The specification of objectives is crucially important, as the achievement of standards cannot be assessed if the standards themselves are not adequately defined. Further the characteristics should be measurable and the measures be reliable and valid in terms of revealing the required standard of performance. In this it is also important to analyze the various stages of a system not only the initial and final. For example, in a secondary educational system it is not enough to define the initial input and final output, but the criteria of input and output for each stage must also be clearly identified. Thus the outputs of the first year should correspond with input requirements for the following year and so on.

It is generally assumed that all systems have sub-systems. A sub-system in turn may also be regarded as a system in itself. The educational

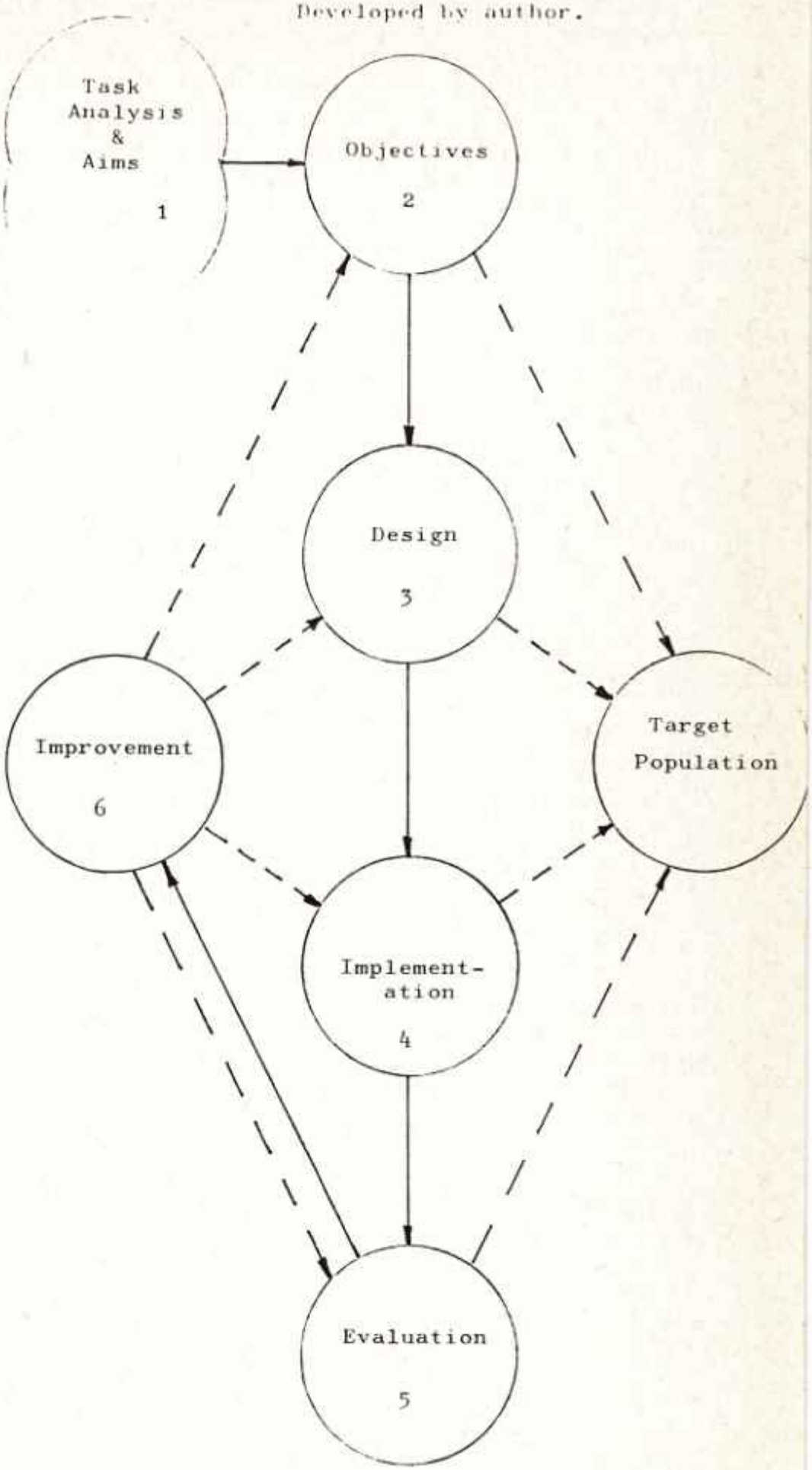
system, for example, may be considered as a sub-system within the boundary of the general system of a country. On the other hand the educational provision itself can be regarded as a system made up of such sub-systems, as higher education, further education, secondary education, and so on.

In the context of instructional design, the objectives, procedures, evaluation and other elements in the design may also be regarded as further sub-systems. In this sense the analysis of any element reveals that it consists of a number of further elements. It is therefore, important at the outset to define the system chosen for study.

Within a particular system, a systems approach works out certain procedures, interrelates and analyses the sub-systems in order to obtain the intended objectives. It could be said then, that a systems approach is actually the application of scientific analysis to the interrelated elements that constitute an activity. It should be known that only when all the elements can be considered and their relationships and contribution towards the attainment of the objectives recognized can it be said that a systems approach is actually used. Figure 1-1 illustrates the point. The lines indicate the inter

FIGURE 1 - 1 : Interrelationships between Elements within a system

Developed by author.



relationships between the elements within the system and the numbers show their sequence. Thus, after task analysis and derivation of aims the next logical step would be the statement of objectives and then the design of the learning experiences and so on until step '6' which is improvement of the overall system. (It should be noted that 'target population' is not numbered and the arrows mean that this point must be considered in steps 2, 3, 4 and 5.) Such an arrangement can be considered as a systematic approach. In the systematic approach elements may only have sequential relationship, while in a systems approach, besides sequential relationships all the elemets may also have an organic relationship among each other. Thus for example, while step '3' (designing the learning experiences) is undertaken, knowledge derived may influence step '2' (statement of objectives). In this way any element may influence any other.

Shaw (1975,pp.71-81) has emphasised this important distinction between a systematic and a systems approach. Read (1974,p.35) pointed out that system (in the singular) analysis is a less complex and sophisticated tool than systems analysis. Neil in Romiszowski (1970,p.59) believed that it was extremely important to distinguish between a

'systematic' and a 'systems' approach, pointing out that when one wants to convince those who are not familiar with systems ideas, it is best to proceed with a systematic approach first using a minimum of technical jargon, and then at later stages to move to more sophisticated relationships and concepts which may present difficult poblems in communication.

George in Romiszowski (1970,p.23) pointed out that systems approach to education resembles closely 'educational cybernetics.' By educational cybernetics, he meant '.... to emphasise the dynamic, the changing, the adaptive and the evolutionary features of our system.' He further argued that society changes rapidly and it is expected that all systems which try to simulate or synthesise and help social needs should themselves possess all these various features of change. 'These features of change', he stated 'should be represented by feedback, both positive and negative, as well as feed-forward.'

Romiszowski (1970,pp.17 & 18) considered cybernetics as, 'an inter-disciplinary approach to problems of control and organisation'. He argued that education and training in all its aspects is in this category. One interesting finding in cybernetics is that many of the problems associated

with complex systems may be dealt with by the same techniques irrespective of the type of system. Thus it has been pointed out, that techniques which may be developed to investigate, measure or control an animal's nervous system or a country's economic system, may also be applied to the investigation and control of an educational system.

The stages in applying cybernetics (or general systems theory) may be categorised as, 'stages of analysis, synthesis and evaluation.' As far as the analysis stages are concerned, normally a model would be produced. This model describes the system as it exists, and the inter relationships which exist between the elements. In the synthesis stage a model solution would be produced. This is regarded as the new system with new inter relationships which are supposed to exist. The evluation would include testing the newly formed model to ascertain the extent to which it really solves the problems which it has been created to solve.

George (1967,pp.24 & 25) stated that, 'Cybernetics is concerned with control and communication in animals, men and machines, and is especially concerned with the field of artificial intelligence.' The field of applied cybernetics is

made up of the application of cybernetic techniques to various aspects of society. Already developed fields of applied cybernetics as do exist, include Social Cybernetics, Mathematical Cybernetics, Industrial Cybernetics, Behavioural Cybernetics and Educational Cybernetics. As far as Educational Cybernetics is concerned, George indicated 'it will eventually use the methods of artificial intelligence to either simulate or synthesise the human teacher and provide as a result, a completely flexible and wholly adaptive type of teaching system'.

Systems are usually represented by models. According to Hodge in Tobin (1967,pp.24 & 25) there are three main kinds of models : '(a) iconic (usually presented in graphical form); (b) analogue (using physical equipment to prduce an analogous process to the real system); and (c) symbolic (usually 'pure' mathematical models capable of quantification and verification)'. Models are used to project theories and hypotheses about the situation being investigated or developed. They help to transmit information in an economical and highly compressed form; and oversimplify the real situation so as to highlight areas where research is needed.

Romiszowski (1981,p.7) considered a system as,

'.... a little black box, of which we don't unlock the locks, but find out what it's all about, what goes in and what comes out.' The 'black box' approach is one of the most useful concepts provided by general systems theory and cybernetics. It has been used in cybernetics particularly to contain the problem of system uncertainty in highly complex probablistic systems.

Ashby (1956) stated that the primary data of any study of a black box consists of a sequence of values represented by inputs and outputs over a period of time. He further argued that it ought to be able, in theory at least, to describe the transformation within the various sub-systems as far as it is possible to define the inputs and outputs as well as the major process components. Finally in order to quantify the input and output states, it is necessary, first to be able to identify the number of distinguishable input and output characteristics and the number of inputs and outputs.

General systems theory concepts can be applied to the problems of the organization of the instructional process. In the application of a system, however, there is a need for a detailed analysis of all components and structures of the teaching learning

process. In this, one of the immediate problems facing teachers is the variety of pupil entry behaviour at the input stage; and thus, the analysis of pupil deficiencies and difficulties of the learning teaching process at the initial stage of any system analysis is of vital value to teachers.

In such a way systems theory and systems analysis, if used properly may help in identifying better the aspects of learning and teaching; and so help to control them more effectively for the benefit of the learner as well as the teacher.

It is commonly agreed today that many educational systems (especially in developing countries) are still rigid and almost wholly outdated in method. In trying to search for a set of principles for a means of demonstrating how such educational methods can be made more flexible and practicable, it is clear that planning is necessary. In this it is obvious that people learn much better when they understand the purpose for which they are trying to get the information in the first place. The use of a system's approach would seem to be one effective means through which both the teacher and the learner can come to know where they are going, why and how. It is much easier for a teacher, when properly organized

to help his students acquire precisely the information they need for some specific purpose, than it is if he merely tries to pick and choose without firm guidelines or objectives and wihout previous planning and any derived organization of the steps and content involved.

CHAPTER 2

THE_INSTRUCTIONAL_SYSTEM

2.1 INTRODUCTION

A fundamental task of any professional educator and industrial or military trainer is the design of instruction which should be designed to achieve defined learning goals. These goals may or may not be achieved. There are certain characteristics that instruction must contain in order to accomplish its goals.

The world, nowadays is in a state of information explosion so that it is impossible for a learner to learn all there is to know or even a substantial part of all the knowledge of a particular field. Thus, the learner must depend on greater selectivity in regard to what he should learn and greater control over how material to be learned is presented. Instruction then must be planned rather than haphazard, so as to maximize student performance in the prescribed dimensions. The outcomes of such learning should bring the individual closer to the goal of optimum use of talents, should help adjustment to the physical and social environment and lead to a better life situation. This does not mean that the design of instruction should necessarily make all individuals alike, it is rather to help each person develop given directions but still maintaining

individual elements.

There are many different ways of presenting materials to learners - some of which are more effective than others and certainly effective approaches encourage rather than discourage further learning. Differing approaches have to be considered seriously in any instructional system, because individuals differ from each other, as far as their background, abilities and learning styles are concerned. Among the basic responsibilities of any educator are the design, development, evaluation and perhaps the management of the instructional system that will lead to maximum student performance through specific criteria at the minimum possible cost, time and effort.

It is often assumed that there is a fixed sequence of steps which invariably produce the one best solution to a particular teaching problem - this is rarely true. There may, however, exist a model solution to a certain type of problem, but in practice the optimum approach generally includes some divergence from the model in a variety of ways for not all techniques and procedures are appropriate to all situations and need to be applied selectively.

The skilled designer however needs a set of principles and techniques from which to choose a particular approach in given circumstances. He should not treat the process of design as if there were only one fixed sequence of steps.

2.2 SYSTEM DEVELOPMENT

In order to design instruction systematically a designer first needs to establish a rationale for what is to be learned. Careful consideration must be given to the sources from which the knowledge must be derived, to the factors which appear to influence these sources and the planned outcomes. Instruction should then be constructed on a step by step basis beginning with identification of goals and the collection of information that is relevant to the identified goals. For the purpose of reliability and validity the designer should use a variety of sources of accurate information which must be analysed in terms of the accepted theoretical principles as input at each stage of planning. Furthermore, the anticipated outcomes of each stage must be checked and examined against the final intended goals.

This process of instructional system design is likely to involve a variety of specialist, people and

agencies. The complexity and size of such a design will obviously depend upon whether the design is for a single lesson, a topic in a syllabus, a new curriculum to be installed or for a totally new system of education. In many developing countries such an approach has not yet been followed. Too often different agencies acting almost entirely independently from each other, have provided courses, (planned according to their own thoughts and wishes) to be followed in educational systems or training institutions. On the other hand, it would seem more reasonable that a joint effort of an appropriate selection of representatives from schools, industries, universities, related ministries and other establishments organized as a consortium and using a systems approach would lead to better instructional appoaches. It is equally important that the purchase, preparation and production of instructional materials be integrated with the other aspects of the particular educational endeavour in order that the most effective system can be developed. The design and development of an instructional system in this sense seems likely to be the most promising type of action to follow if satisfactory results are to be achieved.

2.3 STAGES OF AN INSTRUCTIONAL DESIGN

Different authors have provided a range of approaches for the stages of instructional design. Rowntree (1974,p.14) offered four phases for curriculum development and the design of learning experiences (see Figure 2-1). The figure shows the kind of tasks which should be performed within each stage. Davies (1971,p.28) provided a chart which included a sequence of fifteen different activities (see Figure 2-2), as steps to be taken in developing a learning system. Most of the activities provide for the basic framework of the system, while others - no less important - are concerned with validation of the system once it has been installed. He summarized the activities under the headings of, (1) Planning, (2) Organizing, (3) Leading; and (4) Controlling. Figure 2-3 is designed to show the steps to be taken in designing an instructional system. It involves an orderly sequence of twelve stages. A brief explanation is provided for each stage as follows:

Stage 1 - Source of Knowledge and Information

The designer must first collect relevant information. When dealing with national educational issues the designers with a variety of educational specialists together with agencies from different

FIGURE 2.1 : The Four Phases in Curriculum Development, Rowntree (1974, p 14).

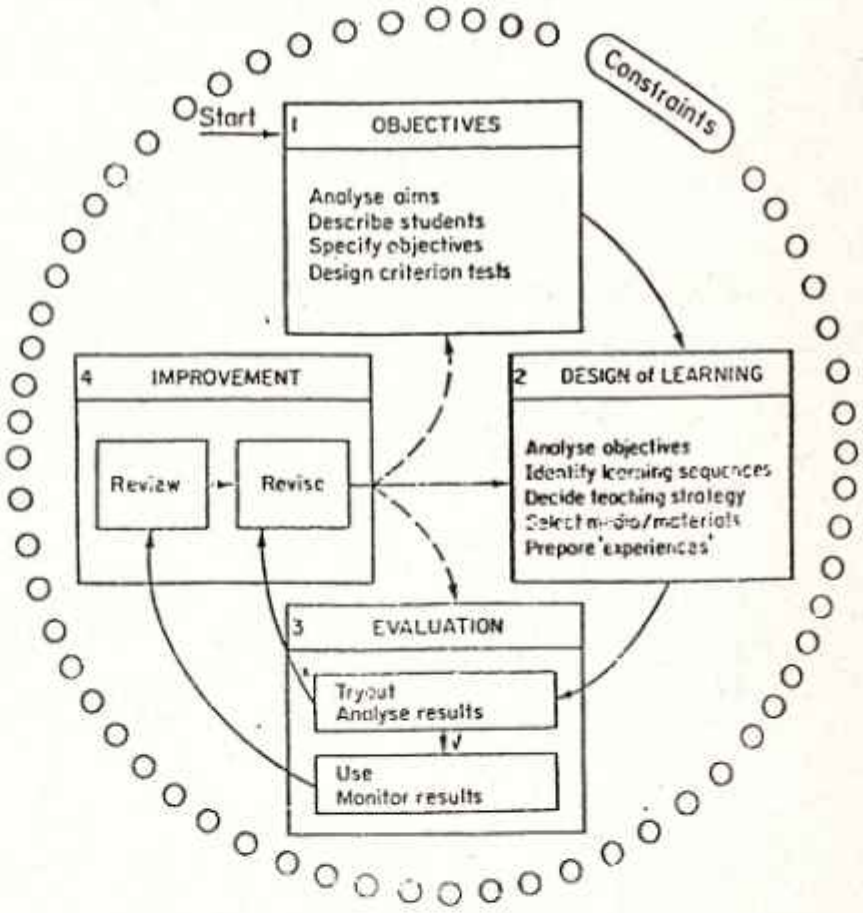
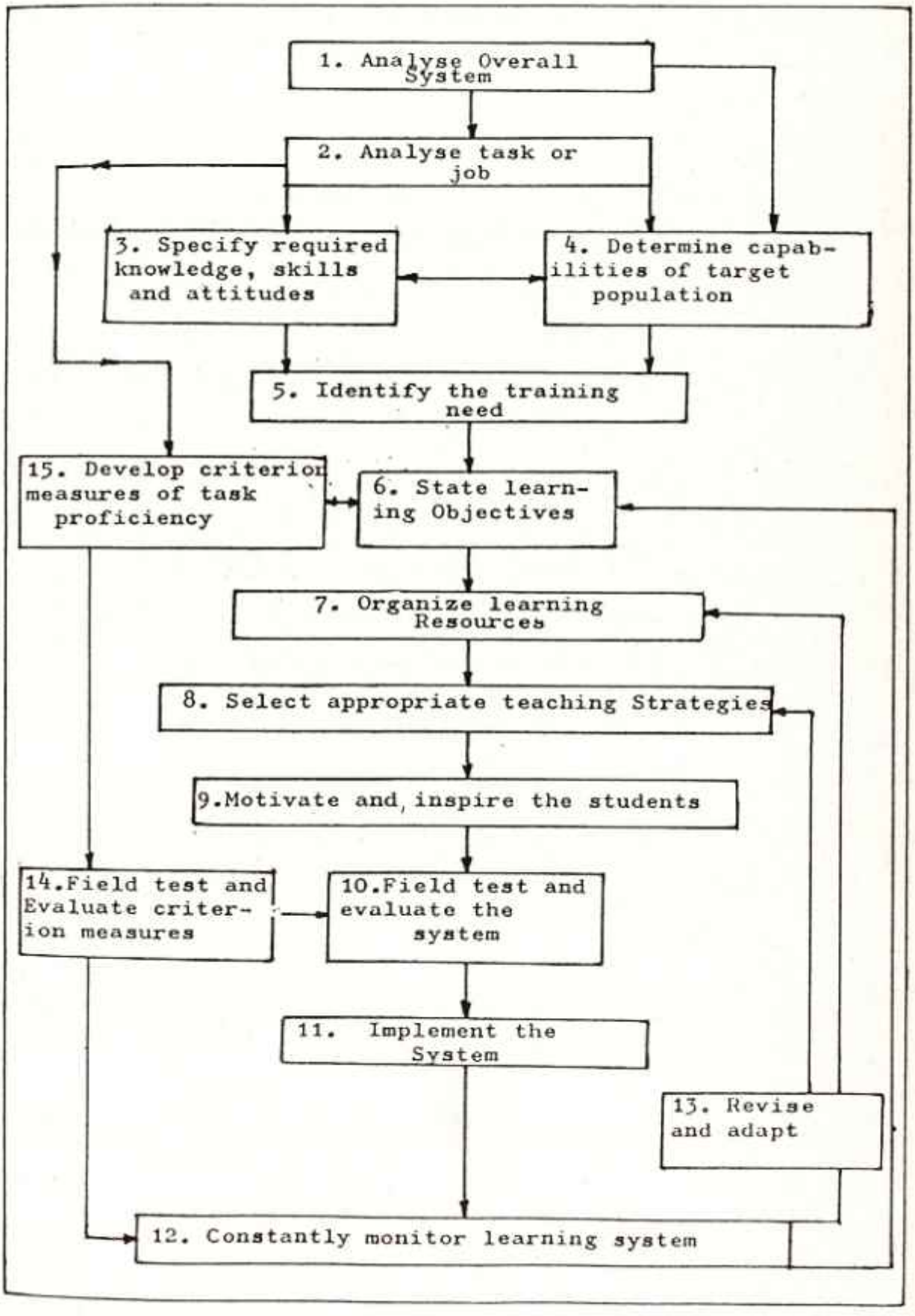


FIGURE 2-2 : The Steps Involved in Developing a Learning System, Davies (1971, p.28)



ministries and enterprises ideally would hold meetings until they came to a consensus about current and future needs. When representatives from a variety of sections of national life are invited to participate and give their views, then, obviously such broad aspects as economic change, industrialisation, political issues and the social demands can be taken into consideration. It is equally important at this stage for the participants to consider seriously all the relevant ideological factors (religion, traditional values and intercultural exchange), which may create problems if they are neglected. Although accurate long range planning is almost impossible, this kind of consensus should produce a better result then if only one group of administrators, say in the Ministry of Education, analysed and recommended priorities according to their own interests.

Stage 2 : Needs Priorities and Aims

As the rate of change in society increases, there is an increasing demand for the more frequent review of national and educational needs, not only to keep abreast of new technology but also to learn what is going on in different parts of the world. A need has been defined by Burton and Merrill (1977) as, ' ....a discrepancy or gap between the way things "are" and the way things "ought to be". This review process

then is aimed at closing the gap between the situation now and the situation as it ought to be.

In order to determine appropriate content and methods and the quantitative elements, however, a thorough manpower analysis is also needed. In arriving at the identification of a particular order of needs care must be taken that these are considered in the light of the country's total situation. Because a particular need is a priority in a neighbouring country this does not necessarily mean that it has the same degree of urgency in one's own. Once needs are identified, they should then be arranged in order of priority so that the most urgent may receive priority attention. At this stage, when the needs and priorities are agreed, the broad aims of the entire educational system or curriculum for a particular stage can be derived.

Stage 3 : Analysis of Overall System

When needs and broad aims are identified, planners need to divide the entire curriculum element into such levels as primary, secondary and tertiary. Several important questions need to be answered here - these include: What must the student learn at each level? What should be the standard of each level? How long should each level take? What type of

primary secondary school, vocationally oriented and leavers are required? What are the specializations needed in universities and colleges? How should children, students or trainees learn at each level? Where should the resources, materials and other help come from? Are there any reasons for applying a particular method? Are there any alternatives? Should one expect some problems somewhere in the middle? What kinds of future problems are envisaged? Is it necessary to compromise somewhere? Is there sufficient finance to run the entire system? Can present stock of manpower undertake the task efficiently?

Once these questions are answered at least tentatively, the planners are in a better situation to know where and what the system is lacking in terms of personnel, media, materials, buildings and finance. It should be borne in mind that failure to consider such points can result in wrong solutions and consequently waste from such situations as materials purchased being unused due to lack of trained personnel, laboratories without supplies as they had not been budgeted for, so that learning activities cannot proceed. Other problems arising from such a situation include; students being ill prepared to start a given course because the essential

pre-requisite learning experiences have not been provided.

After considering such as the points listed above, planners may then have to abandon or change the order of priority for some goals. For example the range of planned materials may be reduced or increased. Perhaps smaller classrooms or laboratories than desired must be used. Class sizes may have to remain larger than ideal and the expansion of certain sections be at a slower rate than planned. At this point one may suggest that the work of representatives from other Ministries and organisations is almost completed and that more detailed planning should be left to the educational professionals.

Stage 4 : Determining the Sequence of Curricula and Courses

At this stage the original aims of each level are broken down into detail sufficiently to show the year-by-year progress of the curriculum, followed by drawing up the schemes of each course or subject area on a yearly basis. By course here, is meant a single year of study in a subject area in primary, secondary or tertiary level. The participation of teachers is very important at this stage. Experience has shown that directors must work out co-ordinated planning and

action involving writers, media producers, teacher trainers and teachers if the work is to proceed smoothly. In this any plan must be flexible enough to allow for future adjustment.

At this stage, various teacher roles need to be identified and the target population for each level must be defined. When teacher roles are known, then special courses can be planned, on an in-service basis through which the new system can be introduced. During the training the trainees may also be required to participate in the design, by giving their views. Introducing the new courses to teachers could be done additionally through workshops, seminars and visits to schools where the system is first piloted. It is advisable at this stage that the teachers first receive their orientation from those actually involved in the design team and who can also observe the pilot teachers at work. During this time questionnaires related to the new proposals should be distributed among the teachers and meetings organized in order to receive their views, ideas and comments.

Stage 5 : Stating Unit Objectives

At this stage the year-by-year plan for each course is known. The teacher must now break down each year course into shorter units; and write down

specific objectives for each unit guided by those of the years course. It is widely accepted by educational writers, that objectives lie at the very heart of the planning process (whether one is planning for a unit of a course or a single classroom lesson), so it will be dealt with this section in some depth.

It is obvious that one cannot evaluate the attainment of a generally stated aim without first transforming it into a precise measurable statement (i.e. objective). By writing specified objectives it is possible to anticipate and avoid unforseen classroom difficulties, as well as to ensure that the potential of the situation is more effectively realized. Davies (1976,p.16) pointed out:

> Objectives help to make many of activities explicit, if not painfully clear. They can be used to emphasize the interactive relationship between means and ends, facilitate what Malcolm Skilbeck has called 'the progressive self-realization of aims', and enable discussions between developers, teachers and learners on 'Why this is necessary rather than that?'

Rowntree (1974,pp.34-36) listed four advantages of using objectives. Firstly objectives enable the teacher to communicate about the intentions of the teaching and learning. He pointed out that research by Mager and Clark (1963), " ... has shown that

students who know the objectives of a course, and who are given appropriate references and resources, can teach themselves in half the time taken by ordinary classroom methods". Secondly, as Rowntree put it, " ... they help you to select and structure the content of your teaching". While one is probing into possible objectives he will realise that they depict the important topic areas of the course. Thirdly objectives help one decide on appropriate learning activities and teaching media; and finally they help one to decide on suitable means of evaluation and assessment.

Despite the fact that many writers advocate the use of behavioural objectives and despite many pilot studies which have highlighted the benefits of such objectives, they have not yet been fully accepted by many educators. Rowntree believed that these objections are due to ignorance, '(of what form objectives can take) or fear (of what objectives may disclose)'.

The writer himself advocates the use of objectives at all levels of education for unless one has clearly defined objectives there is no clear basis for designing instruction. Without specified objectives instruction too often tends to be poorly

organized and student learning difficult to assess. Well formulated objectives help a great deal to choose the right subject matter and content, sequence topics, allocate teaching time, select materials and procedures to be employed in the teaching process, provide standards for measuring student achievement, and act as criteria for evaluating the quality and efficiency of instruction.

A well defined objective must include conditions under which the performance may occur. Davis, Alexander and Yelon (1974,p.37) have provided three types of conditions that affect performance: (1) the aids or tools which the student is allowed to use in the tests situation; (2) the kinds of restriction that will be placed on a student, and (3) how information should be presented. An objective should also describe the minimal accepted level of performance as evidence that the learner has actually achieved the objective.

The three-dimensional treatment of the taxonomy educational objectives (cognitive, affective and psychomotor domains) offered by Benjamin Bloom, David Krathwohl and Anita Harrow, (shown in Figure 2.4), are useful in this respect for designing a framework for both teaching and evaluation purposes. Davies

FIGURE 2-4 : Relationships between the three taxonomies of educational objectives
Bloom, Krathwohl and Harrow in Davies (1976, pp.148 & 149)

LEVEL	COGNITIVE DOMAIN (BLOOM, 1956)	AFFECTIVE DOMAIN (KRATHWOHL, 1964)	PSYCHOMOTOR DOMAIN (HARROW, 1972)
ASSOCIATION	1.00 *Knowledge* 1.10 Knowledge of specifics 1.11 Knowledge of terminology 1.12 Knowledge of specific facts 1.20 Knowledge of ways and means of dealing with specifics 1.21 Knowledge of conventions 1.22 Knowledge of trends, sequences 1.23 Knowledge of classifications and categories 1.24 Knowledge of criteria 1.25 Knowledge of methodology 1.30 Knowledge of the universals and abstractions in a field 1.31 Knowledge of principles, Generalizations 1.32 Knowledge of theories and structures	1.00 *Receiving* 1.10 Awareness 1.20 Willingness to receive 1.30 Controlled or selective attention 2.00 *Responding* 2.10 Aquiescence in responding 2.20 Willingness to respond 2.30 Satisfaction in response	1.00 *Reflex Movements* 1.10 Segmental reflexes 1.11 Flexion reflex 1.12 Myotatic reflex 1.13 Extension reflex 1.14 Crossed extension reactions 1.20 Intersegmental reflexes 1.21 Cooperative reflex 1.22 Competitive reflex 1.23 Successive induction 1.24 Reflex figure 1.30 Suprasegmental reflexes 1.31 Extensor rigidity 1.32 Plasticity reactions 1.33 Postural reflexes 1.331 Supporting reactions 1.332 Shifting reactions 1.333 Tonic-attitudinal reflexes 1.334 Righting reactions 1.335 Placing and hopping reac 2.00 *Basic-Fundamental Movements* 2.10 Locomotor movements 2.20 Non-locomotor movements 2.30 Manipulative movements 2.31 Prehension 2.32 Dexterity
CONCEPTUALIZATION	2.00 *Comprehension* 2.10 Translation 2.20 Interpretation 2.30 Extrapolation 3.00 *Application* 4.00 *Analysis* 4.10 Analysis of elements 4.20 Analysis of relationships 4.30 Analysis of organizational principles	3.00 *Valuing* 3.10 Acceptance of a value 3.20 Preference for a value 3.30 Commitment 4.00 *Organization* 4.10 Conceptualization of a value 4.20 Organization of a value system	3.00 *Perceptual abilities* 3.10 Kinesthetic discrimination 3.11 Body awareness 3.111 Bilaterality 3.112 Laterality 3.113 Sidedness 3.114 Balance 3.12 Body image 3.13 Body relationship to surrou objects in space 3.20 Visual discrimination 3.21 Visual acuity 3.22 Visual tracking 3.23 Visual memory 3.24 Figure-ground differentiation 3.25 Perceptual consistency

FIGURE 2-4 (Contd)

3.30 Auditory discrimination
3.31 Auditory acuity
3.32 Auditory tracking
3.33 Auditory memory
3.40 Tactile discrimination
3.50 Coordinated abilities
3.51 Eye-hand coordination
3.52 Eye-foot coordination
4.00 *Physical Abilities*
4.10 Endurance
4.11 Muscular endurance
4.12 Cardiovascular endurance
4.20 Strength
4.30 Flexibility
4.40 Agility
4.41 Change direction
4.42 Stops and starts
4.43 Reaction-response time
4.44 Dexterity

IDENTIFICATION

5.00 *Synthesis*
5.10 Production of a unique communication
5.20 Production of a plan, or proposed set of operations
5.30 Derivation of a set of abstract relations

6.00 *Evaluation*
6.10 Judgements in terms of internal evidence
6.20 Judgements in terms of external criteria

5.00 *Characterization of a value or value complex*
5.10 Generalized set
5.20 Characterization

5.00 *Skilled Movement*
5.10 Simple adaptive skill
5.11 Beginner
5.12 Intermediate
5.13 Advanced
5.14 Highly skilled
5.20 Compound adaptive skill
5.21 Beginner
5.22 Intermediate
5.23 Advanced
5.24 Highly skilled
5.30 Complex adaptive skill
5.31 Beginner
5.32 Intermediate
5.33 Advanced
5.34 Highly skilled

6.00 *Non-discursive Communication*
6.10 Expressive movement
6.11 Posture and carriage
6.12 Gestures
6.13 Facial expression
6.20 Interpretative movement
6.21 Aesthetic movement
6.22 Creative movement

(1976,p.150) pointed out, "Not only can the taxonomies help teachers and developers to identify different effectiveness areas, but they also offer a means of relating effectiveness areas to other parts of curriculum." Davies added that he considered the taxonomic approach as an excellent guide to curriculum development, teaching, learning and evaluation. He quoted Bloom in suggesting five possible detailed areas of use:

(1) The taxonomies may be used to help specifiy the broad aims of a curriculum.

(2) They can serve as models for the teacher, engaged in designing test items or examination questions.

(3) They can be used to suggest classes of objectives that might not ordinarily be considered or that might be overlooked.

(4) Taxonomies can help teachers to examine and analyse standardised tests and examinations.

(5) Teachers can select test items and questions in such a way as to reflect the relative emphases they have placed on the different categories in the

taxonomies.

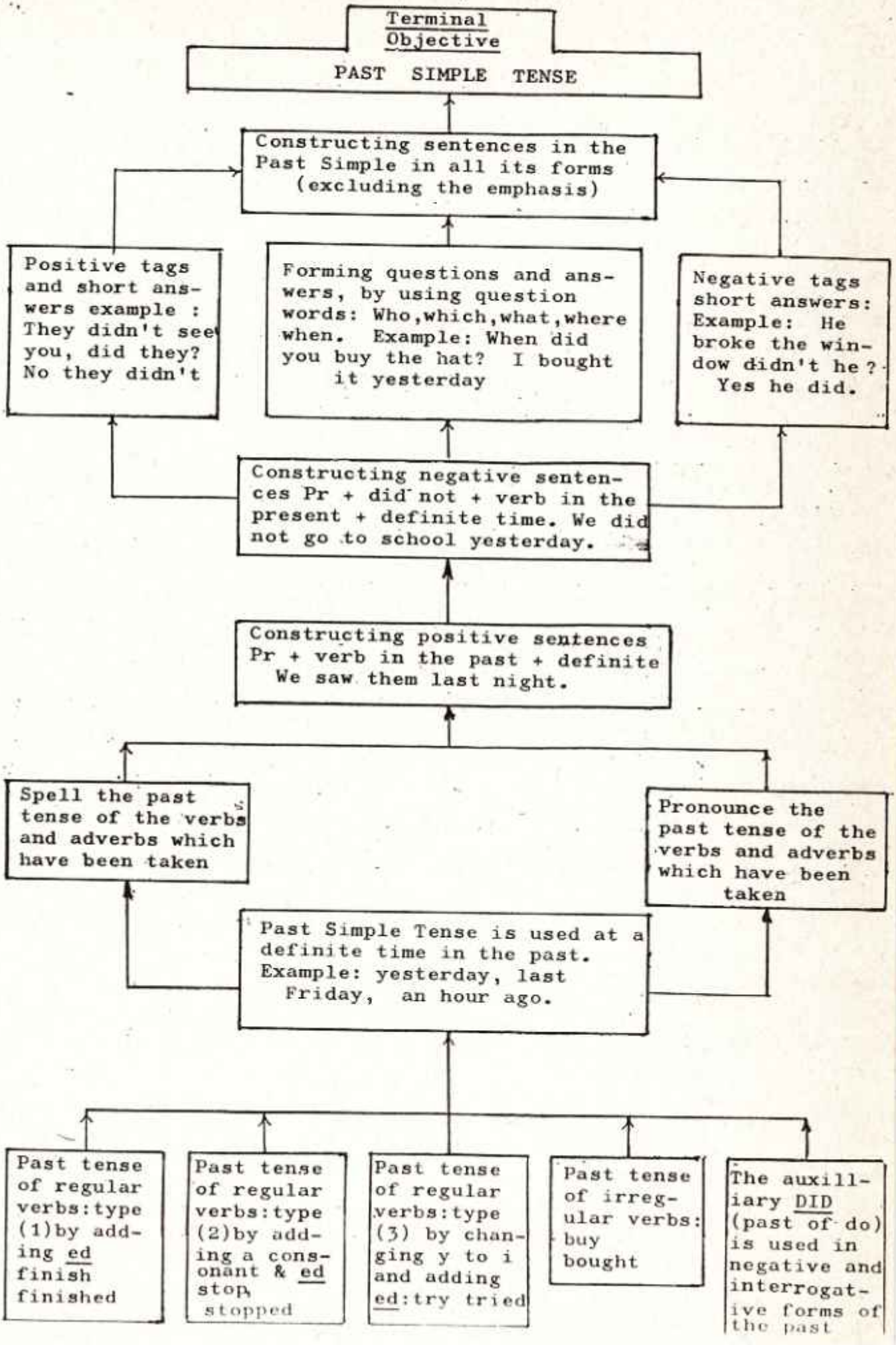
Stage_6 : Identifying_Learning_Sequences

The task here is to prepare and arrange a learning sequence that will create a good interaction between the sub-units of a particular topic. A proper sequence of pre-requisite skills makes the learning of intellectual skills an easier process for a teacher to manage. The learning sequence which results from a learning task analysis is an arrangement of intellectual skill objectives into a pattern which shows the pre-requisite relationships among them. To understand such a task one needs to distinguish between terminal and enabling objectives. A course or a syllabus should be broken down into units. These units are then divided into sub-units. The objective for a given unit may be called 'terminal objective', while objectives for the sub-units or topics are called 'enabling objectives'. Thus, enabling objectives are considered as pre-requisites for the terminal objective. They describe the knowledge and skills that contribute to achieving the terminal objective.

Figure 2-5 gives an example of a learning hierarchy for a skill in an English lesson. It

FIGURE 2-5 : Learning Hierarchy, with Enabling and Terminal Objectives.

(Developed by Author)



provides ideas about the routes a teacher may take to achieve the terminal objective. It indicates what topics the students need to tackle along the way and within these topics the main ideas. One can see too how the choice of the topics is related directly to the terminal or lesson objective. Once the topics are identified, which of course, are suggested by the terminal objective one must devise ways of ordering them. Figure 2-5 shows the ordering and sequence of the topics (or sub-units), so arranged in logical order, each part connected to the next till at the end the terminal objective is reached.

Stage 7 : Deciding Instructional Strategies

The selection of strategies is not necessarily simple - it depends on the nature of the prespecified objectives that are to be attained, preknowledge, age and the abilities of the students. Educational technology is not yet in a position to offer more than suggestions about successful and unsuccessful teaching strategies. More research is needed in this field to generate principles that might lead to more efficient teaching strategies. However, instructional objectives do prescribe what is to be accomplished and a teacher should select effective approaches leading to the accomplishment of the objectives. These include such teaching techniques as the lecture, group

work, individualised learning, case studies discovery approach and so on.

Romiszowski (1981,p.292) defined instructional strategies as, ' ... the translation of a philosophical or theoretical position regarding instruction into a statement of the way in which instruction should be carried out in specific types of circumstances'. The two basic strategies are expositive and discovery. Romiszowski provided four main steps for each strategy. The main elements of each step are :

EXPOSITIVE STRATEGY :

1. Present information through explanation or demonstration.
2. Test for reception, recall and understanding.
3. Present practice opportunities for applying the general principles to a range of examples.
4. Present opportunities for the application of the newly learned information to real situations and problems.

DISCOVERY STRATEGY :

1. Present opportunities to act and observe the consequences of one's actions.
2. Test for understanding of the cause-effect

relationship.

3. Either by questioning, or by observing further activity test for the formation of the general principle.
4. Present opportunities for the application of the newly learned information to real situations and problems.

Currently much attention is being focused on discovery or inquiry to as opposed to expository approaches. Although many authors argue in favour of discovery learning, it has not yet been fully explored both in developing and developed countries. Strong supporters of discovery learning are Piaget and Bruner.

There are many variations of these two strategies. Figure 2-6 provided by Romiszowski, shows a range of learning strategies ranging from totally free discovery to totally controlled expositive rate learning.

Stage 8 : Developing and Selecting Materials

The word materials here refers to both software and hardware. In selecting media a teacher or a designer must be careful, media applications are both

Impromptu discovery	Unplanned learning: no instruction was involved directly (eg free use of a library/resource centre)
Free exploratory discovery	Bruner's approach: broad learning goals are fixed; otherwise the learner is free to choose (eg resource-based learning systems)
Guided discovery	Gagne's approach: objectives are fixed; learner is guided as to appropriate methods, conclusion, etc (eg typical Polya methods for problems)
Adaptively programmed discovery	Guidance and feedback correction is given on an individual basis, (eg computer-based learning systems)
Intrinsically programmed discovery	Guidance and feedback according to a pre-planned programme, based on the typical student (eg some programmed instruction materials)
Inductive exposition	Also called 'reflective lecturing': the teacher 'talks through' the discovery process
Deductive exposition	The 'meaningful receiption learning' process favoured by Ausubel (mainly lectures)
Drill and practice	Rote reception learning: instruction demonstrates what to do and provides practice. No conceptual understanding is necessarily involved (memorization)

Figure 2-6. The Range of Learning Strategies
Romiszowski (1981, p.294)

valid and cost effective. If the objectives are clear the teacher is in a better situation to determine the desired materials. In this respect problems and difficulties can occur if materials are purchased or produced before the instruction is designed. The most serious failure of this kind is that the teacher will end up with a bulk of materials which are inapplicable in his teaching situation. An effective way of preventing such a problem is the application of a systems approach to instructional design. The basis for selection of materials can be in the analysis stages when the sequences and strategies of the topics are identified. The media selected must be capable of transmitting the information and supply the instructional stimuli which the lesson content requires. Another function of media is to help the student to engage in the appropriate learning activites. For this to be achieved the teacher must also match media choice to the particular lesson objectives.

Stage_9 : Field_Tests_and_Tryouts

Once the content, materials and techniques have been tentatively agreed they need to be piloted with samples of students representative of the population for whom the course is being designed. Initially it is useful to start with trials involving a few

individual learners in face-to-face situations, in which interview data can be combined with the learners' voluntary comments and observations of the obvious misunderstandings or difficulties they are facing. The next edition of the segment should be tried out in a small group situation and finally the unit given in its entirety in a regular classroom situation with the use of diagnostic tests and performance measures.

Stage 10 : Analysis of Results

This stage is concerned with analysis of overall system after the piloting. Different types of tests together with the questionnaires and comments obtained from students, teachers and administrators need to be examined and analysed thoroughly to find out the weaknesses and strengths. This type of analysis should reveal if there is any need for change in any specific area of the project.

Stage 11 : Review and Improvement

Every stage must be reviewed thoroughly to see what type of changes are needed in order to improve any particular area of the system requiring it. The course objectives, sequences, strategies, media to be employed in each section and the control and evaluation strategies must be reviewed in accordance

with the overall results in Stage 10. All the problems encountered must be explained, reviewed, solved, justified and approved by management, otherwise they may be used as an excuse later on, if deficiencies occur.

Stage 12 : Implementation

Once the project is approved, it is introduced into its educational environment for which it was designed. However evaluation should be undertaken at intervals in order to identify any need for further improvement. This means that the system must be under continuous revision so as to enable the introduction of new materials and be abreast of new technologies and changes. Throughout it is still necessary to gain teacher acceptance of new ideas and techniques to be introduced.

2.4 SUMMARY

There are many different ways of conceptualizing the total process of instructional design. It is possible to reduce or increase the number of stages, but one should be careful not to miss any important point. Twelve stages provided were discussed briefly. However, in practice one may realize that

there would be much revision, because work at any stage gives new insights into other stages. The first four stages in the design focus upon the determination of needs and aims as outcomes from the entire system. The second four stages are concerned with designing the learning experiences which include overall structure and the listing of the objectives to be achieved at the end of each unit or course. The last four stages are concerned with piloting and the overall evaluation to find out weaknesses in order to improve and make ready for implementation.

CHAPTER 3

COMMUNICATION, LEARNING AND MEDIA

3.1 INTRODUCTION

The amount and the validity of what people learn depends to a great extent upon their ability to communicate. Thus, learning to communicate may be regarded as one of the main themes in the educational process. However the term 'communication' is a complex one. In general communication is concerned with the transmission of information, ideas and feelings between people and animals or machines; or it can be used in the sense that railway and roads are communication networks which enable people to move from place to place.

Its study comprises the ways in which human beings communicate including speech gesture, telecommunication systems, publishing and broadcasting. Davies & Hartley (1972.pp.97 and 98) stated, "Communication through understanding is of different kinds. It is perhaps above all an encounter between minds. It involves discretion and decision. It requires active participation, two-way interchange and progressive growth."

Although, the term is now widely used the problem is that as yet there exists no distinct scientific discipline concerned exclusively with this field.

Thayer in Budd & Ruben (1972,p.8) pointed out :

> Because the phenomena of communication are so basic as to have some relevance for all scientific disciplines, and because each of the often diverse points of view brought to bear is self-legitimizing, no comprehending body of knowledge is likely to emerge in the near future.

It is generally agreed however that it is only through the production, transmission and reception of messages that communication effects occur. In communication the communicator attempts to accomplish goals relating to his basic intention to affect others, his environment and himself. It is extremely easy to discuss communication at length, as the field is as wide as education itself. It is intended here to confine and limit its meaning to the process by which one person is made aware of ideas in the mind of another. In other words, it will focus only on those facets of the process that seem relevant in helping to promote learning.

In the last decade, there has been a dramatic increase in the output and number of outlets for communication related research, even though most of the research undertaken in this field up till now often derives from sources and motives which are not strictly pedagogical in nature. It seems that many

of the concepts used in these studies need reappraisal and analysis but this is outside the scope of this discussion.

Any society is concerned through its educational system to transmit its values and standards to the next generation to safeguard its existence. This implies a communication between society and the individual. Education can thus be seen as a communication process between society and the individual, but also when looking at a formal system of education, there is a constant need to consider relevance in such a process. Education must constantly monitor how effective is the communication in respect of the standards of society and the store of man's knowledge.

3.2 COMMUNICATION SYSTEM AND PROCESS

The learning process has many implications for a theory of communication. Berlo (1960,p.99) pointed out that a model of learning resembles that of communication, and it is equivalent to it. The communication process, as he stated, requires six basic ingredients: a source, an encoder, a message, a channel, a decoder, and a receiver. The process is that the source encodes a message and the encoded message is transmitted through some channel. The

message is then decoded and interpreted by the receiver. In the learning process (according to Berlo) five basic ingredients are required. They are: a stimulus, perception of the stimulus by the organism, interpretation of the stimulus, a trial response, and a rewarding consequence of the trial response. The process in this case is that a stimulus is perceived by the organism. The stimulus, as perceived, is interpreted by the organism. A response is made. The response is perceived as having consequences. It is added that if the consequences are rewarding, the organism retains the response. He further argued that the two models represent only a difference in point of view. A model of learning normally starts with the decoding function, while a model of communication normally starts with a discussion of purpose and this is the primary distinction between the two processes.

Thayer (1968,p.116), identified two different systems in this regard. Communication systems and data systems, the latter being also termed "information systems". Data systems are considered as the flow of data to and from humans or machines, from the point at which that data is produced and diffused to the point of its direct destination.

He added that, "Data systems [information systems] are rational systems designed by people, deduced from some set of rational criteria of system efficacy." Communication systems on the other hand, he stated, " ... are defined by the data acquisition - consumption practices (rational or not) of the consumers of the output, of that system, whether by intention or accident." A further distinction has been provided by Thayer (1968,p.117) which helps more to clarify his notion of each, " ... people may be informed by the data systems [information systems] which serve them. But people are informed within their communication systems."

Ruben in Budd & Ruben (1972,p.110) pointed out, "Only when the significances, competencies, purposes, functions and desires which the listener brings to the situation have been defined as a crucial aspect of the system, would it meet the definition of communication system." He added that whereas an important question in examining an information system is 'How does it work?' the important question to examine in a communication system is 'How are people using it?' It could be said then, that the most effective information system might be an absolutely ineffective communication system. The best reproduction of traditional music, for example might be quite

worthless to the listener who enjoys jazz music. This point brings up the teacher issue for too often he only focuses his attention upon the information system - upon the flow of messages neglecting the other aspect (intended destination) for which the message was intended. It is obvious that when the interests, abilities and needs of the listener are neglected, effective communication may not take place, as the receiver may loose his interest.

Many authors including [Shannon and Weaver (1949), Schramm (1954), Fearing (1953) and Westly and MacLean (1957)] have produced models which show the areas and ingredients of communication.

Some of these models have been used in teaching/learning situations, but none of them has turned out to be very useful. Berlo (1960. pp.28,29) pointed out that the concern with communication has developed many different types of models which include ingredients and descriptions. He argued that none of these models could be said to be "right" or "true". Some may be more useful or correspond more than others to the state of knowledge about communication.

Hills (1979. p.13) provided a model (see Figure 3-1) which indicated the areas of direct concern for

the sender and receiver. It was pointed out that the teacher usually provides the input which is receivable to the receiver (learner) through one or more channels.

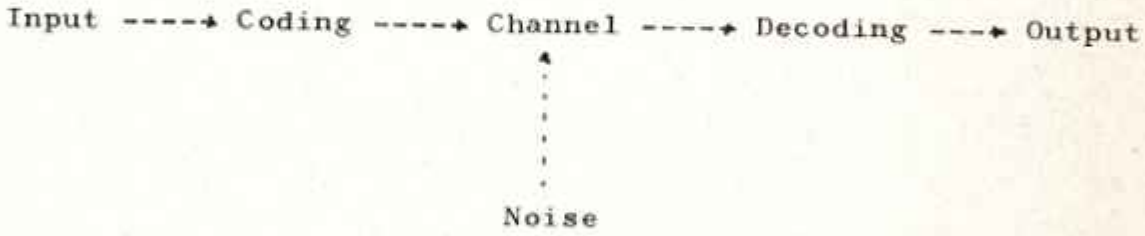


FIGURE 3 - 1 : A Model of a Communication System (Hills 1979, p.13)

The receiver then produces the output. It is obvious, however, that if one is to expect an optimum output, one should examine the validity of input and the effectiveness of the channel. For input to be valid and up-to-date, there is a need to ensure that the content and type of courses in schools and institutions of higher, further and continuing education are subject to regular review. It is not intended here to explore the detailed subject inputs to the process, rather to give some brief ideas about other main ingredients of the communication process, which are shown in Figure 3-1.

Berlo (1960 p.57) has defined 'code' as any group of symbols that can be structured in a way that is meaningful to some person. Hills (1979, p.16)

pointed out, "coding is the process of making the desired input visible to the student, and the teacher needs to be concerned that the coding is such that the student is able to receive the material and will be able to understand and decode it." It is further stated that the teacher makes his ideas perceivable and clear by coding them into a set of symbols which make up spoken or written language into common pictorial symbols. The important issue is that the learner must speak and understand the same series of symbols. It is worth mentioning here that this may not occur, if the learner's background of knowledge and ability is not sufficient for the standard at which the teacher is coding the subject. It is pointed out, however, that without compatability between the coding and decoding process there will be no communication, as symbols are only a kind of events representation and not the event itself.

The 'channel' is one of the important ingredients of any communication model, for the channel of communication has to convey the message to the student accurately. Berlo (1960, p.67) argued that normally we do not choose one channel over another for any adequate or worthy reason. His point was that in education people normally fail to analyse teaching from a communication channel point of view. Berlo

provided four questions which he thought to be neglected when considering the channel :

1. What kinds of messages should be transmitted orally in the classroom?
2. What kinds of messages should be transmitted visually, through books?
3. What kinds of messages should be transmitted visually, but nonverbally, through pictures, rather than words?
4. What kinds of messages should be transmitted physically, through touch, by having students actually perform certain tasks, examine and manipulate certain objects, etc?

It is obvious that one cannot decide on appropriate channels without considering the type of message. There is no doubt that the content and the code of a message should be strongly related to the choice of channels. Further knowledge of the receiver is also strongly related to the type of channel. An instructor must know what type of receiver he is communicating with. Can he decode better by ear, by eye or by touch? Such questions also apply to the instructor himself as to whether he communicates better when he speaks, writes or demonstrates physically?

For the learner to be able to decode, it is important to have an adequate background of the subject which is being presented. Unfortunately this is not always given sufficient attention, learners for example entering a college are expected to have such skills as the ability to use books and extract information from them, the ability to take notes and write up practical work together with the skills of argument and discussion. Unfortunately this is not always the case, and has now in some areas resulted in the provision of remedial activities. One thing which instructors should always bear in mind is that possessing a recognised certificate in certain subjects at secondary level is not a guarantee that the learner has an adequate background of skills, knowledge and attitudes. Whether this is because of the work in schools or the examination system is not the question here. What is important to note is that, one of the most important tasks of the instructor at any level is to determine whether the learner possesses sufficient background knowledge when entering a course of instruction or not. If he does not, then, he must be helped to acquire it, otherwise he will not be able to decode the material presented.

Another aspect in a communication process is the

source of 'noise'. There are many sources which produce noise that can obscure the message. The teaching environment itself can be regarded as a considerable source of noise. For example, sound quality and the special dimensions of rooms, qualities of comfort of the chairs, visual impact of the colour of the walls and floor covering are all important in considering the potential of 'noise'. The number of students influences the physical noise as the larger the number the more noise is likely to be produced, through chair moving, sneezing, coughing and the like. The teacher himself is regarded as a potential source of noise, as he is responsible for passing clear information to his students he must always try to be unambiguous and choose appropriate channels of communication, using a variety of techniques; and aiming to ensure that the learners receive and learn the intended material.

3.3 LEARNING IN SMALL GROUPS

Lecturing is the most common method of teaching used by instructors throughout the world, whether at primary, secondary or tertiary stage. This is perhaps because it is more economic and easier to co-ordinate compared with other teaching methods. Although lectures are useful in certain cases, they have been strongly criticized. They are commonly

considered to be one of the poorest forms of communication for learning. Powell (1969, p.47) quoted Josephine Klein condemning the lecture. In this it was stated that two psychologists wrote to all those who had attended a meeting held by the British Psychological Society and asked them how much they could remember of the recent discussion .... only one tenth of the points that came up in the discussion were recalled in the reports. About half of the recalled points were substantially incorrect. It was added that the average member was no more accurate about the points he had contributed himself than he was about others. Powell (1969, p.48) argued that those who oppose the lecture method, believe that few instructors are actually capable of presenting good lectures. The lecture often brings insincerity and exhibitionism on the part of the lecturer and pose on the part of the audience. It may not fulfil a real educative function since it restrains the learners initiative and reduces his role to that of a recipient of ideas instead of an active participator.

It is generally agreed that for more active participation there is a need to divide a class into small groups. One main reason given for group session in teaching is that students should talk and give views. Hills (1979, p.59) quoted Beal, Bohlen

and Raudabaugh who provided seven characteristics of small group discussions :

1. They allow maximum interaction between members.
2. All members can participate.
3. Members are encouraged to think as a group.
4. Situations are set up which encourage leadership to emerge.
5. Members can broaden their viewpoints, gain understanding and crystallise their thinking.
6. They encourage members to listen carefully, to reflect, reason, participate and contribute.
7. They permit leadership responsibility to be shared.

Small group learning employs a variety of methods, including seminars, tutorials, group study discussions, and different types of role-playing, simulations and games. In small group learning, it is obvious that members come to know each other better in the context of the particular learning with which the group is concerned. An important point of which the group organizer should be aware is that some participants are usually afraid to express their ideas and views freely to others. Many teachers have observed that it is difficult for some students (whether in primary or tertiary stage) to stand in

front of the class and give a short talk or even raise a point or ask a question. One of the main reasons for such a weakness is because such students are afraid of being criticised or asked questions which they may not be able to handle. Students usually develop this unfavourable attitude in the initial stages of learning. One solution to this type of problem is that in the initial stages of any type of group learning members should be instructed not to be critical. However, the more the students get to know each other the better will be the situation for exposing the views and comments and gradually the problem of students' anxiety may be reduced.

The group organizer or teacher should be fully aware of what is going on in each group without interference. He should try to encourage the student to develop strong confidence in producing and exchanging ideas. Members should be led to develop good habits of group learning. This should be constructive rather than destructive in their criticisms of each other; and avoid correcting each others mistakes unless they are very bad. Nobody should dominate the discussion. Whoever is the group leader should always try to steer the discussion back to the subject.

An experiment by Gibb (1951) showed that the productivity of an unled group increased as its size decreased. By productivity here is meant the number of contributions of useful information and solutions to the problem undertaken. He indicated that this type of changing pattern of intercommunication is observable within groups of three to four members, but it is also known that in a small group as such the ideas contributed are also limited. However there is not yet enough research to indicate an optimum number of which a group should consist. More likely this depends upon such aspects as the topic and the length of time offered and the age and experience of group members.

Powell (1969, p.35) pointed out that the factor which characterises small group learning from the lecture is the 'face-to-face communication which brings personalities into the open and involves members in active and public expression.' He added that this does not mean that these methods are better than others indeed they could be wasteful in some situations, but simply as he put it, " .... psychologically they present learning problems of different kinds".

Richardson (1967, pp.11 & 12) in respect of the

tutorial situation in a one-year post-graduate course in education assumed three main reasons : first to assist the students to create a relationship between the theories being studied in the course and their own experience, secondly, to assist them to scrutinise how children are influenced by their relationships in their peer groups and with adults having authority over them; and thirdly to assist them to develop a better understanding of themselves as persons interacting with each other.

One last point which is worth mentioning is that in any kind of communication whether small group learning or lecture, attention should be given to non-verbal communication. Many teachers are unaware of the way in which they do communicate with their voices, and the effect which non-verbal signals (such as the movements of hands, eyes, head etc) have on their spoken messages. With regard to verbal communication, Hills (1979. p.30) pointed out, "Teacher talk is not merely using voice to deliver words in a set way. In addition to the words spoken there are many possible differences in sound, tone, pitch, rhythm etc". He added that tone and pitch are varied in certain ways of which we are not usually aware as our voice to a great extent reflects our inner state. It is also known that speed of delivery

is an important aspect in communication. This is because any student needs to have enough time to process the teacher's words. The normal rates of speaking as Hills indicated are between 100 to 200 words per minute. Generally it is better to speak faster and clearly and introduce hesitations, repetitions or silences where appropriate, rather than to speak at a constant slow rate.

As far as non-verbal communication is concerned, the movements of hands, eyes, eyebrows, nodding head etc., may often show more accurately what the speaker is actually feeling. With regard to non-verbal components three main functions have been provided by Hills :

1. to support or deny verbal communication
2. to take the place of verbal communication
3. to show emotions and attitudes.

The non-verbal component of any speaker is usually regarded as a complement and reinforcement to the verbal component. An exact taxonomy of non-verbal behaviours is not possible to include here. One of the best ways, however, for a teacher to observe and examine his non-verbal behaviour is by the use of video cassette recorders.

Victoria, in Hills (1979, p.37), proposed a continuum for non-verbal gestures in the teaching/learning situation. These ranged from those which are supportive to those which are unsupportive :

1. Enthusiastic/Openly Supportive. Qualities of unusual enthusiasm, warmth, encouragement or emotional support for students or situations.

2. Receptive/Helpful. Qualities of attentiveness, patience, willingness to listen, acceptance or approval; a responsiveness to students or situations implying receptiveness of expressed feelings, needs or problems.

3. Clarifying/Directive. Qualities of clarification, elaboration, direction or guidance.

4. Neutral. Qualities of little or not supportive or unsupportive effect.

5. Avoidance/Insecurity. Qualities of avoidance, insecurity, insensitivity, impatience, ignorance or disruption to students or situations.

6. Inattentive. Qualities of inattentiveness, preoccupation, apparent disinterest; an unwillingness to engage students or situations.

7. Disapproval. Qualities of disapproval, dissatisfaction, discouragement or negative overtones to students or situations.

It is obvious that when working with a large group it

is not easy to make contact with each individual yet it is important, on the other hand for a teacher to show his concern to the individual student. Perhaps one of the best ways of solving this type of problem is through non-verbal communication. The individual contact may be repeated or used through eye contact or any other possible gesture, whenever the lecturer feels it is necessary. However, the area of non-verbal communication is one which yields valuable information to both teacher and student and it is to be hoped that more attention will be given to it in future.

3.4 COMMUNICATION THROUGH MEDIA

It is generally known that interests, background knowledge and understanding differ to a great extent from person to person, and it is difficult if not impossible to find two persons alike in these respects. It is because of this that any item of communication which is diffused has a varied effect on different people. What would seem true and obvious to some may not seem the same to others; it may even appear incomprehensible for some and perhaps unacceptable. This puts pressure on communicators to confine their messages to certain groups of the population. The communicators, to be more successful

need to identify what they have to say beforehand, in order to attract the right audience.

It could be argued that the task of the teacher may be easier than that of the communicator with regard to audience. In education the pupils are divided into the primary, intermediate and higher levels and thus, the teacher knows his audience much better than a communicator who wants to convey a certain item of entertainment to an unknown audience who have different interests and background knowledge, as for example television and radio audiences. The ignoring of these by a communicator can mean that broadcasting programmes may interest only a small percentage of the planned audience. Rowntree, Jean and Trenaman (1951, p.5) pointed out :

> No planner of educational programmes can afford to ignore the question of level ..... The technical student and the coal face worker are both interested in the coal industry, but they approach the subject quite differently; Parent-Teacher Associations are interested in child psychology, but some parents have had university education and others have left school at fourteen.

One of the important aspects of mass communication (such as newspapers, books, radio,

television, films and advertising) is that, it plays a vital role in shaping the attitudes, beliefs and opinions of people. In general mass communication's main task is to provide people with entertainment, and advertise goods for better selling. It could be said then that their educational value must be considered as secondary. When one compares mass communication with the formal educational system however it can be realised that the latter contributes only a very small part of the total amount of communication which confronts people in daily life. Thus mass media can and does help people to keep in touch with distant countries, and keep them abreast of cultures, civilization and technological advances in different parts of the world, so that the function of newspapers, radio and television is of great importance in its educational context.

Further now that the problem of the unrepeatable formerly a feature of radio and television has been solved by the arrival of audio cassette and video recorders, these have added to the value of such media, as many radio and television programmes have educational values which can be used as supplementary teaching material wherever and whenever needed. Thus many open university programmes in Britain have been used in conventional courses with considerable

success. However, in parts of the world at present the print as a mass communication system is still much more widely used than any other channel. According to some authors this may not continue for long as children (especially in developed countries) are now growing up with more familiarity with visual literacy.

By making use of the logic and psychology of visual perception the new aids can greatly enhance the learning process. This aspect has been known to intelligent teachers for years in developed countries and who have made abundant use of aids (such as filmstrip, slide projectors, overhead projectors, television and the like). These aids are becoming increasingly attractive to educationists. It is obvious, however, that if they are to be firmly established in the schools a new determinant of the curriculum has to be introduced. The curriculum planners or instructional designers must determine their planning by a new set of interests. They have to find out what measures are necessary to exploit the powers of these new media without exposing the design of curriculum to either commercial or political domination, and without sacrificing existing educational values, and as one author put it, " ... how to bring mechanism under the control of humanism".

The use of audivisual materials has been advocated by many authors. Wittich and Schuller (1962, p.31) provided a brief comment about "Report of the Activities of the Multi-Media Telemation Laboratory" in the University of Wisconsin. The crossmedia-lecture demonstration technique was used by Petrovich, Klausmeier, Southworth and others. In the field of Educational Psychology, Klausmeier pointed out, "This initial short period of study showed that the same student group gained substantially more by multi-media instruction than by lectures, and that multi-media material was retained to a greater degree". With regard to analysis which was carried out primarily in connection with Russian History and Health Education, Petrovich and Southworth reported :

A. Strong student preference for multi-media lectures over regular lectures;

B. Students feel that multi-media lectures present information more rapidly, in more detail, and in a way which is easier to recall; result in clearer concepts, and are better organized than regular lectures;

C. Students feel that visuals used are appropriately related to each other, are clear and easy to understand, are about right in number and changed at proper intervals;

D. Visual aids were well chosen, clearly visible, well-timed, and in proper sequence.

Wittich and Schuller (1962, p.32) argued that if we ought to provide the most effective ways possible for mastering and understanding of concepts, learners must be able to witness combinations of audiovisual experiences. It has been said that shortly contemporary development will be the arranging of learning experiences which rely on a carefully selected, interrelated combination of tested media as learning stimuli. Today there need to be opportunities for teachers to select and use a variety of new audio-visual materials. In developed and in some developing countries students entering the schools have been exposed to a wide range of sophisticated communication experiences involving picture-story magazines, entertainment television and films, commercial radio and the like. These out-of-school media definitely influence student expectations in schools. In coming years, sitting for hours and listening to the teacher's talk and looking at the only tool 'the blackboard' may become no longer acceptable. Wittich and Schuller (1962) argued that thirty years of educational research back up the idea that instruction can be greatly improved through the wise selection and use of sound motion-picture films, filmstrips, programmed learning materials, educational television, and the

inter-related use of appropriate filmstrips, slides, models and specimens, maps and globes and the like.

Many studies, too, indicate that future development in mass media and technological devices will continue to influence the educational procedure. Brown Norberg and Srygley (1965, p.11 & 12) stated that the national output of what can be called, "knowledge products" (by which was meant filmstrips, tapes, media packages and the like) would be in continuous and rapid rise. Media packages will be more used and the traditional dominance of textbooks in difusing knowledge will continue to be challenged. In this the design and production of learning resources will be increasingly systematic. They pointed out that the coming period will observe the existence of 'media development team techniques' which would involve the co-operative efforts of different types of expert communicators. Brown, Norberg and Srygley (1965, p.12) provided seven kinds of responsibilities and duties that the future communicators would need to be trained to undertake.

(1) being familiar with theory and practice of learning,
(2) fully aware of the need to distinguish among the various senses through which learning experiences

could be communicated,

(3) being able to state clear objectives upon which teaching and learning ought to be based,

(4) being aware of the suitable and special advantages of different forms of media for different teaching/learning purposes,

(5) capable of mediating knowledge through these forms,

(6) being able to use information gathering, manipulation and interpretation techniques,

(7) having enough knowledge about media utilization techniques and requirements to choose media forms most appropriate to teaching/learning situations.

There appears, however, to be a great number of complexities associated with the use of media in the teaching/learning situations. These need to be thoroughly examined and made clear. One of the major reasons for this situation is perhaps the poor preparation of teachers. Because of inadequate training systems there have always seemed to be difficulties in the design of learning procedures, identification, selection and organization of visual materials in order to promote effective classroom instruction.

Nevertheless, new communication systems are

developing so rapidly that designing courses, methods of presentation and teacher-pupil relationships are all effected. Since the beginning of the 1960's various instructional devices have been widely publicised in developed and many developing countries. Closed circuit television, the language laboratory and the teaching machine are three examples which immediately come to mind. Perhaps these may lead to a more rational deployment of staff, enhance professional status and increase the individual teacher's output. So, tomorrow's teacher may be in a different position, and be able to control a vastly greater flow of knowledge and ideas than was once thought possible. Obviously before he can do so, he will need to master the basic principles of the latest technologies of instruction.

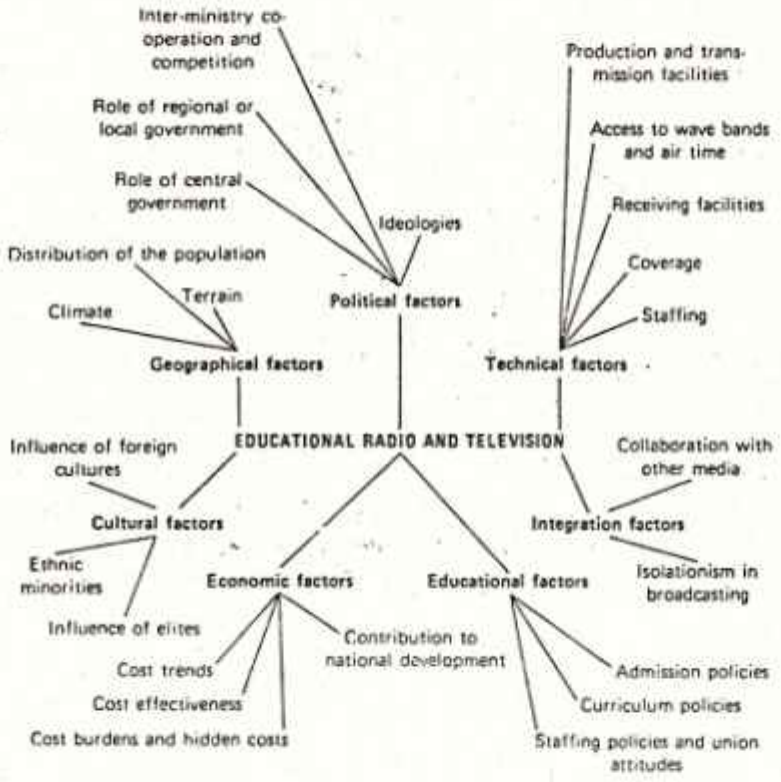
3.5 BROADCASTING_AND_EDUCATION

A responsible citizen,today,cannot ignore broadcasting for it plays an important role in most nations and is an important instrument in international policy. In many developing countries broadcasting is used deliberately to inform and instruct the masses of people in the rudiments of health, agriculture, home skills and citizenship. One cannot deny that radio has no equal as an agency for crossing international frontiers. People

throughout the world spend considerable time listening to radio and watching television. From the standpoint of listener or viewer broadcasting provides individuals with such different types of programmes as entertainment, information, education and advertising. Usually the most common motive for turning on the receiving set is to be entertained. It is obvious that life nowadays is tense and fast moving and that relaxation is essential. Because of the accessibility of radio and television they have become a primary means of release and relief. Moreover, when a set is owned, broadcasting is the cheapest form of diversion, as other types of entertainment require both an immediate and a continuing outlay of cash.

The broadcasting programmes produced in any country are usually influenced by circumstances within the country. This include such factors as political, cultural, geographical economical and educational. In many countries, broadcasting is considered as a vital arm of the state for spreading its political views and influencing the masses of the people. Hawkridge and Robinson (1982, p.31), provided seven main factors, which are given in Figure 3-2, considered to influence the planning and implementation of educational radio and television programmes. These factors are: geographical,

FIGURE 3-2 : A Map of the Context of Educational Radio and Television.
Hawkridge and Robinson (1982,p.31)



political, cultural, economic, educational, integration and technical.

The authors provided a brief explanation for each factor. It was pointed out that government policies in education have a great impact upon educational broadcasting both television and radio.

Educational broadcasting in terms of both radio and television is normally used as a supplement to and not to supplant the work of the teacher. Experiences in many developed and developing countries show that both can be effective in various educational fields, bringing new insights and new possibilities of understanding and enjoyment to large audiences.

The Newsom Report (1965), [the Report of the Central Advisory Council for Education (England) on the education of pupils aged thirteen to sixteen of average and less than average ability], established a new context within which school broadcasting had to serve. It was the first major report which treated the revolution in communications and broadcasting as a new educational force rather than simply a new educational tool. It pointed out that even at that time boys and girls who have access to television were on average watching two and a quarter hours of

television a day; and "the culture provided by all the mass media, but particularly by film and television represents the most significant environmental factor that teachers have to take into account". The Report made three recommendations in this respect. First that all schools with pupils wihin this group must be equipped with radio and television. Secondly, the Teacher Training Colleges and Departments of Education should consider broadcasting both as an environmental factor and as a teaching tool in their work with students. Finally, the teachers must try to develop in their pupils the habit of critical appreciation of the mass media, specially visual.

George Howard (March, 1981, p.4), Chairman of the BBC in a speech pointed out, "Our commitment to education comes from the duty laid upon us in the preamble to our Royal Charter, where we are enjoined to provide services which disseminate information, education and entertainment." However, these three areas as stated are not strictly separate, as many of the programmes provided contain elements of all three.

In his speech, Howard brought out several points. Firstly at a time of a financial reduction in school budgets and shortage of specialist and professional

teachers with not enough opportunities for in-service training School Broadcasting could help to fill such gaps. Secondly, formal education is often criticised, because it lacks the contact with reality and the authentic world of work and training. It is widely agreed that schooling must provide better and a greater sense of internationalism and understanding of social and political life. In many other countries many broadcasting programmes, whether radio or television are already actually concerned with such aspects. Thirdly, it is important to sustain the teacher's work that has to be undertaken in the classroom. There should be full and continuous support from radio and television for such a task. Fourthly it needs to be recognised that teachers of music, movement and singing have special needs which school broadcasting can help by providing them with stimulating and imaginative programmes. Finally, school broadcasting can help a great deal to supplement the teachers work in history, geography, and in the learning of foreign languages. Broadcasting too can help a great deal in providing special programmes for disadvantaged people. It all depends on the aims and priorities.

School broadcasting is also an issue to be considered. In its supplementary capacity School

Broadcasting seeks to vitalize certain parts of the school curriculum. It seeks to arouse in the pupils, through new and living way, intellectual curiosity and a desire for further facts that can be satisfied by individual efforts. A useful function of school braodcasting which is not always recognized, is the contribution it can make to preparation for citizenship through the useful employment of leisure time.

Not the least value of the broadcast lesson is the contact which it brings to pupils and teachers with specialists in the various fields. Their object is to present supplementary material in a new and realistic way. The use of experienced teachers, specially those acquainted with psychology of children can be helpful in this direction, as they can provide an exemplary presentation for particular topics which are difficult for teachers to present, and make easier what is normally hard for pupils to grasp and understand.

Teachers can in fact learn a considerable amount from broadcast lessons if planned properly both in terms of information and in methods of dramatic presentation. Moreover, in some cases the teacher can join in the broadcast lesson not only as an

enquirer and a learner, but as a guide and a stimulator in the learning situation. During the broadcast itself the teacher should rarely experience difficulties. If the series has been properly chosen for the age and capacity of the children the quality of the topic and its presentation can generally be trusted to hold their interest. Teachers need however to give attention to ensuring good listening arrangements, by timely distribution of pamphlets , (if they exist), by gauging accurately the moment for switching on and by reducing interruption to the minimum.

In general, if the use of television is improved the educational system would be in a better situation to cope with spiralling enrolments and increasing shortages of adequate classrooms and able teachers, as well as the new educational needs created by the explosion in new knowledge :

> The number of school children and college students receiving part of their teaching by ETV has risen exponentially in the last five years. In the last year, too, great progress has been made in understanding the strengths and weaknesses of teaching by television. It has been learned that the medium has a great power to attract and hold attention and interest, that it is has an unequaled ability to share good teaching and excellent

> demonstrations (for example, permitting 100,000 students at the same time to look through a microscope, or into an atomic reactor), that good teaching on television is about as effective as classroom teaching - but that it is more effective in some kinds of teaching than in others. In particular, it is more effective when it is built into a program of class and individual activities than when it is being used to carry the entire burden of a class.
>
> Schramm,Lyle and Pool (1963, p.165)

Educational authorities in a country, presumably should try to adopt this medium to help meet pressing needs. Perhaps one of the most urgent problems in television not being considered seriously, is the resistance of the teaching profession and educationists to the adaptation of the subject matter, teaching methods and even themselves to the new medium. In addition there is a lack of specialists in this field as well as of a proper attitude towards such problems by those who in the last resort are responsible for television programming.

Since the introduction of television a number of countries have differed in respect of the speed with which they integrated the technical possibilities of television within the world of education and training. Because of real difficulties the initial experiments

perhaps did not yield good results. However, confidence in the true value of modern audio-visual media, a judicious understanding of the problems of adaptation to the teaching/learning process and enthusiasm on the part of mostly unsung pioneers, is bringing educational television in many countries to a more useful level of performance.

One of the most developed systems of educational television is closed-circuit television. It is rapidly becoming more widely used. One of the great advantages of closed-circuit television is that the best teachers in a given district can give specialist tuition to groups of schools or to all the schools in a city; costly experiments can be carried out in a very large number of classes at one time; similarly school films need no longer be exhibited class by class. Then again CC.TV in teaching hospitals, for examples, enables a large group of students to follow important operations.

The Brynmar Jones Report (National Extension College 1966, p.22) believed that the main values of closed-circuit television were "(a) teaching overflow classes; (b) demonstration of detail; (c) teacher training; and (d) recording on film any lectures which have to be repeated". However, Hancock (1971,

p.78) pointed out that the use of educational television within the university is likely to be very diffuse. He provided sixteen functions which educational television might cater for :

(a) overspill lecturing;
(b) the recording of lecture demonstrations for subsequent use and re-use;
(c) the distribution of educational media;
(d) the use of the technical (e.g. magnificatory, slow-motion) properties of ETV to provide illustrative material;
(e) the recording and preservation of difficult or dangerous experiments;
(f) the porovision of observation recordings for a school, institute or faculty of education;
(g) interfaculty communication;
(h) interchanges and exchanges between universities;
(i) the recording and transmission of location material for illustrative purposes;
(j) the production of specific 'programmes' for individual faculties;
(k) the promotion of collegiate and university corporate life;
(l) the development of television as a research instrument;
(m) acting as a base for a communications faculty within the university;
(n) providing an imaginative stimulus in certain faculties (e.g. drama, literature);
(o) promoting interdisciplinary exchange;
(p) the development of a multi-media or systems approach.

One can realize that the use of television is becoming more significant. Although the benefits of educational television in all its forms are becoming clearer to educationists, there is still some reluctance to its complete adoption. Some poorer countries properly claim that they cannot afford it. It is known, however, that for CC.TV the initial outlay and running costs are relatively low and the equipment is simple to operate; often pupils can operate the sets themselves. On the other hand, it has been advocated by many exponents that a medium such as television can help a great deal to ease the problem of the increase in student numbers and the growing shortage of qualified teachers, which are among the main problems poor countries suffer from :

> To my mind, one of the most fertile uses of television in education may be the so-called captive-audience program, in which programs from a central source are transmitted to a city, state, or even wider educational units. These programs could utilize a better-than-average level of instruction. To be of any benefit, television should be able to provide better instruction, preferably at reduced costs. In the area with which I am familiar, classes are overcrowded and new schools are constantly being planned. If television could raise the level of teaching and reduce the work of the local teachers, it should be possible to handle a greater number of students and eliminate the need

> for some of the additional schools.
>
> Mont in Newsom (1952, p.17)

Further radio and television can be regarded as enormously important educational tools for third world countries where communal sets in villages can receive at relatively little cost per individual an educational input which could not be got in any other way.

Those who have used educational television and applied broadcasts lessons consistently and who have genuinely endeavoured to understand the techniques and values of television, have almost universally agreed that it is a useful teaching device and a valuable source of information. In this respect one may regard the last two decades in the history of educational television as nothing more than the beginning of something much greater. This period is now perhaps one of a phase of experiments with various possibilities which continuing research hopefully will identify new possibilities.

CHAPTER 4

FACTORS RESISTING THE SPREAD OF EDUCATIONAL TECHNOLOGY

4.1 INTRODUCTION

During the last few decades change in education has taken place in many developed countries on an unprecedented scale. Yet despite this rapid change, education in other developing countries has hardly altered, or if changes have taken place on the surface one may easily perceive that is much the same underneath. Although many such countries have tried to apply modern theories of education and for example opened centres for the use of audiovisual aids, they have in the main not been successful. There is always some initial enthusiasm when any new approach is introduced, but gradually this enthusiasm seem to be reduced to nil. Many educationists have noted this negative attitude, as much finance has been devoted to the purchase of media equipment and even the training of teachers, but the equipment too often is unused and teachers revert to their traditional methods. There seems to be a hidden resistance to change. In this chapter the writer focuses on some of the main factors which are at times thought to be causes of this resistance to the spread of educational technology.

4.2 RELIGION - AN INVALID RESISTING FACTOR

Perhaps one of the most difficult tasks of universities in developing countries is to strike a balance between an adaptation which is said to be too pliable and adherence to tradition which is thought to be too inflexible. In achieving this balance it is desirable for universities to initiate and control their adaptation rather than have it imposed on them directly or indirectly from outside. In some such countries education is regarded as introducing a Western style civilization. Indeed a number of agencies in developing nations also advocate that one task of a university is to help to abolish rather than preserve the traditional values of a society :

> ..... colonial education induced attitudes of human inequality, and in practice underpinned the domination of the weak by the strong, especially in the economic field. Colonial education in this country was therefore not transmitting the values and knowledge of Tanzanian society from one generation to the next: it was a deliberate attempt to change those values and to replace traditional knowledge by the knowledge from a different society. It was thus a part of a deliberate attempt to effect a revolution in the society; to make it into a colonial society which accepted its status and which was an efficient adjunct to the governing power. Its failure to achieve these ends does not

> mean that it was without influence on the attitudes, ideas and knowledge of the people who experienced it. Nor does that failure imply that the education provided in colonial days is automatically relevant for the purposes of a free people committed to the principle of equality.
>
> Nyerere in Fafunwa (1982. p.237)

Education in developing countries however should be judged not by extraneous considerations or foreign judgements but by its performance within a given social context. Many Western observers tend to ignore this important factor.

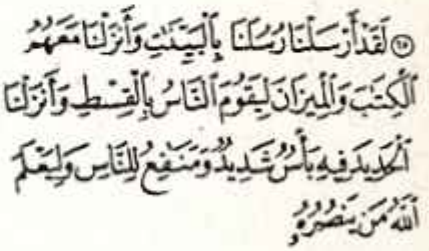
It is also claimed, however that religions usually resist the spread of educational technology or of other technological advances in developing countries. This is of course not necessarily true. To justify this, a simple analysis is worthwhile. It is perhaps true that when an educational establishment in a developing country imports hardware, there would not be need to import the software of Western world with it. It is obvious that developing countries are not yet capable of making the hardare, but many can and should in fact make their own software, or modify the imported so that they are applicable to a local situation. It has happened many times that the use of devices have been rejected, not because of the device itself, but because of unadaptable software.

There might not be enough written documentation to verify such a claim, but to make the point clear, the writer has come across a video-tape in Bahrain on 'Spoken English'. It was shown at various social gatherings organised by British personnel. One of the situations was an 'English Pub'. Most of the audience left the viewing hall once they saw the sign of beer, as drinking alcohol is prohibited in Islam. There are many examples of this type, which one needs to take into account when borrowing or purchasing any type of software. Besides evaluating the content to see its relation to the subject matter one must also give careful consideration to the learner's religion and tradiional values.

Situations such as the above at times cause some to condemn television, or any other aid; and regard them as one of the main factors for imparting odious habits to the nation. Gradually they develop a strong resistance towards the device - some wish it was not invented. One may even hear sometimes, that the use of television is against the tenets of a religion. It is because of such situations that religion is at times blamed as a resistant factor. Islam does not resist devices used for the sake of imparting knowledge, but when such devices fall into the wrong hands, then such negative attitudes develop.

There are many ayat (verses) in Qur'an which actually inspire and support the advancement of science and technology; for example, Sura LV11, Hadid (iron), ayat (verse) No.25 (Cadences : 5313 and 5315)

25. We sent a foretime
Our apostles with Clear Signs
And sent down with them
The Book and the Balance
(Of Right and Wrong), that men
May stand forth in justice;
And We sent down Iron,
In which is (material for)
Mighty war, as well as
Many benefits for mankind.



Commentary :

5313. Three things are mentioned as gifts of God. In concrete terms they are the Book, the Balance, and Iron which stand as emblems of three things which hold society together, viz Revelation, which commands Good and forbids Evil; Justice, which gives to each person his due; and the strong arm of the Law, which maintains sanctions for evil-doers.

5314. 'Sent down': anzala : in the sense of revealed to man the use of certain things, created in him the capacity of understanding and using them : cf.xxxix. 6: "sent down for you eight head of cattle in pairs".

5315. Iron : the most useful metal known to man. Out of it is made steel, and from steel and iron are made implements of war, such as swords, spears, guns, etc., as well as instruments of peace, such as ploughshares, bricklayers' trowels, architects' and engineers' instruments, etc.

> Iron stands as the emblem of Strength, Power, Discipline, Law's sanctions, etc. Iron and steel industries have also been the foundation of the prosperity and power of modern manufacturing nations like England.

4.3 ACADEMIC_RESISTING_FACTORS

Some teachers in Bahrain are reluctant to use teaching aids, and in many cases they are probably right. One may, however, argue that they are right for the wrong reasons. The writer has often met trained teachers who within the realm of their own classroom try to apply an educational technology approach. However, they soon face obstacles which discourage them, and perhaps conclude that the so called traditional teaching methods are better than the new teaching theories and aids which so often create problems. Thus they become reluctant to change from what they can do successfully : Beeby (1968, p.41) noted several matters as aggravating of resistance within schools :

> In turning from educational systems in general to those of developing countries, I shall continue to concentrate on strictly professional resistances, and shall ignore, for the moment the barriers to reform that consultants in any field find, in varying degrees, in many of these countries. Political confusion, nepotism, administrative

> inefficiency, vested interests and apathy toward social reform are not unknown at any level of economic development, but they tend to loom larger in emergent countries if only because there are fewer resources to waste. When they do occur they exacerbate the resistances within the schools.

The following points may be regarded among the main factors helping create reluctance, rejection and negative attitudes towards adopting educational technology.

1. There is no special time available for development tasks.

2. Media specialists do not usually possess enough insight into the didactical performance required.

3. The university management has no insight into the necessary organizational structures to support the adoption of an approach.

4. There is not enough understanding and appreciation by senior staff of any new approach which teachers and lectures may try to apply.

5. Teachers and lecturers do not usually get the required material at the right time.

6. Fear among some teachers that new technological aids will perhaps replace them.

Such issues are relevant to the slow spread of educational technology; and not giving enough and serious attention to them will result in an unfavourable image and consequently resistance towards this field of education. With the respect to rejection, Eichholz and Rogers in Miles (1964, p.312) stated :

> ...., technology continues to force upon education a vast and complex number and variety of innovations. Devices from teaching machines to air-borne television will meet with resistance. Rejection is the only defence left to a teacher who feels threatened by these innovations, yet it is on the teachers' acceptance of these innovations that their success ultimately depends.

An investigation has been conducted by Eichholz, 1961 to test a theory of rejection and to explain the 'lag' in the adoption of educational innovations. The study attempted to develop a rejection classification for newer educational media, Appendix 1 briefly illustrates the attempt.

It could also be said that one of the basic reasons for this resistance lies in the fact that most educational systems in developing countries are

organised to accommodate a traditional instructional process. This process relies heavily on teacher-centred instruction which in turn depends primarily on the use of printed materials. It is closely geared to the transmission of skills and information through traditional media. Any innovatory trials in such a system at any level of eduction - primary, secondary or tertiary can be regarded as controversial, threatening and difficult to be accepted by individuals at each level of the system :

> Given this tradition of resistance to change, it is not surprising that, while fantastic revolutions have occurred in the last fifty years in the technologies of industry, agriculture, transportation, communications, and weaponry, this has not been the case with education's technology. It is true that new things have been added, and old things improved. But for the most part, these have been superimposed like geological strata on the bedrock methods and logistics that have prevailed for generations. There has been no fundamental reshuffling and reordering of available technologies to create a new synthesis of educational methods.
>
> Even when there has been a clear sign of change in one matter, a close look at it usually reveals that the change proceeds on the assumption that nothing else will change. This is the case, for example, when films, or workbooks, or television lessons,

> or language laboratories, are simply added to what is already going on, the latter being perpetuated with little if any change. Another case in point is the state of school architecture. There has been an energetic search for ways to build satisfactory school buildings more cheaply, through applying modern industrial methods of prefabrication and modular dimensions, and a greater use of basic designs that can be repeated with appropriate modifications. Many of these innovations in architecture and construction, however, have implicitly assumed that teaching methods and the internal logistics of schools will remain much the same in the future. What is actually needed is not simply less expensive buildings, but buildings sufficiently flexibe to permit new ways of teaching and learning to go on within them, rather than buildings which will blockade new methods.
>
> Coombs (1968, p.113)

The educational system in a developing country is usually planned, staffed, financed and built according to their own traditional approach; and this tends to continue. Even when specialists are brought from developed countries to influence change in the systems their efforts in general have not significantly affected the overall inertia in the educational institutions.

The inertia is strong for although educational authorities in many developing countries on the one

hand, usually urge the need for the modernisation of their systems, on the other hand they tend not to be completely committed when the question of implementation arises. It is perhaps true to say that one of the firm beliefs of our generation is that we are in the age of rapid change in all areas of life - social and philosophical as well as technical, that we look upon previous centuries and other civilization as backward, pointing to the static aspects of such a culture, whilst pointing with equal pride to the flexibility of our more sophisticated societies which permit (as it is believed) the acceptance of almost any innovation with great rapidity and a minimum of social disorganization. However, it seems that such belief is misplaced when one realizes the slowness of social and educational change in most of the developing world.

It is a positive element that developing countries are in a fortunate position in that they have many different lines of development from which to choose so that it is possible to create flexible alternatives to traditional modes of teaching. In these developed countries have paved the way for new integrative developments : programmed learning in the nineteen fifties, media use during the second half of this century, the use of behavioural objectives and

attention to experimental learning, are a few examples.

Developing countries in a sense have to move faster in respect of their educational systems, otherwise they may well feel that they are lagging too far behind, to the extent that it might become impossible to catch up so that they will continue to be heavily dependent upon foreign manpower.

It has to be accepted that every educational institution in which instructional technology is introduced must plan and deal realistically, not only with the problem of the initial acceptance of the innovation by board members, administrators, teachers and students, but must also programme for the continued acceptance of such innovations by these groups. Unless such planning for initial as well as for continued acceptance is ensured there is a strong probability that any new device whether it is a computer, television or any other technological instructional innovation will not be accepted or used to any significant degree.

CHAPTER 5

THE ORGANIZATIONAL ASPECTS OF EDUCATIONAL MEDIA SERVICES

5.1 INTRODUCTION

In the earlier chapters attention was given to topics which are of major concern to educational technology. To apply educational technology in a university, however, it is not enough presumably to possess some knowledge of its theoretical aspects. Those in charge of an educational technology centre need to be fully aware of both the appropriate theoretical and the organizational aspects of the media services. Its field in this respect is seen as covering four main areas, theoretical development, material produced to enable the teacher and learner to achieve their objectives, the equipment necessary to use, store and retrieve that software, and the appropriate management skills. All these elements are interdependent and those who operate at various points along that spectrum must appreciate that they are dependent upon each other if educational technology is to make its proper contribution. The academic and professional levels of the team may differ but they cannot be as productive in isolation than a team. Thus for example for such interdependence to be accepted by all the members in an educational technoloy unit, there is a need for an alert and intelligent administrative cadre.

In many developing countries educational media services still suffer from traditional administrative organization and arrangements. In such countries where an educational technology service is provided, according to the writer's own observation, usually an educational technologist is available to give lectures in the field, but for the sake of media services usually a secondary school graduate is appointed to undertake the organizational aspect of media services, and to be in charge of borrowing procedure. This can obviously result in some disorganization, the loss of equipment and waste of materials, inefficiency in serving clients; and consequently discouragement in borrowing equipment thus limiting use.

One of the main reasons for such a problem is that the authorities cannot yet accept that in the organizational aspect of media services there is a need for professionally trained personnel. This has to be accepted especially in newly established universities where it is planned to provide a wide ranging system of educational media services. It has to be realised that what is involved is not merely the purchase of modern equipment, and the appointing of inexperienced staff to serve as 'watchmen', but that a deeper and more systematic involvement of professional media personnel in the total organization and planning

of media services is required.

It has been widely agreed that the effective organization of educational media services provides for the best support and also for the extension of opportunities for teaching and learning. This chapter is concerned with such issues. In this it deals briefly with such basic issues as objectives, organizational structure, physical facilities, personnel and budgeting.

5.2 OBJECTIVES AND FUNCTIONS OF MEDIA SERVICES

The development of technologically based instructional materials is a complex and difficult undertaking. There is much careful planning needed on the part of the educational technologist and his counterparts if such a centre is to run smoothly. In this respect Havelock and Havelock (1973) considered an educational technologist as a knowledge broker and 'linker'. He is one who is expected to possess a sound knowledge of behavioural psychology, testing and media, the ability to write and to programme. He is expected to be a pedagogue, sociologist, publicist and a good manager. Finding this impressive combination of skills and qualities is rare. It is perhaps because of lack of this knowledge combination that educational technology services are at times

unsuccessful. Unless the educational technologist together with his staff are well trained, prepared and fully aware of their roles the centre will not be capable of providing services of the needed quality

Before offering media services, those in charge must ensure that they are able to fulfill their promises at all times. This is essential in establishing and developing media services and in this careful consideration needs to be given to all the implications of previous decisions, for loose promises can quickly result in the over-commitment of a media centre, a rapid loss of credibility; and consequent discouragement in the use of instructional materials and equipment. Thus it is perhaps better for an educational technology centre from the beginning to delimit its field of operation clearly as far as services and the type of courses to be provided are concerned, especially to all university departments. It is also useful in gaining the support of the consensus of opinion within the institution.

Fothergill (1973, pp.76-89), writing on decisions about services and staff, provided for three types of services : "Information, Production, and Courses". He suggested that information services should offer materials for three tasks :

(i) students to use at their own academic level for learning;

(ii) teachers to use to assist them in their instructional communication;

(iii) student teachers to use on teaching practice.

The aims of the production services should be :

(i) To produce materials to assist the lecturer in the classroom and the student while on school practice.

(ii) To produce materials to assist the learner at his own academic level, and which the learner will use by himself or with small groups of his colleagues.

(iii) To provide equipment to assist the learner in producing observations of his own performance for self-criticism, or in producing evidence of his own learning in media other than print.

With regard to the last, three courses of instruction in educational technology were recommended:

(i) Familiarisation with the equipment;
(ii) Skills of producing materials;
(iii) The principles of educational technology.

In practice the function assigned to an educational technology centre in higher education will vary from institution to institution. If the centre is centralised it usually consists of subunits for services, identified as the audiovisual services centre; an instructional development office; television services centre and perhaps library and other provisions.

However, an educational media service unit whether attached to an educational technology centre or run by itself must state its objectives and functions clearly, and in accordance with its limitations with regard to human and material resources. In the writer's opinion the following could be regarded as the main objectives of a university media service; but what should be the

objectives and functions of a particular educational media services depends obviously on particular needs and the available resources :

1. Provide in-service education and assist in disseminating information regarding instructional media developments, techniques and research findings.

2. Undertake experimental development and trial of instructional devices, techniques and materials.

3. Participate in the design of instructional systems.

4. Assist and instruct the faculty members and students to prepare their own inexpensive instructional materials.

5. Provide services and facilities for teaching purposes within the limit of the institution.

6. Provide (or assist in) television and radio broadcasting programmes for regional and community education.

7. Advise in the use of language laboratories and other electronic teaching or learning facilities

available in the university.

8. Monitor programmed instruction including the use of teaching machines.

9. Provide such technical services as design, installation, maintenance and operation of instructional equipment of all kinds which are available in the instituion.

10. Circulate printed materials which may involve new knowledge about educational technology.

11. Circulate motion pictures and other audiovisual materials and equipment for on-campus instructional purposes.

12. Produce such instructional materials as graphics and photographic.

13. Off campus circulation of educational materials possibly with the co-operation with other institutions.

14. Assist in providing professional education with regard to planning and directing educational media programmes and research.

15. Assist in planning and designing new buildings and instructional facilities for promotion of efficient use of educational media.

5.3 ORGANIZATIONAL STRUCTURE

In the organizational structure of university media services, Harcleroad (1964, pp 20 & 21) suggested two possible organizational patterns (Figures 5-1 and 5-2). In the first an Executive Dean for Learning or Instructional Services undertakes all co-ordinating responsibilities under the vice-president for academic affairs, for the following : (1) libraries, (2) independent study centre, (3) utilization services, (4) audiovisual distribution services, (5) materials preparation services, (6) instructional television and radio services, (7) instructional publication services, (8) museum services and (9) the college or university press. In the second two directorate divisions are suggested under a Dean of Instruction one as a director of the division of libraries, with the other as a director of the division for learning resources. However, the relative merits of these and other plans are still subject to evaluation in any particular situation depending on the needs, and historical development size of the university.

FIGURE 5-1 : Organization of Media-Services in a College or University

(from Harcleroad, Learning Resources in Colleges and Universities, p.20)

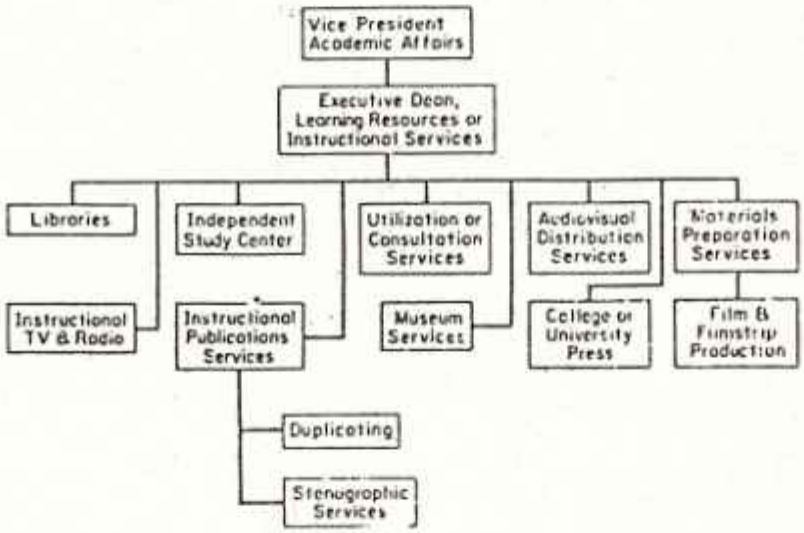
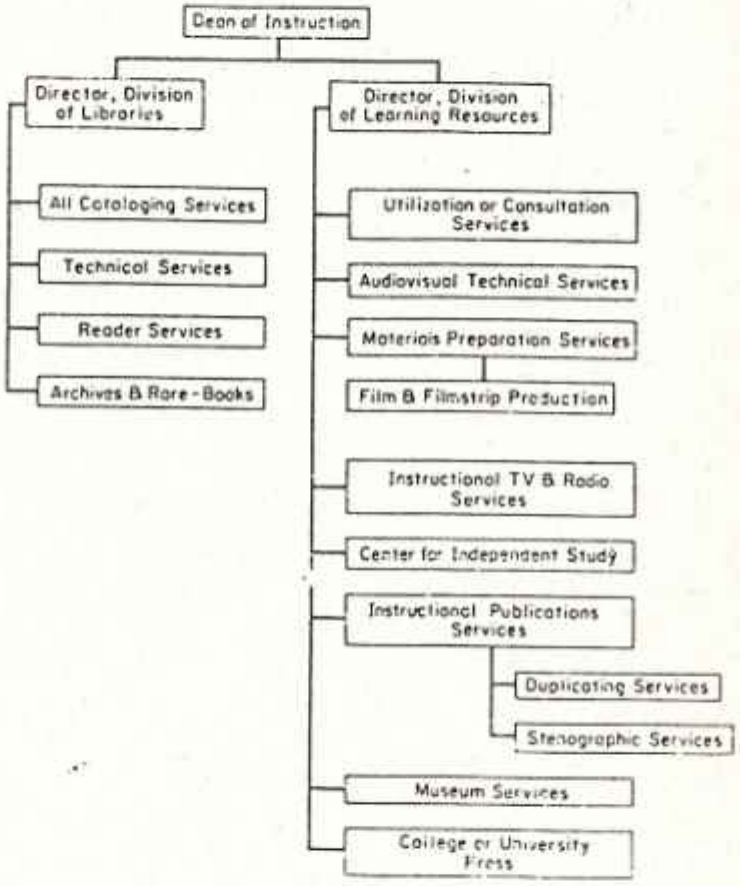


FIGURE 5-2 : An Alternative Obganisation Media-Services in a College or University

(From Harcleroad, Learning Resources in Colleges and Universities, p.20)



Figures 5-1 and 5-2 are two examples of administrative organization for rather big universities, where the media service must have their own directorate. In smaller universities and especially in the newly established, the question of control usually creates problems in the planning and organization of the media unit. The main problem usually is to decide whether the media unit should be independent, or be attached to the library, or some central service department or to be linked to a particular faculty. Despite the rapid growth of media and resource centres there has never been any simple answer to the question of centralization of resources. Presumably it is better to have a media service operating as an autonomous sub-unit attached to an educational technology centre. The writer advocates the idea of having an educational technology centre possessing full control over all materials, hardware and software, excluding books, which should, of course be a library function, under separate administration.

Besides the administrative aspect of educational media organization there are other points which could be discussed. The following discussion is confined however to two aspects of media organization,

cataloging; and distribution systems. In the writer's opinion such aspects are usually not given enough attention in the educational media services in many developing countries including Bahrain.

It is important for those who work in an educational media unit to know how to make information about the materials and equipment most readily available to both staff and students. If a borrower cannot readily understand how and where to get what he needs he will quickly become discouraged and may try to avoid using audiovisual aids in his teaching. This is why the newly established universities must accept that a media centre needs to be well organized; and that without good cataloging, storage and distribution systems proper functioning becomes impossible.

As far as cataloging is concerned (regardless of the method used to classify materials) the catalogue of the media centre should serve users by interpreting centre belongings and stocks; and identify their location. Cataloging requires careful consideration of each of the several elements of the total educational media programme, for one of the main purposes of catloging is to facilitate matching media with the expressed needs and purposes of users; and

to accomplish this several points must be considered :

(1) Designing catalogue card sets indicating the assigned subject, title, author and other appropriate headings and essential data about each item.

(2) Providing data on item content and its possible contribution to the achievement of specific instructional objectives.

(3) Anticipating the most likely needs and purposes of persons who consult catalogue lists.

In respect of processing and lending materials, problems can arise in indexing and cataloging because of their variations in size, shape, format, and fragility. The following points should be considered in the arrangement of materials both on the shelf and for their storage.

(1) The system used must be understandable and convenient for borrowers to use.

(2) Physical facilities such as shelves, cabinets,

racks and the like should be reasonably ranked.

(3) The system should make economical use of floor space.

(4) The storage environment should be free from safety hazards or excesses of heat, dust, moisture or any electromagnetic field.

As far as distribution is concerned the following are among the basic problems that must be considered in developing good operational standards and procedures to control the distribution of educational media :

(1) Determination of materials, which should be purchased in sufficient quantity to be placed in individual lecture-rooms or other required places.

(2) Developing policies and procedures to facilitate the control of distribution so as to ensure the accessibility to the right materials for teachers or students.

(3) The problem of recovering, interpreting and using statistical data pertaining to any distribution.

The control of materials demands, established procedures for checking such materials in and out of the media centre and for providing information about their whereabouts, while they are in use. Length of time for loans needs to be determined by the size of the collection in relation to the number of users and the nature of their demands. Ideally there should be as few restrictions as possible on usage. Some restrictions may be necessary at times, to ensure more equal access to materials for all users, but whatever restrictions have to be made in the regulations these should be explained to the media centre's clients to encourage their understanding and co-operation.

Again the media organization services should perhaps be limited to the institutions staff and students. Film-rental libraries or similar off-campus services should not be allowed to drain off the energies and interests of media personnel that ought to be directed, instead towards the improvement of on-campus teaching.

5.4 PHYSICAL FACILITIES

It is obvious that staff and students of a university will be most interested in obtaining educational media, equipment, and related services when needed and with minimum delay; and with access

to a pleasant and convenient physical environment in which to use instructional resources and tools. In many universities in developed countries various types of sophisticated ways of distributing learning resources (such as computer-managed and the like), and good physical environment in media resource areas have been introduced, and are likely to be introduced more widely in the near future. Planning assumptions, then, must be approached carefully and with respect to such aspects.

With regard to rapidly developing countries such as Bahrain, planning must take place on a contingency basis. In such countries where there is a great rate of change in educational requirements, flexibility and adaptability to unknown future requirements must be main criteria in designing instructional facilities, including the requirements for the storage, distribution and use of educational media and any related equipment.

It is obvious that the single university educational media centre will need to be designed so that it can be expanded in size and purpose to provide the necessary space for convenient storage and display of larger quantities of varied resources and related equipment. It may perhaps contain individual study

spaces (such as carrels) in which to study and examine (view, hear, read or manipulate) resources. Space should also be provided in the centre to permit both students and staff to produce and create their own media resources, such as copying materials, producing slides or transparencies, shooting films, recording tapes, making videotapes, designing and producing teaching/learning displays and the like.

One may suggest then, that media resource spaces in a modern university must be designed for such different purposes :

1. large-group teaching,

2. medium-group teaching,

3. small-group teaching,

4. greatly increased amounts of independent study,

5. laboratory work,

6. staff preparation activities; and

7. other specialized instructional purposes

Figure 5-3 is one example of the media resource areas provided by Hancock (1977, p.269). Figure 5-4 is another example of an educational media centre provided by DeBernardis (1961, p.12). In all cases flexibility must be the keynote, specially with regard to the design of workshop-halls and auditoria for large or medium group teaching. Movable or removable walls are becoming common nowadays in schools and universities to form bigger or smaller classrooms in a short time and according to demand. Figure 5-5 illustrates a high school auditorium (from Educational Facilities Laboratories, 1963, p.10) which may be divided quickly as the occasion demands, thus lending itself to a variety of instructional utilization patterns.

It is obvious that the educational technologist must have a prominent role in the design of such facilities. In this respect Ely (1970, pp.36-41) recommended that the educational technologist should :

(1) Serve as an educator who asks questions about the instructional process and the environment in which it will occur.

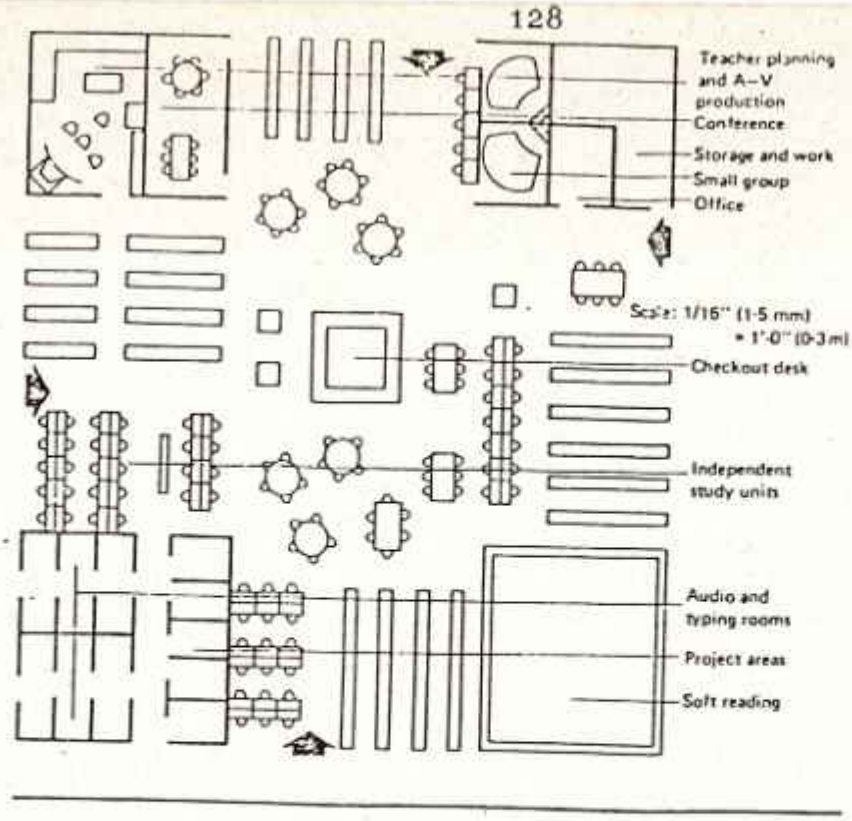


FIGURE 5-3 : Media Resource Areas, Hancock (1977, p.268)

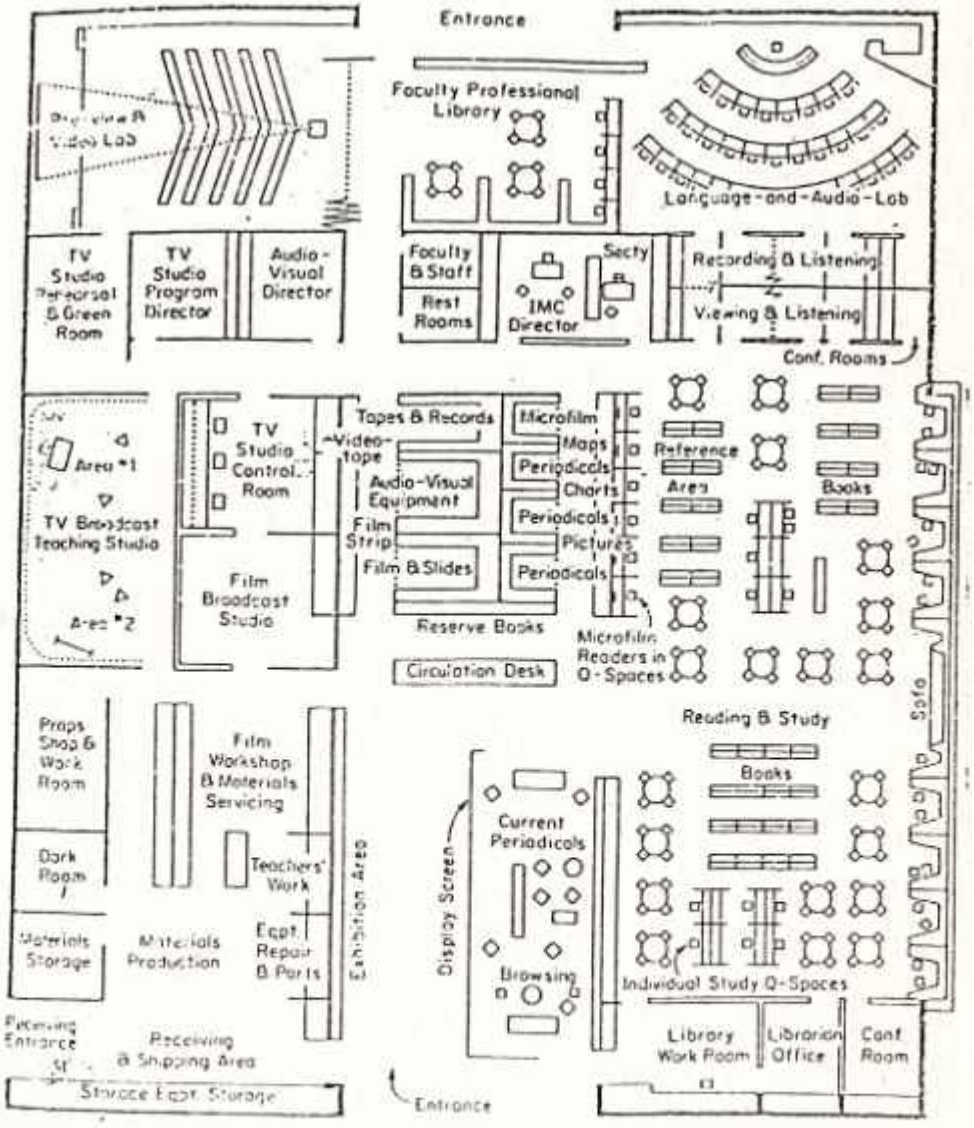
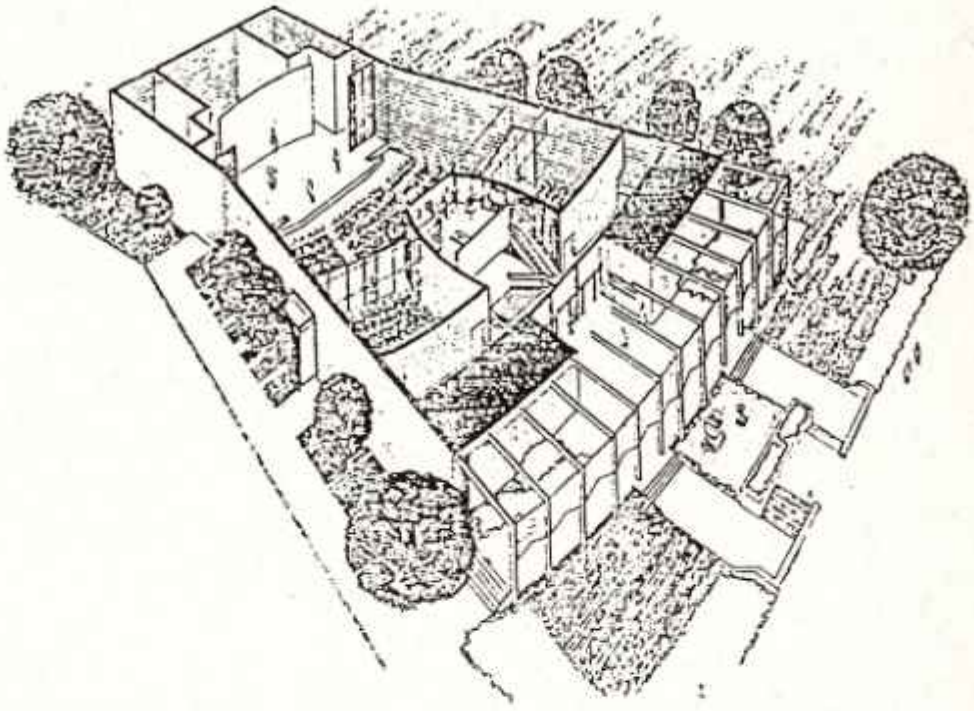


FIGURE 5-4 : Plan for an Educational Media Centre for a High School of one to two thousand students Beckerman (1981, p.12)

FIGURE 5-5 : Boulder City (Nevada) High School's Auditorium From (A Divisible Auditorium, Educational Facilities, New York, 1963, p.10)



(2) Analyse and provide advice with regard to room layouts for optimum use of educational media.

(3) Offer assistance in interpreting and explaining details about the teaching learning process to the architect, giving special attention to expressed needs of teachers and students with respect to educational media use.

(4) Give sufficient attention to possible future uses of technologically related media resources in the overall design before starting any construction.

Careful consideration must also be given when selecting equipment and materials. As far as equipment is concerned, valid criteria and procedures must be developed to guide systematic selection, purchase, distribution and maintenance of equipment. Attempts should be made to buy only equipment that is essential to achieve goals and in respect of the intended teaching procedures. There must be a suitable balance between what is needed and what can be afforded. In determining the need for a particular piece of equipment one should examine the equipment already on hand to justify if there is any demand for repair, replacement or more units. An inventory system is useful in this case, as it can

provide such information as how often a particular piece of equipment is being used, location, age, manufacture, purchase source, condition, repair history, etc.

Several basic criteria may be applied in supplementing all types of media equipment. For example, how critical is the contribution of the item to the educational programme in which it will be used? Will it be used to the extent to justify its purchase cost? Will the equipment perform in accordance with the accepted standards of efficiency and quality for its various optical, electronic, mechanical or other systems? Does the item fit with other equipment already in the unit's collections, and capable of being repared without undue expense for parts, labour or even transportation? Hancock (1977, p. 272 & 273) provided some basic criteria which could be applied when selecting equipment :

1. Quality of performance . Does the equipment do what is expected of it?
2. Cost . Technical specifications and performance apart, is the price reasonable and competitive?
3. Portability . If necessary, can the equipment be moved easily from room to room, or from place to place?
4. Ruggedness . Will the equipment stand up to hard use?

5. Design . Is the equipment both attractive and functional?

6. Ease_of_operation . Is the equipment simple and easy to operate?

7. Maintenance . Is the equipment easy to maintain, and are repair services available locally?

8. Reputability . Does the manufacturer have a good reputation locally?

9. Reliability . Does the equipment have a good record for reliability, and has it been used well beyond the prototype stage?

10. Educational_function . Many items have a dual function - for general and for educational purposes. Does the particular equipment under consideration answer all the instructional functions which will be demanded of it (which may be quite different from other market uses)?

With regard to materials, there is no doubt, that appropriate procedures must be used to ensure that they are purchased in the right quantity and are appropriate to the needs. Needless and expensive materials should be avoided. Materials should be sufficient to meet all the requirements of students and staff, but proliferation must be avoided. They must also meet the requirements of various curricular areas and provide for the learning of diverse skills by individuals representing all levels and types of ability. Materials should inspire and meet the independent interests and research needs of students. It is better if management appoints a qualified

specialist for the selection of materials which should be carried out by consulting reviews, recommended lists, standard bibliographic tools, and special releases.

For the purpose of production services there are always requirements for facilities and staff services to produce local materials. This is because commercially produced media are not always up-to-date and sometimes lack the directness or usefulness that locally produced materials will provide. Commercially produced materials are sometimes expensive and enough funds may not be available to purchase them, so locally made materials may be the only way to fill the need.

In many universities especially in developed countries local production activities continue to show a number of interesting developments. They provide a variety of local preparation services through their educational media centres. Local production is an important matter; and the systematic management of the several different kinds of such activities is needed to monitor the quality of products, to reduce the waste of supplies and time, and to ensure the proper budgeting of these activites. To accomplish this it is necessary to develop appropriate policies.

A small group of selected individuals who have some broad knowledge of curriculum or training problems could be helpful to the educational media administrator who has to decide whether or not to carry out a particular proposed production project. After thorough study such proposed projects may be approved or rejected. It is also a good idea to collate and summarise all records when a project is completed. A finished project should be discussed with its sponsor, a note made of positive or negative reactions and, if necessary correcting or adjusting the production before its release. One should also evaluate production records on a regular basis to determine whether and in what respects local production activities need to be strengthened, improved or stopped.

Besides considering the size and type of space, teaching learning facilities, equipment and materials, consideration must also be given to such environmental factors as :

(1) Ventilation and cooling systems to provide clean air at controlled temperature. This is an important factor in hot and humid countries. There must be sufficient circulation for air to maintain a healthy invigorating atmosphere for the teaching.

(2) Facilities for controlling and varying light, both artificial and natural.

(3) Facilities for controlling sound to eliminate reverberation and prevent the transmission of unwanted sound.

(4) Provision of electrical power in different and sufficient amperage and voltage with convenience and safety.

5.5 EDUCATIONAL_TECHNOLOGY_PERSONNEL

If the educational technology centre is to offer a good service and function efficiently, it must be properly managed and administered regardless of its size. The important factors for a centre if it is to be run properly are sufficient funds, proper equipment, adequate and well designed space and of course competent and well aware highly supportive administrators. Unless all these are provided no programme can be maintained at its optimum level.

A relatively large university (say of 5000 to 10,000 students) requires considerable space and personnel to handle the diversity and amount of work involved in providing educational technology

programmes. Manpower requirements for conducting a full eductional technology unit are significant, yet there are problems associated with meeting them. One of the main reasons for such a dilemma is because the field is in a state of continuous and rapid development, with many different professional opportunities opening in this area of study. A large number of studies in developed countries (such as United States) have been made which highlighted the already critical need for more individuals to do the various types of work involved in the educational technology field. These trends surveys all indicate the lack of specialist professionals to undertake newly created jobs. As a result steps have been taken in the United States, and presumably more will be taken in other countries in an effort to enlarge the supply of such personnel. Wallington James (1969) in the Job in Instructional Media Study (JIMS) was supported by a U.S. Office of Education grant. The purpose of this study was generally to find out ways of identifying new media jobs through recombining present tasks in the field and trying to improve the efficiency of present non pofessional personnel and to design an adequate and suitable training programme for new personnel entering the field. He recognised that the increased use of media and increased automation of learning, demand (and make it possible to use) more

trained non professional support personnel to perform tasks which although important, do not demand advanced academic credentials. Figure 5-6 indicates selected media career and career ladders provided by the Jobs in Media Study.

Hancock (1977, p.228) suggested that five separate categories of personnel are likely to be required for an educational media service :

> Production_staff include producers (who shape the programme overall), directors (who supervise studio operations), presenters or performers, scriptwriters, production assistants (PA's or assistant producers), research and script assistants (production secretaries or producers' assistants).
>
> Engineering_and_operational_staff include lighting, sound and technical supervisors, maintenance technicians and technical operators.
>
> Specialists_and_craftsmen include designers, graphic artists, photographers, model-makers, film cameramen and film editors, carpenters, laboratory technicians and scene-painters.
>
> Administrative_staff include section heads, executive officers, clerks, librarians, messengers and typists.
>
> Educational_staff include subject and curriculum specialists, resource experts, evaluation staff, educational technologists and utilisation officers.

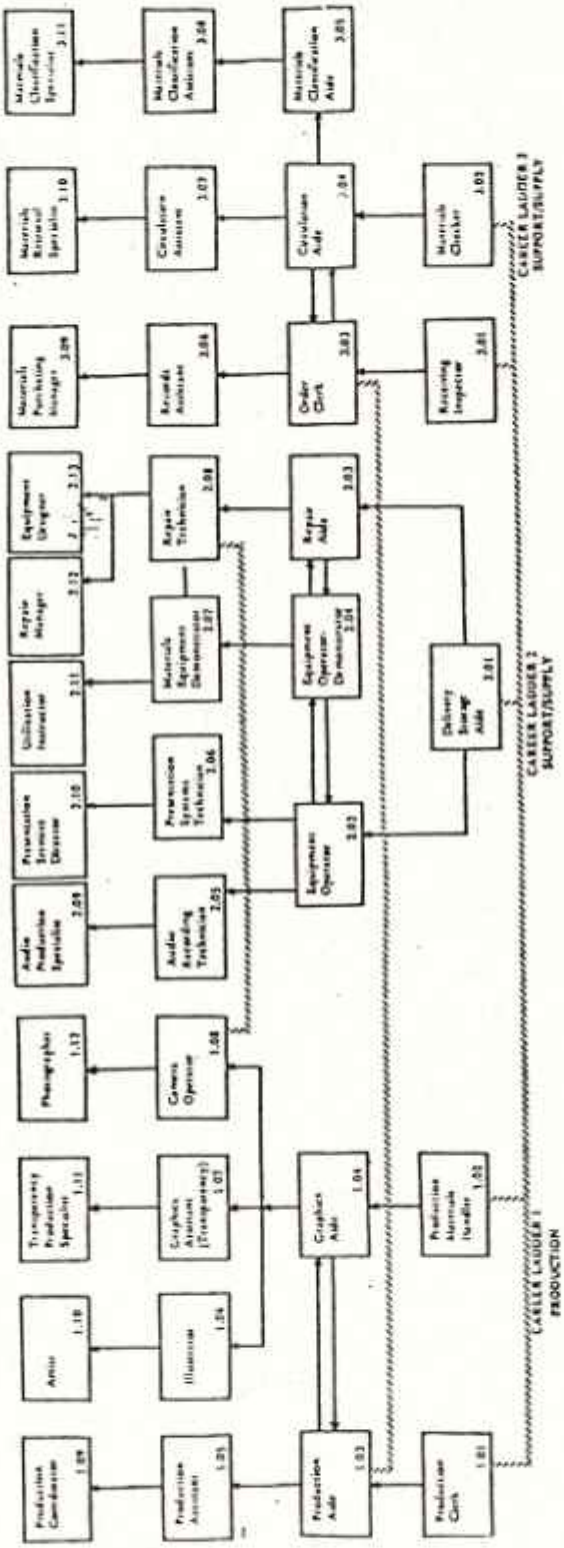


FIGURE 5-6 : Selected Media Careers and Career Ladders
(From Jobs in Media Study, Association for
Educational Communication and Technology)

Supervising and administering such a wide range of personnel naturally needs a competent person with diversified abilities. The top director of an educational technology unit must be qualified as educational technologist to a high standard and should have strong enthusiasm for the work, in addition to qualities of leadership. The writer believes that he should also have previous experience in teaching with a comprehensive knowledge of education, an interest in curriculum development, and some mechanical ability. Thus the director of an educational technology unit has a most demanding post as compared with heads of some other departments within a university. He has a wide range of responsibilites and the following could be regarded among the main :

1. Budget preparation,

2. Selection and installation of equipment and collection of materials.

3. Participation in curriculum planning and revision and giving training assistance.

4. Provision of needed teaching aids and information on equipment and materials.

5. Planning workshops for staff and in-service courses for teachers of different levels in the application of educational technology.

6. Supervising and conducting teacher conferences and committees in order to stimulate further use of visual aids.

7. Evaluating suggestions of staff in the selection and purchase of equipment.

8. Co-operation with outside agencies.

9. Co-ordinating research.

10. Compiling bibliographies.

For the proper management of personnel assignments in an educational technology unit there are several procedures that should be followed. First management should identify the principle functions to be performed in the centre, and the specific tasks needed for each function and subfunction. The tasks may then be grouped into compatible units. Each unit should be comprised of duties which then should be subsumed into positions. There should be defined acceptable standards of

performance for each position. The management should then specify the position rating and identify the salary scale. It is also important to indicate the kinds and nature of guidelines the employee is expected to consult or use in carrying out his duties. He should know to whom to report and what kind of job relationship he will have with other employees. It is important to specify the required amount and types of education, experience and any other qualification expected of successful candidates. There should be a career structure in the organisation through which the incumbent can move upward by improving his original skills, can be promoted to a higher rank and offered a better salary. The management should also introduce an upgrading scheme for the provision of means to help employees upgrade and update their job performance. They might be helped with more responsible assignments within the organisation.

The selection of appropriate professional and support personnel to be employed in performing various educational technology tasks and functions is a matter of considerable importance. Presumably it should be the responsibility of the educational technology director to decide on the suitability of candidates whose credentials and qualifications for employment are to be evaluated. If the personnel office is

expected to circulate notice of the vacancy then every care must be taken to see that the job description on file with the personnel office is accurate as to the guidelines of the major responsibilities and qualification required. Further interviews and letters of recommendations connected with application should be on hand as appropriate. Besides knowledge of the job in question and the required qualification, other information such as apparent intelligence and aptitude, personality, conversational ability and accuracy, written language use, experience background, reasons for interest in the job and health have all to be ascertained.

5.6 SOME ASPECTS OF COST EFFECTIVENESS AND BUDGETING OF EDUCATIONAL TECHNOLOGY

Educational systems in many parts of the world are in a dilemma. On the one hand they are experiencing financial crises and on the other they are subject to increasing public criticism of both the cost and the quality of outcomes. To resolve this situation educators have attempted to find new ways of maintaining and/or improving the quality of their services while more carefully controlling their cost. One version of this new attempt is through the application of educational technology, and has been advocated by many educationists. However, this does not mean that this approach should be used without

establishing its cost-effectiveness and relatedness to the particular situation. It is hard to obtain accurate results with regard to cost effectiveness, but one may reach a conclusion that a particular system does give better results than the previous one or vice versa.

Klees & Wells (1977, p.37) stated that in any educational system evaluation, economists mainly hold that the outcomes can only be translated in part into monetary outcomes. The hypthesis on which they operate is that through formal and non-formal education the student gains additional skills and traits resulting in the promotion of human capital which makes the more educated individual more economically productive than the less. This in turn increases the general productive capacity of the economy and which in turn contributes to economic growth. If this particular additional productivity due to schooling can be measured then one can compare a measure of the societal benefit in monetary terms with that of societal costs in monetary terms for a particular educational endeavour. However, economic productivity is not easily measurable and the alternative most economists have chosen to measure is income. The relation between the two is based on the competitive market theory. In a competitive economic

system the salary an individual gets is equal to the productivity that he adds to the establishment. It then follows, "if this connection holds (and it is far from clear that it does), then the additional income due to schooling is also a measure of the additional productivity due to schooling."

Attempts to examine the cost-effectiveness of a particular instructional technology have in recent years come to mean more than the application of assorted media in educational contexts. Cost effectiveness may expand to include all aspects of systems analysis in a particular situation, and it is a very important issue of any project planning. Unfortunately many educational systems, especially in developing countries, do not attempt to analyse their cost-effectiveness. The intention here is not actually to overview cost effectiveness studies, it is rather to give a brief idea of the budgetary aspects of educational technology.

Many developers of educational technology who were initially strongly motivated by its potential have become disappointed by the results gained from research from the effectiveness of the media. Jamison, Suppes & Wells (1974, p.56), for example pointed out :

> There is strong evidence that instructional television, used in a way that closely simulates traditional instruction, is as effective, on the average, as traditional instruction for all grade levels and subject matters. There is very little evidence concerning the effectiveness of instructional television used in ways that utilize the unique capabilities of the medium. A number of students and teachers have an initially unfavorable attitude toward instructional television, although the incidence of unfavorable attitudes tends to diminish as institutions gain experience with the medium. After such experience a majority of students have neutral or favorable attitudes toward instructional television.

Research results of this nature have disappointed those who believed that instructional technology had dramatic effects on the results of educational procedures. However, there are other examples in which the use of media have outperformed traditional instructional practices. Besides, one may clearly argue that there is always the possibility of reducing costs, which may be particularly important if there is a substantial enrolment expansion. Another clear advantage of media use is that they make possible the provision of instruction in curriculum areas deemed important but for which existing teachers are untrained. It has to be accepted as was mentioned in

Chapter Three, that the use of educational television can be very diffuse and provide functions which are impossible to be provided through traditional instruction :

> .... An American investigator (Prof. Dr. William Schramm) has compared television teaching with conventional teaching in a review of 393 studies: in 86% of the cases television teaching produced better or equal results, this survey moreover shows that the use of television teaching has been particularly efficient for children from 9-15 years old and especially for teaching of mathematics, science and geography.
>
> Dekorte (1964, p.144)

One should also not forget that technological devices if they are properly planned and used, are poised for significant breakthrough in their development and in their contribution to education. For example, they can relieve professional teaching personnel of teaching functions that can be performed by technology; so that the teachers can devote their time and talent to teaching responsibilities that require personal attention. They can assist students to engage in independent study and can deliver instruction where and when it is needed. They can extend and provide effective opportunities for

continuing education for adults and out-of-school youth. When planners are considering the financial aspects of providing an educational technology system for budgetary purposes, all these points need to be taken as points in favour of media use, especially in countries where there is still strong resistance against their adoption.

A budget may be regarded as anticipated revenues and expenditures for a given period of time and its validity can be determined by examining relationships between the budget programme and objectives. Budgets change as goals and plans for achieving them change. If goals, plans and procedures remain unchanged from year to year then the same budget could be repeated with minor adjustments. However if goals are altered and if the means for achieving them are inadequate or out-of-date, then budget changes must be made to support the development of new functions and programmes or different means for carrying out the programmes.

In the case where the goals remain constant the same programmes can be continued without significant modifications except to make allowance for increased student enrolment, faculty increase, replacement of equipment, and for changing costs of goods and labour.

In the second instance where the goals of a system are entirely changed, the procedure will not be as easy as in the first. In this case there is a need for reorganisation and creative innovation. This involves taking a fresh look at the goals, systematic organisation and the use of technical and human resources to achieve them. Budgeting educational technology programmes for reorganising for a newly formed educational system needs a high level of accuracy. Questions of analysis and evaluation are essential for effective educational technology budget planning. When a new pattern becomes established in actual practice budgeting may include elements of both first and second instances.

A fundamental point in budgeting for educational technology services and programmes is the identification of specific objectives to be achieved by the entire organisation together with the objectives of each programme, comprising the master programme. There should be a rationale to help identify the worth of each programme and for the kinds of measures and observations needed for judging the success of programmes. There must be a form of systematic analysis for various feasible procedures and approaches considered to be capable to lead to the

attainment of the desired objectives.

Planners then need to itemize the types, quantities and costs of resources (both human and nonhuman) estimated to be needed for such purposes, and provide data (such as cost benefit ratios or other indices) on which to base decisions regarding the advisability of using alternative procedures to achieve the objectives in question.

There are several important points to be considered in estimating the costs of educational technology programmes and services. First the director and staff of an educational technology centre might distribute questionnaires amongst teachers, programme supervisors, students and administrators in charge of instruction in relation to the programmes and services offered by the centre. It is essential to consider other people's points of view, especially those of the customers. This step will help in estimating the kinds of services, equipment and materials required for the various programmes and instructional levels. It can also help in identifying which courses of educational technology need to be reconsidered, adjusted or cancelled, it can also help in identifying and organising new courses deemed important for the new situation created because

of social or market demand.

Secondly there is a need to survey the overall instructional programmes of the system to be served by the educational technology centre. In this the principal intended purposes of the various programmes need to be examined in terms of what are the expectations and demands of these instructional programmes from the centre and how far are these demands justifiable. Following this the centre needs to survey and assess its own programmes, giving attention to its objectives, organisation, plan and services (including staff, facilities, materials and equipment). In this way the centre should be able to establish how well the centre is attempting to meet the requirements of each instructional programme. Such a survey should help the educational technology staff in deciding which media resources and services should be sustained at their present level, what departments must be provided with better support or which instructional programmes are currenly handicapped in their effectiveness by inadequate facilities, materials, equipment or even staff. It is obvious that for the continuation of certain programmes and the enlargement of others there will be a need to augment the supply of presently available resources in order to operate and function at the

desired level of effectiveness.

Thirdly the educational technology director together with his staff should draw up a supplies budget. Considerable attention must be given to the purchase of office supplies, spare parts and materials for maintenance and repair. It is difficult to make precise and realistic estimates for spare parts or indeed any future maintenance. Further, the actual cost of supplies for the preparation of materials will vary tremendously depending upon teaching practices and to extent to which local production activities are undertaken by students, instructors and media specialists. One of the best sources of information for estimating such types of operating expenses is by checking records of previous expenditures in this field making due allowance for any inadequacies of past budgets and recent programme changes which require new or increased expenditures. Sometimes lack of space is also a problem, so that estimation should also consider the modification of the existing structure to accommodate the media programmes properly or the construction of new sections if these are thought to be necessary.

Fourthly, the director should estimate salaries and wages of the professional, technical and clerical

staff. The various parts of the estimated budget together with written justification must then be produced for presentation in a way that is appropriate and consistant with the requirements of the university or the organisation.

In the early days of budgeting one may consider other successful programmes undertaken in a country which has a similar situation i.e. standards and financial resources. This approach can be helpful as a starting point in the development of plans and budgets suited to the unique programme requirements of a particular educational institution or instructional system. In this standards or guidelines must be used flexibly and selectively - in accordance with the modern concepts of systems analysis and programme budgeting and with constant attention to rapidly changing technology.

The last important point is that the budget justification should rely upon some appraisal of programme output or performance. It has to be borne in mind that subsequent budget requirements and requests for educational technology programmes and services may only be gained if there is a well demonstrated output of previous programmes and accountability for results. For this reason it is

important to keep in mind that the positioning of precise behavioural learning objectives is an important matter. It is through such specific objectives that one can actually prove, verify and convince others that predicted learning has indeed occurred.

PART TWO

CASE STUDY - UNIVERSITY EDUCATION IN BAHRAIN

CHAPTER 6

A_PROFILE_OF_HIGHER_EDUCATION_IN_BAHRAIN_WITH PARTICULAR_REFERENCE_TO_THE_EDUCATIONAL_TECHNOLOGY_AND THE_COMMUNICATION_SYSTEM_IN_UCB

6.1 A BRIEF INDICATION OF THE SOCIOECONOMIC BACKGROUND

The State of Bahrain consists of an archipelago of 35 islands, situated off the coast of the Arabian Peninsula midway along the Arabian Gulf. The total area of the State is approximately 661 square kilometres of which Bahrain island itself is 562 square kilometres. The population of the State according to 1981 survey was 355,000 with an estimated annual growth rate of 5.1 percent (Mn. of Inf. Bulletin 1981, p.3).

The availability of fresh water and the strategic situation of Bahrain have made it an important centre of trade since the earliest times. The country proclaimed its independence on 14 August 1971, when the treaty arrangements with Britain were terminated and a new treaty of friendship was signed. Appendix II indicates important historical events in Bahrain.

Bahrain's major modern industry is the production and refining of oil which since its discovery in 1932 has been the main source of revenue. The trade and economy planners are well aware that oil, for so long being the backbone, of the Bahrain economy is running out and so are trying hard to encourage the diversification of the economy through

industrialisation. Some new industries have already been established. Aluminium Bahrain (ALBA) which started production in 1971 and has a capacity production of 120,000 tons of aluminium a year, and the Arab Shipbuilding and Repair Yard (ASRY) which was commissioned in late 1977 and capable of handling up to 550,000 DWT tankers, (Mn. of Inf. 1980, Paper No.7) are evidence of this. The Government is also encouraging the growth of medium sized companies, and in this respect other industries have been established. They include the production of supplementary gas, asphalt, pre-fabricated housing, air conditioning and refrigeration equipment and others.

6.2 A BRIEF INDICATION OF THE EDUCATIONAL BACKGROUND

Education in Bahrain (like other Islamic countries) originally was to a large extent provided by home tutors or Kuranic co-educational schools. The first public modern school for boys was opened in Mahuarrq (second largest city in Bahrain) in 1919 (Mn. of Ed. 1981, p.226). Since then a sophisticated system has evolved. Diagram 6-1 shows the current structure of education in Bahrain. It is not intended here to discuss educational development in Bahrain. However, education in the last few years has witnessed a very rapid quantitative expansion. Table 6-1 shows the number of male and female students

The Structure of Education in Bahrain

P - Primary standard six examination
I - Intermediate School leaving certificate
S - Secondary certificate
SR - Religious secondary certificate
DH - Health Diploma
DI - In-service Educational Centre Diploma
BP - Polytechnical College Certificate, B.Sc.
B.U- University Certificate, B.A., B.Sc.
DEC - Higher Diploma in Education.

SOURCE : Ministry of Education,
Educational Statistics 1980/1981 p.16

DIAGRAM 6-1

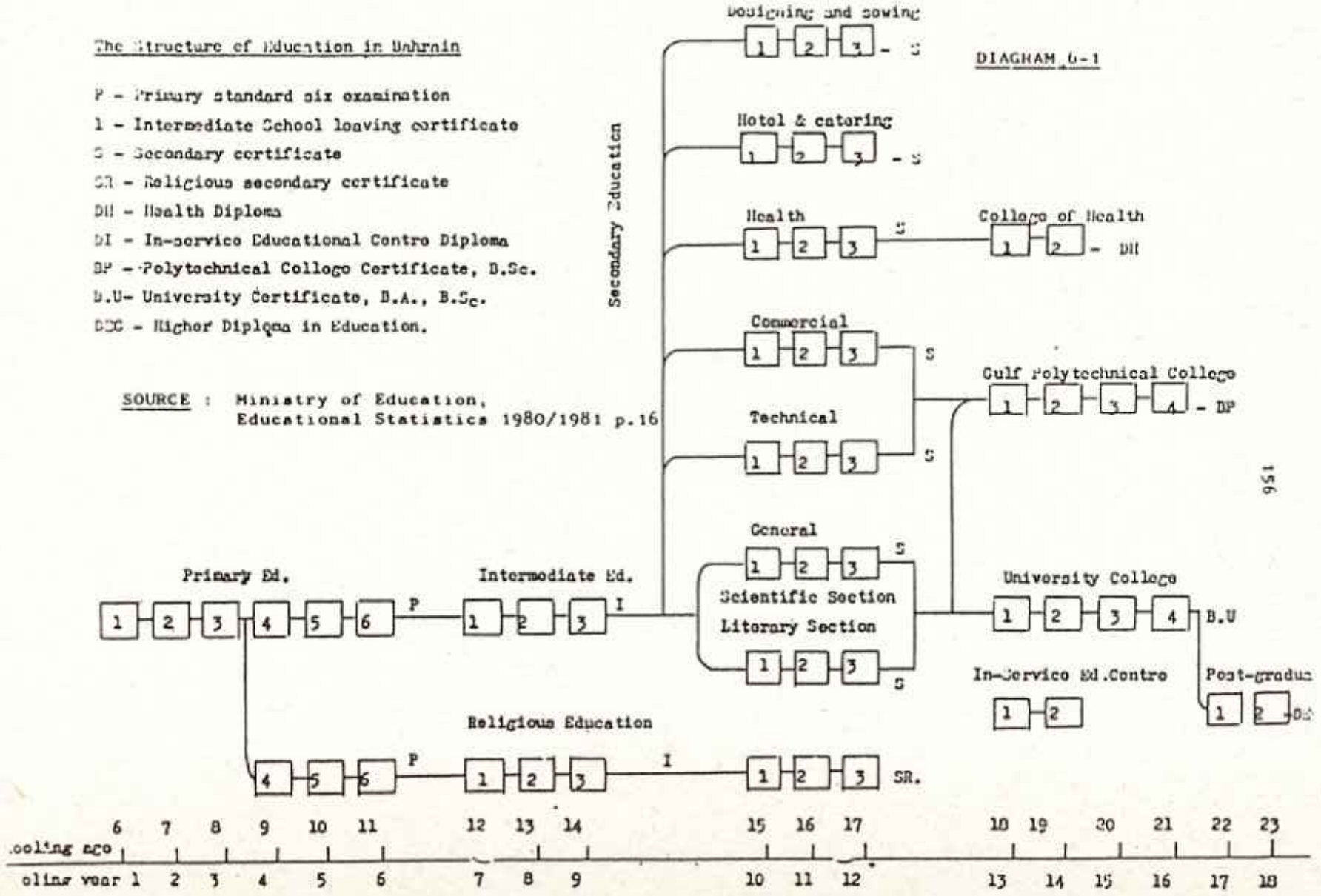


TABLE 6-1 : Number of Registered Students and Classrooms in Primary, Intermediate and Secondary Schools in Bahrain in 1980/81

Educate Cycles \ Stages		Sex	Stage 1		Stage 2		Stage 3		Stage 4		Stage 5		Stage 6		Total	
			No. of Students	No. of Classrooms	No. of Students	No. of Classrooms	No. of Students	No. of Classrooms	No. of Students	No. of Classrooms	No. of Students	No. of Classrooms	No. of Students	No. of Classrooms	No. of Students	No. of Classrooms
Primary		Male	3830	104	4101	112	3992	109	4184	115	3956	111	3741	112	23804	663
		Female	3880	104	3637	98	3539	98	3429	94	2965	87	2855	83	20305	564
Intermediate		Male	3769	99	2906	74	2361	64							9036	237
		Female	2886	75	2595	70	1913	55							7394	200
Secondary	Scientific	Male	541	17	151	6	848	29							1540	52
		Female	676	21	117	5	541	19							1334	45
General	Literary	Male	234	8	273	10	652	23							1159	41
		Female	416	14	370	14	818	26							1604	54
Secondary Health Ed.		Female	61	4											61	4

TABLE 6-1 (Contd)

Stages / Educate Cycles		Sex	Stage 1		Stage 2		Stage 3		Stage 4		Stage 5		Stage 6		Total	
			No. of Students	No. of Class rooms	No. of Students	No. of Class rooms	No. of Students	No. of Class rooms	No. of Students	No. of Class rooms	No. of Students	No. of Class rooms	No. of Students	No. of Class rooms	No. of Students	No. of Class rooms
Secondary Commercial		Male	361	12	123	4	267	9							751	25
		Female	514	19	126	5	287	11							927	35
Secondary Technical		Male	635	26	241	11	195	8							1071	45
Religious Education	Male	Primary	-	-	-	-	-	-	12	1	18	1	15	1	45	3
		Intermediate	17	1	15	1	-	-							32	2
		Secondary	7	1	7	1	6	1							20	3
Total		Male													37458	1071
		Female													31625	902
Overall Total															69083	1973

SOURCE : Ministry of Education, Educational Statistics, 1981-1982, Bahrain.

(according to their grades) and classrooms in school year 1981-82.

6.3 HIGHER_EDUCATION

6.3.1 Teacher Training

In 1966 a teacher-training college was opened for boys in Bahrain. In 1967 another was opened for girls (Mn. of Ed. 1980/81, p.226). Both colleges followed similar programmes. Appendix III gives the curriculum plan followed in the Training Colleges, literary and scientific sections. It provided a two-year programme for secondary school leavers and the function was to prepare trained teachers for the primary and intermediate cycles. The colleges stopped functioning in 1978 when the university college was opened.

6.3.2 Gulf Polytechnic

The Gulf Polytechnic (previously called Gulf Technical College) was established in 1968. Its general aim is to provide education in the fields of engineering and management geared to the manpower requirements in Bahrain and other Gulf States. It is headed by a Board of Trustees chaired by the Bahrain Minister of Education.

The Polytechnic started with two departments, Department of Business and Secretarial Studies for the provision of post secondary education in business studies up to the Ordinary Certificate (OCBS) standard; and Department of Advanced Trades for the purpose of training technicians in mechanical and electrical engineering.

Since its establishment the polytechnic has expanded rapidly. In 1968-69 only 18 full-time students were enrolled (Fahmi 1976, p.1) while at the moment there are more than 2000 students undertaking different courses in various departments. Table 6-2 indicates student enrolment and staffing at the Gulf Polytechnic between 1968 and 1981.

Until recently the overall structure of the Gulf Polytechnic was largely similar to that of a British technical college, as can be seen from its administration, curriculum, examination systems and medium of instruction which is still (and intended to remain) English. Thus the curriculum and standards were formulated through co-operation with such different external examining bodies as the Royal Society of Arts, the London Chamber of Commerce and the City and Guilds of London Institute.

TABLE 6 - 2

ENROLMENT AND STAFFING AT GULF POLYTECHNIC BETWEEN 1968 and 1981

Academic Year	No. of Staff	No. of Students
1968-1969	3	18
1969-1970	8	72
1970-1971	17	144
1971-1972	23	200
1972-1973	27	465
1973-1974	28	506
1974-1975	33	782
1975-1976	36	944
1976-1977	56	983
1977-1978	58	872
1978-1979	60	1000
1979-1980	62	1780
1980-1981	80 approx	2000 approx

SOURCE : Pamphlet produced by Gulf Polytechnic 1981.

Over the years the Polytechnic developed considerably. The college now offers its own diplomas and degrees, which are internationally accepted, and a number of crucially needed engineering programmes have been evenly developed. These are given in Appendix IV. With regard to business and management studies, new programmes have been developed based on the credit system. Appendix V gives the new academic programmes in commercial studies, accounting and associated business.

The polytechnic is still developing and the intention is to become self sufficient in the academic, professional and institutional growth sectors. The authorities however still continue to benefit from the experience and assistance of major universities in the Middle East, Europe and North America. They are now attempting to plan their own courses based on international standards and have opted to earn accreditation on the basis of the programmes provided and the quality of the graduates.

6.3.3 **College of Health Sciences**

The College of Health Sciences is a public governmental institution, founded in April 1976, by the Ministry of Health. The main aim according to the College Bulletin of 1981-82, p.1) is to prepare middle level health professionals needed in Bahrain,

although the intention is to develop a wider system in order to produce such professionals for the Gulf States as a whole.

Prior to the College of Health Sciences (according to the College Bulletin 1981-82) a small School of Nursing was established in 1959 in which Bahraini nurses were trained. Later the school offered a four-year training programme for students completing elementary school level. In the years between 1965 and 1975 other training programmes were introduced in response to the demands for various clinical departments. In 1972 the School of Nursing expanded its facilities and developed its programmes, to include two kinds of courses, General Nurse Training, a three-year course for secondary school leavers; and Practical Nurse Training, an 18 month course for intermediate school leavers.

Since then and after a thorough study it came clear to the health authorities that a central well equipped training institution for health sciences was badly needed, as health services, besides being in a state of continuous expansion, had largely been dependent on expatriates. The College of Health Sciences was then founded and rapidly improved both the quality and quantity of student intake. Table

6-3 shows th number of students in the Health College. (The decline in the number of students in the last three years is due to the student intake which is judged according to the country's requirements in the provided fields). However, there has been a rapid growth of the range of courses provided by the college and many different programmes have been developed. The college has four departments which act as supporting academic departments to the various college programmes. Appendix VI gives the services of the departments and the programmes provided by the College of Health Sciences in Bahrain.

6.3.4 University College of Arts, Science and Education

In 1978 the University College of Arts, Science and Education was established. It is an autonomous institution functioning under a Board of Truestees chaired by the Minister of Education. The general aim is to 'develop interest and cherish study in three broad areas of human knowledge and research, Arts, Science and Education' (1982 Bulletin, p.1).

Currently the University contains eleven departments providing numerous programmes in the fields of arts, science and education, leading to the degrees of Bachelor of Arts, Bachelor of Science and Bachelor of Education; and Postgraduate diploma and

Masters degrees in education. Pre-service and in-service courses are also offered to upgrade or re-train primary or intermediate school teachers. Appendix VII gives a brief description of the programmes offered in the University.

The University follows the credit system. There are two semesters in each year and each semester extends over some 16 weeks. One credit is provided for each hour of lectures per week or for each 2 to 3 hours of laboratory or studio work per week over a period of one semester. In general a two-hour study and preparation each week is normally required by a student for each credit.

The growth in the number of students and faculty is a sign of the rapid quantitative progress made during the University's short life span. Table 6-4 indicates the overall number of students in UCB, Table 6-5 gives the number of university students at each level, and Table 6-6 the number of faculty (excluding the administrative staff) according to their professions. Table 6-7 indicates the number of students registered in the third and fourth years, according to specialisation.

One of the key programmes in UCB is the training

TABLE 6-3 Number of Teachers and Students in the College of Health Sciences

Teachers		Students	Year
Male	Female		
66	32	775	1981-82
40	33	727	1982-83
58	33	457	1983-84

SOURCE : Office of the Registrar, College of Health Sciences, Ministry of Health, 1983, Bahrain.

TABLE 6-4 The Total Number of Students in U.C.B. in 1982-83

Type	Number
University studnets at all levels	486
Teacher Training Scheme	310
Postgraduate Diploma 2nd Year	10
Masters Degree	3
Overall total	809

SOURCE : Statistics (1983) Office of the Registrar U.C.B.

TABLE 6 - 5 Number of U.C.B. Students by Years in 1982-83

Level	Scientific		Literary		Total
	Male	Female	Male	Female	
Fourth Year	1	13	2	16	32
Third Year	10	25	7	41	83
Second Year	5	41	6	71	123
First Year	2	45	10	56	113
Preparatory Level	3	15	15	43	76
First Year Remedial	-	9	-	17	26
Remedial Programme	-	-	5	28	33
Overal Total	21	148	45	272	486

SOURCE : Statistics (1983) Office of the Registrary, U.C.B.

TABLE 6-6 : Number of Faculty in U.C.B. in 1982-1983

Position	Professor	Visiting Prof.	Fulbright Prof.	Associate Prof.	Assistant Prof.	Instructors	Graduate Assistant	Tutor	Total
Number	15	1	1	15	41	37	33	21	164

SOURCE : Bulletin (1982-1983) UCB, December 1982/83

TABLE 6 - 7 U.C.B. Students registered in the 3rd and 4th years in 1982/83, according to their specialisations

	Field of specialization	Male	Female	Total
1	Arabic Language	1	1	2
2	Arabic Language + Education	5	23	28
3	Arabic Language + Psychology	1	-	1
4	English Language	1	5	6
5	English Language + Education	1	20	21
6	Islamic Studies	-	-	-
7	Islamic Studies + Education	-	7	7
8	Mathematics Literary	-	-	-
9	Mathematics Scientific	-	1	1
10	Mathematics + Education	-	20	20
11	Physics	1	1	2
12	Physics + Education	-	1	1
13	Chemistry	1	-	1
14	Chemistry + Education	1	3	4
15	Chemistry + Computer	1	-	1
17	Biology	-	1	1
17	Biology + Education	-	6	6
18	Physical Education	6	7	13
	Total			115

SOURCE : Statistics (1983) Office of the Registrar 1983, U.C.B.

of classroom teachers for the primary level. This is a B.Ed. programme designed as an in-service course to upgrade unqualified primary school teachers who are already in service; and as a pre-service course for those intending to become qualified primary school teachers in the future. This decision to introduce the scheme was taken by the Ministry of Education; and UCB was appointed to undertake it. Table 6-8 shows the number of students attending both in-service and pre-service programmes for the year 1982-83.

Another scheme concerns the re-training of subject teachers. This is a certificate course designed to re-train teachers of upper primary, intermediate or lower secondary who already hold Bachelor degrees in a subject different from that which they teach. There is in addition a B.Ed. programme for in-service teachers of physical education (who hold diplomas of the former Teacher Training College) and a postgraduate diploma course for secondary school teachers. Table 6-8 gives the number of teachers following these programmes, whilst Table 6-9 indicates the number of students who obtained P.G.D.E. during the years 1979 to 1982.

TABLE 6 - 8 U.C.B. Students in Teacher Training Schemes in 1982/83 (sponsored by Min. of Ed.)

Programmes	Number of students involved		
	Male	Female	Total
Training Classroom Teachers, In-Service B.Ed. Programme	56	69	125
Training Classroom Teachers, Pre-Service B.Ed. Programme	-	71	71
Re-Training of Subject Teachers, Certificate Courses	34	33	67
Postgraduate Diploma in Education (First Year)	11	17	28
Physical Education (B.Ed, Programme for Teachers holding Dip from former Teacher Training Colleges	12	7	19
Overall Total	113	197	310

SOURCE Statistics, (1983) Office of the Registrar
(1983) U.C.B.

TABLE 6 - 9 U.C.B. Students gaining the P.G.D.E. between 1979 and 1982.

Specialisation	1979/80		1980/81		1981/82		Total
	Male	Female	Male	Female	Male	Female	
Arabic Language	5	8	2	5	4	3	24
Science	-	1	-	-	1	4	6
Mathematics	-	1	-	-	2	-	3
Social Sciences	7	10	6	3	3	3	32
English Language	-	2	-	-	-	-	2
Education	1	-	-	-	-	-	1
Overall Total	13	22	8	8	10	10	71

SOURCE : Statistics (1982), Office of the Registrar UCB

A two-year pre-medical programme is also offered by UCB to students from the seven Gulf States (Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates) who intend to enrol for clinical studies at the Arabian Gulf University which is being established in Bahrain. Table 6-10 shows the number of students attending the pre-medical programme in UCB according to their nationalities. Appendix VIII provides information covering other university offerings and admissions to such programmes.

6.4 COMMUNICATION AND EDUCATIONAL TECHNOLOGY PROGRAMMES IN UCB

6.4.1 Background

When the University College was founded in 1978 a section named 'Centre for Communication' headed by an American professor was established along with the other departments. The Centre had two responsibilities, (1) to offer academic services to staff, and (2) to provide courses in the fields of Communication and Educational Technology :

> The Centre for Communication offers academic services, of much use in the teaching learning situation as well as media hardware and supporting staff needed by the college. The staff of the Centre endeavour to work with individual members of the academic staff and departments to develop modules, units or complete

TABLE 6 - 10 U.C.B. Students taking the Pre-Medical Programme in 1982-83

Nationalities	Sex		Total
	Male	Female	
Bahrainis	3	7	10
Palastinians	-	1	1
Omanis	9	1	10
From Emirates	1	9	10
Qataris	6	2	8
Kuwaitis	-	3	3
Saudis	1	-	1
Overall Total	20	23	43

SOURCE : Statistics (1982), Office of the Registrar, U.C.B. 7.11.82.

instructional programmes utilizing media hardware.

(Bulletin 1979-80, 80-81 and 81-82)

A variety of courses were offered between the years 1979 and 1984, Table 6-11 indicates the courses offered and Appendix IX gives a brief description of a selection of them based on the Bulletins of the years concerned.

A wide range of audiovisual equipment has been purchased since the establishment of communication centre, although this has not been fully utilized. Appendix X gives a list of the available audiovisual aids and equipment which were stored in the centre.

Although the Centre for Communication was largely autonomous the educational technology courses and activities came under the control of the education department, whilst the communication courses were planned separately under the Centre for Communication's co-ordinator (see Diagram 6-2).

TABLE 6 - 11 Courses offered in the Centre for Communication between 1979-1984

Serial No.	Course No.	Years of the Course	Title of the Course
1	Com 101	1979/80	Introduction to Communication Process and Theory
2	Com 121	1979/80	Film Making
3	Com 101	1980/81	Introduction to Communication Process and Theory
4	Com 121	1980/81	Film Making
5	Com 202	1980/81	Media Production Skills
6	Com 221	1980/81	Television Production
7	Com 511 Ed. 511	1980/81	Educational Technology
8	Com 512 Ed. 512	1980/81	Systems Approach to Instruction
9	Com 301	1981/82	The Theories of Communication
10	Com 302	1981/82	Media in Communication
11	Com 306 Ed.306	1981/82	Introduction to Educational Technology
12	Com 311	1981/82	Mass Communication
13	Com 312	1981/82	Writing for Television
14	Com 321	1981/82	Film-making for Television
15	Com 322	1982/82	TV Production - Directing I
16	Com 351 Ed.	1981/82	Programmed instruction
17	Com 422	1981/82	TV Production - Directing II

TABLE 6-11 (Continued)

Serial No.	Course No.	Years of the Course	Title of the Course
18	Com 441	1981/82	Insturctional Television Production I
19	Com 442	1981/82	Instructional Television Production II
20	Com 451 Ed.	1981/82	Instructional Systems Development
21	Com 491	1981/82	Communication Research Methods
22	Com Ed. 492	1981/82	Media Management
23	Com 493	1981/82	Communication Practicum
24	Com 101	1981/82	Introduction to Communication Process and Theory
25	Com 121	1981/82	Film making
26	Com 202	1981/82	Media Production Skills
27	Com 211 Ed.211	1981/82	Production of Inexpensive Teaching Material
28	Com 221	1981/82	Television Production
29	Ed. 311	1981/82	Introduction to Educational Technology
30	Com 312 Ed. 312	1981/82	Programmed Instruction
31	Ed. 511	1981/82	Educational Technology
32	Ed. 311	1982/83	Introduction to Educational Technology

TABLE 6-11 (Continued)

Serial No	Course No	Years of the Course	Title of the Course
33	Ed. 312	1982/83	Programmed Instruction
34	Ed. 511	1982/83	Educational Technology
35	311	1983/84	Introduction to Educational Technology
36	511	1983/84	Educational Technology

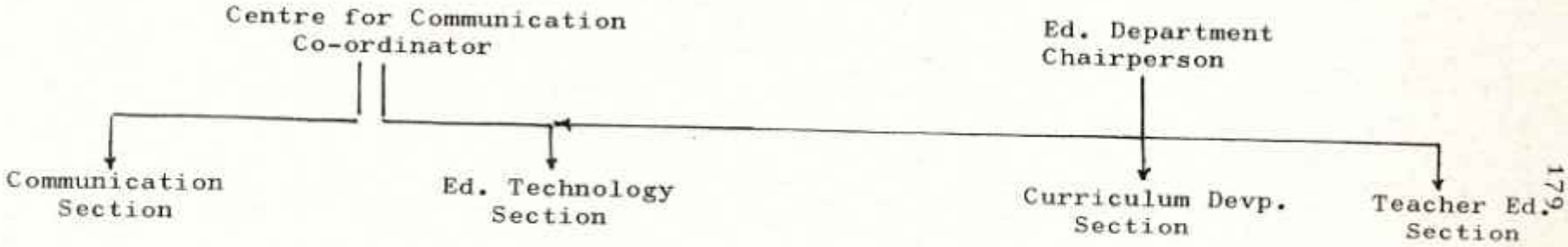
N.B.

1) Although courses 9 to 23 were supposed to be offered in 1981/82 they appeared in Bulletin 1980/81

2) Comm Ed. = regarded as 'cross' which (according to authorities in U.C.B.) could either be regarded as Ed.Tech. or Com. Course.

SOURCES : 1 & 2 Bulletin 1979/80 }
3 to 23 Bulletin 1980/81 } U.C.B.,
24 to 31 Bulletin 1981/82 } Bahrain
32 to 34 Bulletin 1982/83 }
35 to 36 Bulletin 1983/84 }

DIAGRAM 6-2 : The Administrative Structure of Communication and Educational Technology fields.



6.4.2 A Critical Review of Communication and Educational Technology Programmes

Most of the courses stated in Table 6-11 had no formal course content nor were there clear objectives in most cases. The most popular such as Nos. 121, 511 and 512 were composed of several general topics which were allocated between the instructor and teaching assistants who in their turn themselves individually decided on the content of the respective topics for which they were responsible.

With regard to communication courses (see Table 6-11) these were offered not because of the demand, but because the co-ordinator felt them interesting and useful. There were no surveys to identify the need for such courses. One result was that much finance was spent in purchasing equipment which is still unused, (see Appendix X). Indeed many students were discouraged by their advisors or tutors from enrolling on. It was held that they would not benefit them in their future careers. There were no other specialist staff to teach the communication courses except the co-ordinator himself. One result was that film-making became one of the most offered courses. In terms of equipment there were 4 8mm cameras, and 12 students could enrol in each semester. Students taking the course were to learn how to use a camera

and produce an 8mm film of their own title. However, the productions were weak, and unorganized, lacking clear objectives. Most of the films produced have disappeared, being broken up or otherwise disposed of. In all, few students enrol on the communication courses, and those who did, appeared to do so for their own pleasure, perhaps for fun. Table 6-12 shows the number of students enrolled in educational technology and communication courses between 1979 and 1984.

With regard to educational technology only one course was compulsory (Educational Technology 511), for those following the postgraduate diploma in education. The course was composed completely of a hardware approach. The topics in it were decided by the co-ordinator after discussing them with the chairperson and other instructors in the Education Department to avoid repetition amongst topics agreed in curriculum studies, teacher education, and educational technology. Table 6-13 shows the topics covered in the educational technology course for postgraduate students. It can be seen from the list that the concept of Educational Technology was, and still is, narrowly interpreted. It was the responsibility of the instructor and/or the teaching assistants to devise content for each topic.

TABLE 6-12 : Number of Students enrolled in Educational Technology and Communication courses between 1979 and 1984.

1979/80			1980/81			1981/82			1982/83			1983/84		
S No	C No	No. of Students	S No	C No	No. of Students	S No	C No	No. of Students	S No	C No	No. of Students	S No	C No	No. of Students
2	121	4	4	121	1	12	311	67	32	311	82	35	311	71
			5	202	5	31	511	26	34	511	9	36	511	25
			7	511	12									
			8	512	1									

S.No = Serial No. according to Table 6-11
C.No = Course No. see Table 6-11 for Course Title

SOURCE : Educational Technology Section, Education Department, UCE, 1984.

TABLE 6-13 : Topics Covered in Educational Technology for Postgraduate Students with the Approximate Time Spent on Each One

No	Main Topics	Sub Titles			
		Theoretical Aspects	Hrs	Practical Aspects	Hrs
1	Overhead Projector	1) Advantages 2) Usage	1 1	Operation Production of Transparencies	 2
2	Opaque Projectors	Advantages Disadvantages; and Usage	1	Operation and Enlarging Visuals	2
3	Slide Projector & Film Strip	Advantages, Disadvantages and Usage	2	Operation	1
4	Tape-Recorder	Advantages, Disadvantages and Usage	1	Operation and Cleaning the Head	2
5	8mm Projector and Film loops	Usage	1	Operation	2
6	16mm Projector	Usage	1	Operation	2
7	Charts, Graphs Specimen and Objects	Kinds and Usage	1	Production	3
8	Free and In-Expensive Materials	Kinds and Usage	1	Production	3
9	Teaching-Boards	Kinds and Usage	2	Production	3
10	General Revision		-		-

Three to four hours were spent on each topic, normally one hour theoretical and two hours practical. In the theoretical section the advantages, disadvantages and the uses of a particular aid were covered whilst in the practical section students were trained on how to use the aid or produce simple materials. Some written exercises were occasionally demanded. At the end of the course students were required to sit a two-hour written examination and were asked to operate a selection of the audiovisual aids as a practical examination.

This procedure has resulted in much pressure on the staff of the Centre, as their number has been small. Table 6-14 shows the number of the staff in the Centre and their professional status. Besides writing the content, the staff of the Communication Centre were supposed to prepare the laboratory work, give lectures and demonstrations, be responsible for the borrowing and lending procedure, help staff of other departments in producing their teaching materials, supervise students in writing theses, prepare the situation for guest-speakers, organise panel discussion, produce information about university activities, organise workshops for staff and attend various meetings in the University or other

TABLE 6-14 : Staff of the Centre for Communication during the Academic Years 79/80, 80/81 and 81/82, 82/83 According to their Professional Status.

Status	Prof.	Instructor	Teaching (Graduate) Assistants	Tutors in Ed. Tech	Communic-ation Assistant	Tech-nician	Lab. Assistant	Total
Year : 1979/1980	1	-	2	-	-	-	-	3
1980/1981	1	1	2 (1 on leave)	-	-	-	-	4
1981/1982	1	1 (on leave)	-	3	1	1	1	8

SOURCE : Bulletin 79-80, 80-81, and 81-82, 82-83. U.C.B.

N.B. Those on leave are proceeding to higher degrees.

Ministries, take pictures of special occasions in the University, contact other establishments for borrowing and lending purposes, and many others. This resulted in the exhaustion of staff and consequently the promises of the Centre could not be fulfilled. One result of this has been that the Centre having become over-committed gradually lost much of its credibility. Because of such problems and the growing belief of the University authorities that there was no need for communication courses, the Centre of Communication was closed at the end of 1982. The co-ordinator left as his servces were no longer required.

6.4.3 The Current Situation in Respect of Educational Technology in UCB

In 1982-83 all the teaching aids and storage became the College library's responsibility, and the library took over all borrowing and lending. The educational technology division became a separate section under the complete control of the Education Department. Two assistant professors, one Egyptian and one Jordanian were appointed to this section. Table 6-15 shows the number of staff of the section in 1982-83, and 1983-84.

In December 1982 the author paid a visit to UCB for the purpose of administering a questionnaire,

interviews, general data collection and observing the situation in the education technology section. It was noticed that the objectives of the section were still not clear. It could perhaps be said that besides offering courses in the educational technology field, the section was also required to provide some services which included software production and the training of staff who required to be skilled in the operation of the available audiovisual aids and the production of material from available resources.

From the formal teaching point of view the educational technology section currently provides two courses Ed. 311 'Introduction to Educational Technology' as an undergraduate course, and Ed. 511 'Educational Technology' as a postgraduate course. Each is regarded a three-credit course to be completed during one session. The content of both courses are almost identical with the former covering fewer topics than the latter. Appendix XI gives a brief explanation of each course and the topics in course 511. There is no precise information available as to which of these topics are to be covered in course Ed. 311. The following are the listed objectives of Educational Technology courses in UCB :

> After finishing the course the student

TABLE 6-15 : Staff in the Educational Technology Section during the Academic Years 1982/83 and 1983/84 According to their Professional Status.

Status :	Assistant Professors	Instructor	Graduate Assistants	Tutors	Total
Year :					
1982/ 1983	2	1 (on leave)	2	2 (1 on leave)	7
1983/ 1984	2	1 (on leave)	2	3 (2 on leave)	8

SOURCE : Bulletins 1982-83 and 1983-84 U.C.B.

1) will be able to distinguish between the traditional and modern concept of audiovisual aids,

2) will be acquainted with various types of audiovisual aids, their resources, their role in teaching learning situations, and in facing some instructional problems.

3) will be able to select the types of audiovisual aids to achieve particular instructional objectives for a particular lesson or a part of a syllabus, taught in his own field,

4) will be able to use the selected audiovisual aids effectively,

5) will be able to evaluate teaching aids,

6) will be able to operate the teaching equipment available in the Educational Technology lab, and deal with the more common ones in audiovisual field,

7) will be able to produce some simple teaching materials from the available resources,

8) will be able to produce media-package related to his own field of specialization.

(Ed.Tech. Syllabus, Dept.of Ed. UCB, 1983)

A glance at these objectives suggests that in no way could such a course be regarded as an 'Educational Technology' course - it is rather a course in audiovisual aids. This means that the entire course needs to be changed if a real educational technology

programme is to be offered in UCB.

It can be noticed from the above discussion that little has changed with regard to the educational technology situation in UCB, as it still adopts a hardware approach. One point which drew the author's attention was that one of the senior officials in the educational technology section was engaged for some time with a number of students (who were following educational technology course) in making an overhead projector. This supports the point that the wider concept of educational technology is not yet accepted in UCB.

One last point is the transfer of the authority in respect of the equipment and material to library control which has made the situation more difficult, for both the library which has no qualified personnel to take charge of the lending, the organisation of the equipment, storage system; and for the educational technology section which is supposed to use this equipment and consume material more than any other department - but for whom the access is now indirect.

CHAPTER 7

THE_FIELD_STUDY

7.1 THE PROBLEM

Currently enhanced scientific progress has created a condition under which the scientific and technical potential of a people becomes a most important factor, and thus investment in education for its reform has become necessary.

It can be said however, that the rapid development of science and technology which has already affected the industrialized countries has created a calamitous situation for the developing and the underdeveloped countries, as they have lagged far behind. Nevertheless, some have adopted models of economic, social, political, cultural and educational development from the industralized West, but only to realize that the latter have passed forward into an atomic and electronic age which has only widened the gap. One of the dramatic aspects of this situation is the fact that their educational systems and especially their new universities are now confronted with the need to re-organize and to accept the introduction of policies necessary to adopt to today's new knowledge.

In the vast majority of developing countries (including Bahrain) the school and university

curriculum content and the methods for conveying them to learners have lagged woefully behind the rapidly advancing frontiers of knowledge and the changing nature of real educational needs. Even though these educational systems may have grown enormously their position has remained very much as in former times as this growth has been in quantitative terms only :

> It is of interest to ask ourselves why the knowledge taught in schools had grown so outmoded and inflexible. Certainly the rapid social changes resulting from advances in technology and automation and the alarming growth of knowledge should have influenced the schools and indeed the universities, long before the present decade.
>
> Kerr (1968, p.14)

One of the major reasons for such curricula lagging far behind is perhaps the slow introduction of educational technology. It can be said that this educational provision has so far failed to profit from the revolution in modern technology and methodologies through which other industries have accomplished vast improvement :

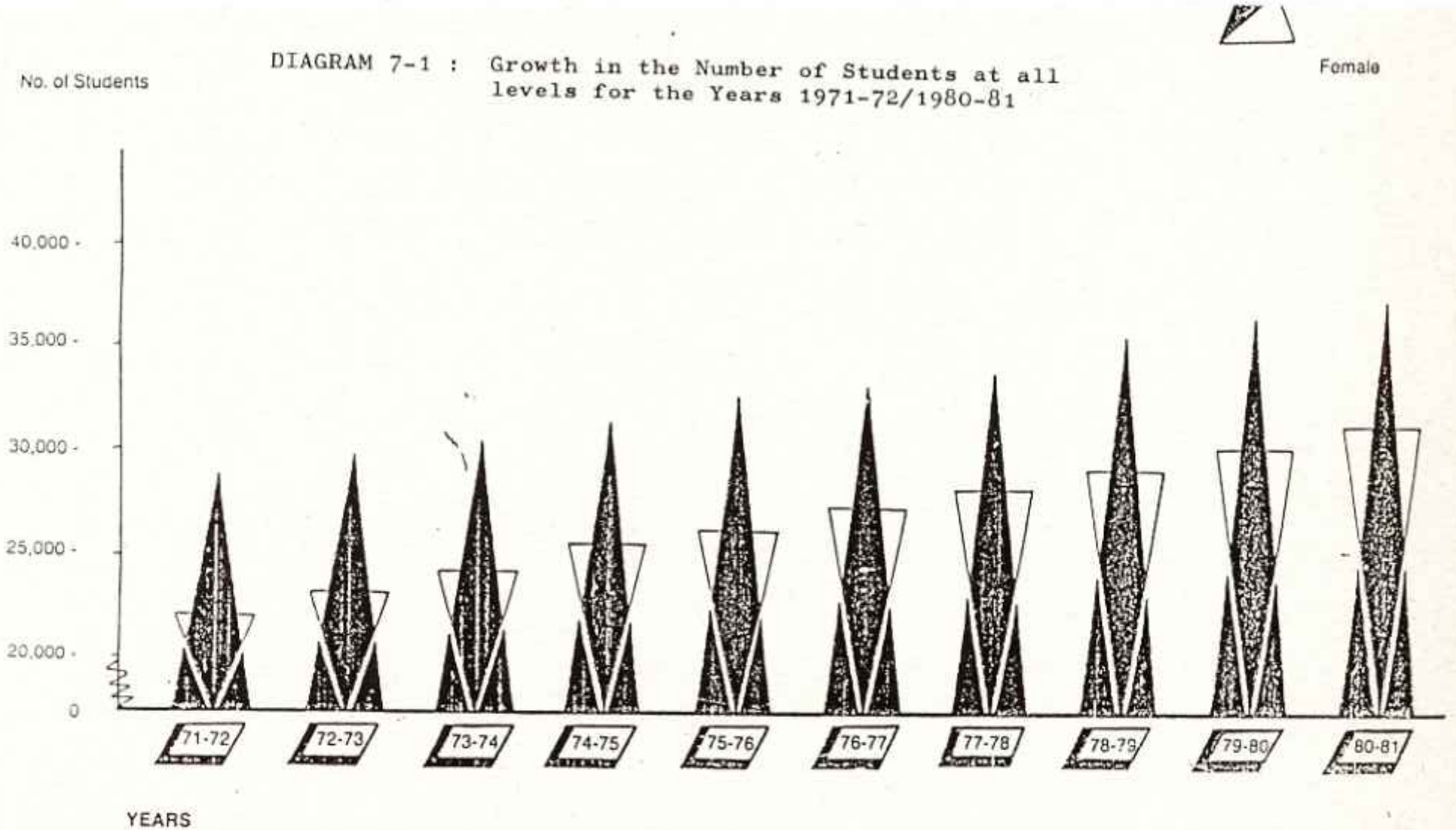
> The farmer, the factory worker, the engineer, the architect, the business executive have all increased their productivity, and their incomes in the last two generations by

> adopting new tools and methods, and by subdividing tasks between themselves and their subordinates or others.
>
> .... educational systems lack the institutional means and the modern analytical tools for identifying potential improvements of this sort and then taking advantage of them.

Coombs, (1968, pp.127,128)

Diagram 7-1 shows the growth in the numbers of students at all levels between 1971-72 and 1980-81 in Bahrain. Qualitatively the state of education has remained almost unchanged, although some attempts have been made at times to improve this. The introduction of new theories of education and educational technology, for example has been slow. One of the main reasons for this has been the professional standard of the teachers. Tables 7-1, 7-2, 7-3 and 7-4 give the numbers of teachers at all levels (except higher), their qualifications and training. It can be seen from the tables that most teachers are either not trained or not sufficiently qualified to teach at their level of employment. Out of 1919 teachers, it can be seen that there are only 192 who are adequately qualified and trained, consequently the routine chalk and talk method of teaching has remained dominant. Audiovisual aids are seldom used, and when used they are not properly employed. Boredom is common at all levels. Thus there is an urgent need for teachers to

DIAGRAM 7-1 : Growth in the Number of Students at all levels for the Years 1971-72/1980-81



SOURCE : Educational Statistics, 1980/81, p.29.
Ministry of Education, 1981.

TABLE 7-1

عدد المدرسين في المدارس الابتدائية والابتدائية الاعدادية والاعدادية حسب المؤهل وفئة العمر والجنسية والجنس : ١٩٨١/٨٠

Number of Teachers at Primary / Intermediate and Intermediate schools by Qualification, Age Group, Nationality and Sex: 1980/81

Nationality & Age Group / Qualification	Sex	المجموع الكلي Grand Total	غير بحرينيين Non-Bahrainis	بحرينيون Bahrainis					الجنس	الجنسية وفئة العمر / المؤهل
				المجموع Total	٥٠ سنة فاكثر 50 years & over	٤٠ — ٤٩ 40 — 49+	٣٠ — ٣٩ 30 — 39+	اقل من ٣٠ سنة Less than 30 years		
Below Secondary	Male	19 ◐	—	19	5	3	9	2	ذكور	دون الثانوية
	Female	50 ◐	—	50	—	7	34	9	اناث	
General Secondary	Male	225 ◐	9	216	1	13	117	85	ذكور	ثانوية عامة
	Female	49 ◐	4	45	—	1	28	16	اناث	
General Secondary & Training	Male	246 □	—	246	1	17	131	97	ذكور	ثانوية عامة مع تأهيل تربوي او دورة تدريبية
	Female	120 □	2	118	—	1	82	35	اناث	
Commercial Secondary	Male	9 ◐	1	8	—	—	6	2	ذكور	ثانوية تجارية
	Female	—	—	—	—	—	—	—	اناث	
Commercial Secondary & Training	Male	5 □	—	5	—	—	5	—	ذكور	ثانوية تجارية مع تأهيل تربوي أو دورة تدريبية
	Female	2 □	—	2	—	—	2	—	اناث	
Teacher Training Secondary	Male	48 □	—	48	—	3	43	2	ذكور	ثانوية المعلمين
	Female	34 □	—	34	—	—	27	7	اناث	
Teacher Training Secondary & Training	Male	86 □	—	86	—	6	72	8	ذكور	ثانوية المعلمين مع تأهيل تربوي
	Female	45 □	—	45	—	—	39	6	اناث	

◐ Neither trained nor adequately qualified
○ Not trained
□ Not adequately qualified
— Trained and qualified

SOURCE : Educational Statistics, 1980/81 p. M.of Ed. 1981.

TABLE 7-2

عدد المدرسين في المعهد الديني حسب المؤهل وفئة العمر والجنسية : ١٩٨١/٨٠ م (بنين فقط)

Teachers of Religious Insitute by Qualification, Age group and Nationality: 1980/81 (Boys only)

Nationality and Age Group / Qualification	المجموع الكلي Grand Total	غير بحرينيين Non-Bahraini	Bahrainis بحرينيون					الجنسية وفئة العمر / المؤهل
			المجموع Total	٥٠ سنة فأكثر 50 years & over	٤٠ - ٤٩ 40 — 49	٣٠ - ٣٩ 30 — 39	أقل من ٣٠ سنة Less than 30 years	
General Secondary	3 ◐	3	—	—	—	—	—	ثانوية عامة
Teacher Training Sec.	1 □	—	1	—	—	1	—	ثانوية المعلمين
Higher Diploma	1 —	1	—	—	—	—	—	دبلوم عال
T.T.C. Diploma	1 —	—	1	—	—	1	—	دبلوم معهدى المعلمين والمعلمات
Below University	—	—	—	—	—	—	—	دراسات بعد التعليم الثانوى (عدا دبلوم)
B.A.	14 ○	8	6	—	1	5	—	بكالوريوس آداب
Total	20	12	8	—	1	7	—	المجموع

◐ Neither trained nor adequately qualified
○ Not trained
□ Not adequately qualified
— Trained and qualified

عدد المدرسين في التعليم الثانوى الصناعى حسب المؤهل وفئة العمر والجنسية : ١٩٨١/٨٠ م (بنين فقط)

TABLE 7-3 Teachers at Industrial secondary Education by Qualification, Age Group and Nationality: 1980/81 (Boys only)

Nationality & Age Group / Qualification	المجموع الكلي Grand Total	غير بحرينيين Non-Bahraini	بحرينيون Bahraini					الجنسية وفئة العمر / المؤهل
			المجموع Total	٥٠ سنة فاكثر 50 Years and over	٤٠ ـ ٤٩ + 40 — 49	٣٠ ـ ٣٩ + 30 — 39	اقل من ٣٠ سنة Less than 30 Years	
Below Secondary	2	2	—	—	—	—	—	دون الثانوية
General Secondary	1	1	—	—	—	—	—	ثانوية عامة
General Sec. and Training	1	—	1	—	—	1	—	ثانوية عامة مع تأهيل تربوى أو دورة تدريبية
Teacher Training Secondary	1	1	—	—	—	—	—	ثانوية معلمين
Industrial Secondary	4	3	1	—	—	—	1	ثانوية صناعية
Industrial Secondary & Training	6	—	6	2	1	3	—	ثانوية صناعية مع تأهيل تربوى أو دورة تدريبية
Higher Diploma "Technical"	13	12	1	—	—	1	—	دبلوم عال ، فني ،
T.T.C. Diploma	5	3	2	—	—	1	1	دبلوم معهدى المعلمين والمعلمات
Below University	4	2	2	—	—	—	2	دراسات ما بعد التعليم الثانوى (عدا دبلوم)
Below University & Training	7	3	4	—	—	1	3	دراسات ما بعد التعليم الثانوى (عدا دبلوم) مع تأهيل تربوى أو دورة تدريبية
B.Sc.	74	73	1	—	—	—	1	بكالوريوس علوم وهندسة
B.Sc & Training	11	10	1	—	—	—	1	بكالوريوس علوم وهندسة مع تأهيل تربوى أو دورة تدريبية
B.A.	6	6	—	—	—	—	—	بكالوريوس اداب
B.A. and Training	1	1	—	—	—	—	—	بكالوريوس اداب مع تأهيل تربوى أو دورة تدريبية
F.T.C.	7	5	2	—	—	—	2	الشهادة الفنية الاولى
H.N.D.	5	1	4	—	—	—	4	الدبلوما الوطنية العالية
M.A.	3	1	2	—	—	2	—	ماجستير اداب
Total	151	124	27	2	1	9	15	المجموع

مدارس المرحلتين في المدارس الاعدادية والثانوية والثانوية (العامة والتجارية والعلوم الصحية)
حسب المؤهل وفئة العمر والجنسية والجنس : ١٩٨١/٨٠ م

TABLE 7-4 Teachers of Intermediate/Secondary and Secondary (General, Commercial and Health Sciences) Schools by Qualification, Age, Group, Nationality and Sex: 1980/81

Nationality and Age group / Qualification	Sex	الجموع الكلي Grand Total	غير بحرينيين Non-Bahraini	بحرينيون Bahrainis					الجنس	الجنسية وفئة العمر / المؤهل
				مجموع Total	٥٠ سنة فاكثر 50 years and over	٤٠ - ٤٩ 40—49+	٣٠ - ٣٩ 30—39+	اقل من ٣٠ سنة Less than 30 years		
Below Secondary	Male	—	—	—	—	—	—	—	ذكور	دون الثانوية
	Female	—	—	—	—	—	—	—	اناث	
Secondary-General	Male	10 ◐	4	6	1	1	3	1	ذكور	ثانوية عامة
	Female	6 ◐	2	4	—	—	3	1	اناث	
Secondary-General & Training	Male	4 □	2	2	—	—	2	—	ذكور	ثانوية عامة مع تأهيل تربوى او دورة تدريبية
	Female	10 □	1	9	—	1	7	1	اناث	
Secondary-Commercial	Male	—	—	—	—	—	—	—	ذكور	ثانوية تجارية
	Female	—	—	—	—	—	—	—	اناث	
Secondary-Commercial & Training	Male	—	—	—	—	—	—	—	ذكور	ثانوية تجارية مع تأهيل تربوي او دورة تدريبية
	Female	—	—	—	—	—	—	—	اناث	
Secondary-Teacher Training	Male	2 □	—	2	—	—	2	—	ذكور	ثانوية المعلمين
	Female	2	—	2	—	—	2	—	اناث	
Secondary-Teacher Training & Training	Male	3 □	—	3	—	12	2	—	ذكور	ثانوية المعلمين مع تأهيل تربوي او دورة تدريبية
	Female	5 □	—	5	—	—	3	2	اناث	

(تابع) عدد المدرسين في المدارس الاعدادية الثانوية والثانوية (العامة والتجارية والعلوم الصحية) حسب المؤهل وفئة العمر والجنسية والجنس : ١٩٨١/٨٠م

TABLE 7-4 : (Cont'd) Teachers of Intermediate/Secondary and Secondary (General, Commercial and Health Sciences) Schools by Qualification, Age Group, Nationality and Sex: 1980/81

Nationality and Age Group / Qualification	Sex	الجموع الكلي Grand Total	غير بحرينيين Non-Bahrainis	Bahraini بحرينيون					الجنس	الجنسية وفئة العمر / المؤهل
				مجموع Total	٥٠ سنة اكثر 50 years & over	٤٠ - ٤٩ 40 — 49	٣٠ - ٣٩ 30 — 39	اقل من ٣٠ سنة Less than 30 years		
Higher Diploma (Post Sec)	Male	8 □	5	3	—	—	1	2	ذكور	دبلـــوم عال
	Female	15 □	1	14	—	1	3	10	اناث	
Diploma of T.T.C.	Male	9 □	1	8	—		4	4	ذكور	دبلوم معهدي المعلمين والمعلمات
	Female	71 □	3	68	—		10	58	اناث	
Below Univ.	Male	4 □	3	1	—		—	1	ذكور	دراسات ما بعد التعليم الثانوي (عدا دبلوم)
	Female	12 □	1	11	—		1	10	اناث	
Below Univ. & Training	Male	—	—	—	—			—	ذكور	دراسات ما بعد التعليم الثانوى (عدا دبلوم) مع تأهيل تربـوى او دورة تدريبية
	Female	2 □	—	2	—			2	اناث	
B.Sc.	Male	54 ○	48	6	—		2	4	ذكور	بكالوريوس علوم
	Female	60 ○	26	34	—		1	33	اناث	
B.Sc & Training	Male	29 —	20	9	—			9	ذكور	بكالوريوس علوم مع تأهيل تربوي او دورة تدريبية
	Female	27 —	19	8	—			8	اناث	
B.A.	Male	123 ○	82	41	—	—	13	28	ذكور	بكالوريوس اداب
	Female	157 ○	56	101	—	1	5	95	اناث	

(تابع) عدد المدرسين فى المدارس الاعدادية الثانوية والثانوية (العامة التجارية والعلوم الصحية) حسب
المؤهل وفئة العمر والجنسية والجنس ١٩٨٠/١٩٨١

TABLE 7-4: Cont'd) Teachers of Intermediate Secondary and Secondary (General, Commercial and Health Sciences) Schools by Qualification, Age Group, Nationality and Sex: 1980-81

Nationality and age / Qualification	Sex	المجموع الكلى Grand Total	غير بحرينيين Non-Bahrainis	بحرينيون Bahrainis					الجنس	الجنسية وفئة العمر / المؤهل
				مجموع Total	٥٠ سنة اكثر 50 years & over	٤٠ - ٤٩ 40 — 49	٣٠ - ٣٩ 30 — 39	اقل من ٣٠ سنة Less than 30 years		
B.A. & Training	Male	56 —	34	22	—	—	7	15	ذكور	بكالوريوس اداب مع تاهيل تربوي أو دورة تدريبية
	Female	60 —	25	35	—	—	10	25	اناث	
B. & Economics, Commerce & B. Adm.	Male	27	20	7	—	—	1	6	ذكور	بكالوريوس تجارة واقتصاد وادارة اعمال
	Female	41	16	25	—	—	—	25	اناث	
M.Sc.	Male	2	2	—	—	—	—	—	ذكور	ماجستير علوم
	Female	1	1	—	—	—	—	—	اناث	
M.Sc and Training	Male	3 —	2	1	—	—	1	—	ذكور	ماجستير علوم مع تاهيل تربوي أو دورة تدريبية
	Female	—	—	—	—	—	—	—	اناث	
M.A.	Male	3	2	1	—	—	1	—	ذكور	ماجستير اداب
	Female	1	1	—	—	—	—	—	اناث	
M.A. and Training	Male	1 —	—	1	—	—	—	1	ذكور	ماجستير اداب مع تاهيل تربوي أو دورة تدريبية
	Female	2 —	1	1	—	—	1	—	اناث	
Total	Male	338	225	113	1	2	39	71	ذكور	المجموع
	Female	472	153	319	—	3	46	270	اناث	
	Total	810	378	432	1	5	85	341	مجموع	

be trained or re-trained. Although many teachers have long experience of teaching, they still need additional professional training and/or further studies in their fields of specialization. Even those who have attended an in-service course at some time in the past still need further re-training for they need opportunities to attend in-service courses on a regular basis. As Coombs (1968, p.139) put it, '...., the continuing education of teachers, at all levels, is of special strategic significance, if they fail to keep up with frontiers of knowledge they will be giving yesterday's education to tomorrow's citizens'.

It is encouraging to note, however, that the Ministry of Education in Bahrain has recently decided (as has been mentioned before) to up-grade all Bahraini primary school teachers to the standard of B.Ed. This scheme has already started and the first group of teachers are at the moment undertaking their second year programme.

Again all teachers following the B.Ed. or postgraduate Diploma in Education (P.G.D.E.) must follow an educational technology programme as one of the compulsory courses. It is unfortunate however, that the current educational technology programme (as

shown in Chapter 6) is inadequate as it is composed of an entirely hardware approach, and consequently lacks many of the vital elements of educational technology.

> .... it is impossible really to derive advantage from educational technology without overhauling the entire educational edifice. The problem is not merely to modernize education from the outside (although this is often what people try to do), simply solving equipment problems, preparing programmes for using that equipment and inserting them into traditional pedagogic activities, but to make systematic use of available resources to develop a scientific awareness in the individual of methods of acquiring and using knowledge.
>
> (Learning To Be, 1972, pp.130 & 131)

It is also discouraging to see that university lecturers in Bahrain hardly, if ever, use audiovisual aids in their teaching. This is also a problem, as the vast range of audiovisual aids available in UCB are not being used. This is not to say that all lecturers should concentrate entirely on visual expression, but a high proportion of lecturers' teaching could benefit significantly from audiovisual presentation in so far as such a presentation is intelligently designed and relevant. It is obvious, however that it is of little value if audiovisual presentation is simply applied for the sake of showing

that new aids need to be used irrespective of their usefulness and applicability in particular situations. Nevertheless such aids can in many situations be effective tools for learning.

> It is perhaps no longer necessary to argue the case for audiovisual aids to teaching generally. That application to university teaching, however, has lagged behind the primary and secondary stages of education.
>
> Johnson, F. in Layton (1968, p.123)

The problem with the communication courses offered in the university (see Appendix IX) has also another facet. There have been many staff conflicts over, and suspicious about, the necessity for such courses to be given any priority. Due to this uncertainty (as shown in Chapter 6) the authorities decided not to offer them. It remains to find out to what extent such courses are now believed to be necessary to meet the university's teaching needs.

Currently University College of Bahrain is in a state of rapid and continuous development, and its programmes are being widened as the student intake becomes larger. In this the university is becoming more involved in the training of teachers (whether through pre-service or in-service education and

training), for various levels, posts, and different establishments. It is vital then for the educational planners to do their best to provide the types of courses deemed most essential, and in the best way possible.

If educational technology is to become one of the fields which the authorities decide to be offered, it must therefore be offered in its most appropriate form, according to the demands on the one hand, and available resources on the other. Hence one concern of this study is to provide an applicable educational technology and communication system which composed of suitable, relevant and flexible programmes designed to meet the country's needs in a pattern adapted to university conditions.

7.2 OBJECTIVES_OF_THE_FIELD_STUDY

1. EDUCATIONAL_TECHNOLOGY

1. To identify the attitudes of lecturers, advisors and teachers towards educational technology.

2. To discover problems and reasons for not using audio-visual aids.

3. To establish the overall objectives of Educational Technology programmes for University College of Bahrain.

4. To construct a tentative model for the provision of Educational Technology courses for University education in Bahrain.

Seven areas are included in the model:

4.1 Selected Theoretical Aspects of Educational Technology

4.2 Educational Objectives

4.3 Learning Experiences

4.4 Media and Methods

4.5 Audiovisual Aids and Machines

4.6 Evaluation

4.7 Improvement.

5. To suggest the most useful medium of instruction for educational technology programmes.

6. To recommend techniques for use in evaluating the programmes.

2. COMMUNICATION

7. To identify what types of communication

courses are the most suitable for the society in Bahrain now and ten years later.

8. To suggest the most useful medium of instruction for communication courses.

3. STUDENTS' ATTITUDES

9. To discover students' attitudes towards the use of audiovisual aids.

4. INTERVIEWS

10. To discover the authorities' opinions about the possibility of :

10.1 Establishing an Educational Technology and Communication Centre in University College of Bahrain.

10.2 Establishing a Council for Educational Technology in Bahrain.

10.3 Offering a diploma and Masters degree in Educational Technology in University College of Bahrain.

10.4 Establishing CCTV in UCB.

10.5 Providing some time for educational programmes by Bahrain TV.

7.3 LIMITATIONS OF THE STUDY

1. To represent the educationist sector in Bahrain three separate elements were included, lecturers of UCB, advisors, and teachers from Ministry of Education. UCB and secondary school students were also included. With the random selection of the samples the findings and conclusions made in the study can be extended to the entire lectures of UCB advisors and teachers of Ministry of Education and University and secondary school students.

2. The interviews were limited to 8 senior officials in the Ministry of Education, 4 senior officials in the Ministry of Information and 12 responsible officials in UCB.

3. In Bahrain there are two colleges and one university college, while another university is in the process of establishment. University College of Bahrain was selected for this study because of its seniority. It is the largest higher education institution and currently the most significant in Bahrain.

4. The Audiovisual Aids Centre located in Muharraq (second largest city in Bahrain) was excluded from the study.

5. While the study was provided with a complete set of programmes in educational technology field, it was restricted to five course-titles in the communication field.

6. It was outside the scope of the study to undertake any comparative work due to lack of well organised programmes in educational technology in Bahrain.

7.4 INVESTIGATION PROCEDURE

7.4.1 Introduction

The investigation was undertaken through two sets of questionnaires and a structured inverview which were designed in accordance with the objectives of the study. The first set of questionnaires was designed for staff which included lecturers of University College of Bahrain, subject advisors in the Ministry of Education and some randomly selected Bahraini teachers at the three levels (primary, intermediate and secondary). The second was designed for students who were again randomly selected from UCB

and from the final year of four different secondary schools (two girls' and two boys'). A structured interview was undertaken with responsible senior officials in the UCB, Ministry of Education and Ministry of Information.

7.4.2 The Design Of Questionnaires

(1) Staff Questionnaire

The staff questionnaire consisted of two parts, the educational technology field which covered objectives 1 to 6 and the communication field which covered objectives 7 and 8 (see Table 7-5); and two attached information sheets (A and B) defining, and explaining briefly, the terms educational technology and communication (as they are used in the research). The educational technology field constituted 12 areas embodying 108 items, whilst, the communication field consisted of 9 topics each regarded as a course in itself and a final part concerning the medium of instruction for communication courses. The items of the questionnaire for educational technology field were selected after thoroughly examining the content of educational technology course of University College of Cardiff (see Appendix XII for related information); and the report of a series of consultative conferences

on 'The Role of Educational Technology in Teacher Education'. The nine topics chosen for the communication field represent the most common ones which were attempted to be offered in the University College of Bahrain. These nine topics were treated, once by asking the respondents about the importance of such courses for the present situation in Bahrain, and secondly their importance in ten years time. Table 7-5 summarizes the design of the staff questionnaire, showing the number of areas and items concerning each objective.

In the educational technology field section a five-point scale was used, (Strongly Agree = 4, Agree = 3, Neutral = 2, Disagree = 1, Strongly Disagree = 0). In the communication field a six-point scale was used, (Extremely Important = 4, Fairly Important = 3, Neutral = 2, Fairly Unimportant = 1, Extremely Unimportant and outside the scope of experience = 0). Appendix XIII contains a copy of the questionnaire along with the two information sheets.

(2) **Student Questionnaire**

The student questionnaire consisted of 15 items included to examine students' attitudes towards

TABLE 7-5 : Design of Staff Questionnaire

Serial No. of Objectives	No. and Title of the Areas for each Objective	Serial No of Items	No of Items	Related Table of Analysis in Chapter 8
	Part One: Educational Technology			
Objective 1	Area 1 Rationale	1-4	4	8-1 8-2 8-3
Objective 2	Area 2 Reasons for Not Using AVAs	5-9	5	8-4 8-5 8-6
Objective 3	Area 3 Pre-Determined Objectives	10-17	8	8-7
	Recommended Curriculum :			
Objective 4	Area 4 1-Selected Theoretical Aspects	18-26	9	8-8
	Area 5 2-Educational Objectives	27-35	9	8-9
	Area 6 3-Learning Experiences	36-39	4	8-10
	Area 7 4-Media and Methods	40-63	24	8-11
	Area 8 5-Audiovisual Aids and Machines	64-89	26	8-12
	Area 9 6-Evaluation	90-93	4	8-13
	Area 10 7-Improvement	94-97	4	8-14
Objective 5	Area 11 Medium (or Media) of Instruction for Educational Technology	98-100	3	8-15
Objective 6	Area 12 Evaluation of Programmes	101-108	8	8-16

TABLE 7-5 (Contd)

Serial No. of Objectives	No. and Title of the Areas for each Objective	Serial No of Items	No of Items	Related Table of Analysis in Chapter 8
	Part Two: Communication Courses			
Objective 7	Communication Courses Now	109-117	9	8-17 8-18 8-19
	Communication Courses Future	109-117	9	8-20 8-21 8-22
Objective 8	Medium of Instruction for Communication Courses	118-120	3	8-23

the use of audiovisual aids in accordance with objective 9 of the study. The first 10 items were positive statements whilst the last 5 were negative about the use of audiovisual aids.

In this questionnaire scores of 4,3,2,1,0 respectively were given for the response Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree, to favourable statements about AVA's, with the scale being reversed for unfavourable statements. Appendix XIV contains a copy of the student questionnaire.

7.4.3 The Trial of Questionnaires

(1) Staff Questionnaire

The staff questionnaire after being approved by the writers' supervisor was taken to Bahrain, and translated into Arabic by the investigator with the co-operation of one of the staff in UCB who was selected for such a purpose by the chairperson of the education department. The translation was then reviewed by other members of the education department.

For the purpose of trial six copies of the first draft of the questionnaire were given to two

lecturers in the UCB, two advisors from the Ministry of Education, and two teachers (one primary and the other secondary) and they were requested to give their comments. Three of them were also interviewed to determine their views orally. Their comments led to some modification of the questionnaires. However, because the possibility of unfamiliar terminology, the investigator held two introductory sessions to explain the questionnaire to the prospective respondents and to answer their queries.

(2) **Student Questionnaire**

After the approval of the student questionnaire, it was translated into Arabic by the author, and revised by two lecturers in the education department of UCB in Bahrain.

To examine how useful students' responses could be, a field study was included among 10 University students and 20 secondary school students at various levels. It was found that the responses of most secondary school students, with the exception of final year students, were generally unsatisfactory, in that there was evidence from their responses that they were not taking the questionnaire seriously. After several consulatations with senior-teachers and head-masters of secondary schools, it was decided that

besides University students, only secondary school students in their final year should be involved.

7.4.4 The Samples

The staff questionnaires were distributed to 80 lecturers from UCB and 80 advisors from the Ministry of Education; who were all randomly selected from various departments. The questionnaires were also distributed to 100 teachers (many of whom were undertaking in-service courses at UCB) from all the three levels (primary, intermediate and secondary). There was an 80.77% response rate. Table 7-6 shows the number of educationists who responded to the questionnaire, with regard to sex, age-group, years of teaching experience and qualifications.

400 students were involved in the study, 200 were University students chosen randomly from different fields of study and levels and the other 200 were secondary school students in their final year who were again chosen randomly from four different schools (two boys' and two girls'). Table 7-7 shows the number of students involved in the study according to sex, age-group and areas of study.

TABLE 7 - 6 : Number of Different Sects of Respondents to the Staff Questionnaire.

Sects / Profession	No. Circulated	No. Replying	Sex		Age			Years of Teaching Experience			Qualifications			
			Male	Female	Less than 30 yrs	30 to 40	Over 40	Less than 10	10 to 20	More than 20	Ph.D	Masters Degree	Bachelor Degree	Below Bachelor
Lecturers	80	54	38	16	7	28	19	11	31	12	30	12	7	5
Advisors	80	75	58	17	11	24	40	14	22	39	-	17	49	9
Teachers	100	81	48	33	29	49	3	49	30	2	-	-	17	64
Total	260	210	144	66	47	101	62	74	83	53	30	29	73	78

TABLE 7-7 : Number of Students Involved in the Study According to Sex, Age-group and Areas of Study

Sects	Sex		Age-Group		Area of Study		
	Male Secondary & Univ.	Female Secondary & Univ.	17-20 Secondary & Univ.	21-23 Only Univ.	Scientific Secondary & Univ.	Literary Secondary & Univ.	Education Only University
Number	174	226	268	132	174	156	70

7.4.5 Rationale for Staff Sample Chosen

1. The faculties of UCB was chosen as they represent university level education and are more than others aware of the situation in UCB.

2. Advisors were chosen because they were assumed to be the most experienced personnel in the field of teaching and have direct contact with teachers and must therefore be aware of their teaching learning problems and requirements for improvement of the situation.

3. Teachers are chosen as they are in real teaching-learning situations and have direct contact with learners, their participation is obviously of importance.

4. Senior officials were included to establish the extent of the support for the establishment of proper educational technology programmes.

7.4.6 The Administration of Questionnaires

In late January 1983 the staff questionnaires were handed to the heads of the departments (in UCB and the Ministry of Education) by the investigator for distribution. Because much information was requested from the respondents, it was not possible to distribute and collect the questionnaires on the same day. Along with each questionnaire a circular letter was attached announcing the dates, time and places of the sessions which were planned for the purpose of explaining any unfamiliar terms or answering any further queries.

All students completing questionnaires were personally supervised, and these were collected immediately on completion. The author was able to discuss points in the questionnaire which some students thought needed clarification.

7.4.7 Problems Related to Questionnaires

With regard to the staff questionnaire, although the dates and places of the sessions (for the explanation of the questionnaire) were announced five

days prior to the commencing dates, very few actually attended, perhaps because of transportation problems. On a number of occasions the investigator had to go round and explain the content of the questionnaire to individuals or sometimes to groups of between three to eight; and request those who would not reply to co-operate. This attempt helped to get better and more precise replies. Besides, had this not been done, the number of replies would have been very few. Fortunately too, key officials in UCB and the Ministry of Education urged the respondents to be more co-operative.

As far as students questionnaire is concerned there were no serious problems except for the timetable in respect of the administration of the questionnaires, both in the secondary schools and UCB. Much time was spent in contacting several departments, lecturers and teachers to change timetables so as to avoid conflict.

7.4.8 **Methods of Analysis**

The collected data were analysed at the computer centre in Cardiff under the supervision of Dr. John Haworth of the Mathematical Statistics

Departments.

The variable, profession (lecturers, advisors and teachers) was expected to affect the views about the different areas of educational technology and communication field under investigation. Responses were therefore analysed and compared under this classification.

After several consultations with Dr. Haworth, it was decided that mean values would be suitable for the interpretation of responses except for two areas of educational technology (area 1 and area 2); and communication field for which AOV (Analysis of Variance) was used, besides mean value.

On single items however AOV (Analysis of Variance) was not performed because the scores could take values only on a 5 point scale whereas AOV requires the scores to approximate to a continuous scale. In considering items in combination (e.g. the 4 Rationale questions) the scale for total score on such items is extended, e.g. scale from 4 to 20 for the "Rationale" items and so AOV may be used.

With the 5 point scale adopted, a difference of at least 0.5 on the scale between the two groups

would be required before the difference between the two groups could be considered to be large enough to be important. This reflects the fairly large sample sizes used, viz 54, 75. 81. As a result of these sizes and of the fact that the relevant data were all on a 0-4 scale, it transpired that a large proportion of "statistically significant" but nonetheless small differences between group means were obtained. It was felt that many such differences were too small to be of practical consequence, and a value of 0.5 was therefore adopted as the minimum to be interpreted as of practical significance. As the numerical example below confirms, this is (as stated) actually greater, for the sample sizes used, than the minimum difference needed for statistical significance using a 5% level of significance. There is therefore (except in context of AOV) a distinction in what follows between practical significance (minimum difference 0.5) and what is in this case the weaker property of statistical significance.

The phrase "practically significant" was adopted to indicate the level of significance, and where the differences were lower than 0.5 in the mean scores it was stated as they were not practically significant, although the differences could statistically be significant.

The following example is provided as a confirmation that a difference of 0.5 and above in the mean score in this study is actually statistically significant.

In area 3 (Pre-determined objectives) item 2, the two differences between group 1 and group 2 (.357); and group 1 and group 3 (.383) in the mean scores are both below 0.4 as Table 7-8 shows.

The values of the t statistic for the lecturer - advisor and lecturer - teacher comparisons respectively were calculated as 2.79 and 2.76, both significant different at the .05 level of significance. Thus, although both the differences in the mean scores (between group 1 and group 2 and group 1 and group 3) are below 0.4 they are both statistically significant. So a difference of 0.5 would statistically even be more significant.

In the analysis attention has been focused on items with a high mean score, since such items could be taken as the main topics from which the intended model syllabus could be composed. However, the difference in the scores between the three professions for each item were also pinpointed. In the instances

TABLE 7 - 8 : Differences in the Mean Scores between the Groups in Item 2, Area 3.

Individual Mean Scores			Difference in Mean Scores			Standard Deviation		
G1 54 Lecturers	G2 75 Advisors	G3 81 Teachers	G1 & G2	G2 & G3	G1 & G3	G1	G2	G3
3.037	2.680	2.654	0.357	0.026	0.383	0.672	0.774	0.938

when the differences are high enough (at least 0.5) explanations are given where possible.

As far as the student questionnaire is concerned the scores on the answers 1-15 were added to get an index (minimum 0, maximum 60) support for AVA's Average score for all students sampled were calculated and it was assumed that a score of above 30 could be viewed as being generally sympathetic to the use of AVA's and a score of below 30 as generally unsympathetic. Items with high mean scores were discussed.

With regard to interviews similar replies were combined and summarized and the data analysed in terms of frequency and percentage.

CHAPTER 8

ANALYSIS, RESULTS AND DISCUSSION

8.1 HYPOTHESES

1. Educational Technology

1(a) There is no significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the need for educational technology.

1(b) There is no practically significant difference between the three groups, lecturers, advisors and teachers in their sympathy towards each statement in the rationale section.

2(a) There is no significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the overall validity of the specified reasons for the non-use of Audiovisual Aids.

2(b) There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the validity of each of the specified reasons for the non-use of Audiovisual Aids.

3. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each of the principle objectives of Educational Technology.

4. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Theoretical Aspects section.

5. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Educational Objectives section.

6. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Learning Experiences section.

7. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Media and Methods section.

8. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in Audiovisual Aids and Machines section.

9. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Evaluation section.

10. There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Improvement

section.

11. There is no practically significant difference between the proportions of lecturers, advisors and teachers who believe the appropriate medium or media of teaching Educational Technology courses to be Arabic, English and a mixture of both.

12. There is no practically significant difference between the three groups, lecturers, advisors and teachers in their sympathy towards the Evaluation Techniques in the Evaluation Programme section.

2. **Communication Courses**

13(a) There is no significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the need for overall communication courses in Bahrain at the present time.

13(b) There is no practically significant differences between the three groups, lecturers, advisors and teachers in their sympathy to the need

for each of the communication courses in Bahrain at the present time.

14(a) There is no significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the need for overall communication courses in Bahrain in ten years time.

14(b) There is no practically significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the need for each of the communication courses in Bahrain in ten years time.

15. There is no practically significant difference between the proportion of lecturers, advisors and teachers who believe that the appropriate medium or media of teaching communication courses to be Arabic, English and a mixture of both.

3. **Students**

16. Students are generally sympathetic towards the use of Audiovisual Aids.

8.2 EDUCATIONAL_TECHNOLOGY_FIELD

8.2.1 Area 1

RATIONALE

Hypothesis 1

A. There is no significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the need for educational technology.

B. There is no practically significant difference between the three groups, lecturers, advisors and teachers in their sympathy towards each statement in rationale section.

This area consists of four items examining general attitudes of lecturers, advisors and teachers and their sympathy towards the need for educational technology.

Table 8-1 shows that there are differences between the three groups in their sympathy towards the items in this area, which are large enough to show statistical significance at the 0.05 significance level. Hyptohesis 1(a) is therefore rejected. Examination of Table 8-2 indicates that it is only group 2 and group 3 (advisors and teachers) difference

ANALYSIS OF VARIANCE

Area (1) Hypothesis 1-a

Source	D.F.	Sum of Squares	Mean Squares	F. Ratio	F. Prob
Between Groups	2	1.0085	0.5043	3.719	0.0259
Within Groups	207	28.0703	0.1356		
Total	209	29.0789			

TABLE 8 - 1

Group	Count	Mean	S.D.	S.E
Group 1	54	3.6574	0.2760	0.0376
Group 2	75	3.5933	0.4001	0.0462
Group 3	81	3.7531	0.3903	0.0434
Total	210	3.6714	0.3730	0.0257

TABLE 8 - 2

which is statistically significant.

It can be noticed in Table 8-2 that all groups have high mean scores. This indicates that lecturers, advisors and teachers generally have strong positive attitudes towards educational technology and are quite sympathetic to the need for this field.

It can be realized, however, that the mean score of group 2 (the advisors) is lower than the mean score of group 1 (the lecturers) and group 3 (the teachers) whose mean score is the highest. This indicates that teachers agree on some items more than the other groups. Table 8-3 which is concerned with hypothesis 1(b) clarifies this point, as it shows each item with respect to total and individual mean scores and the differences in scores between each group.

Despite the above statistical significance, Table 8-3 indicates that the actual numerical differences on each item are rather small with the clear exception of item 4. In item 4, however, there are practically significant differences in the mean scores between teachers with the highest score and advisors with the lowest score; and lecturers and advisors. It is surprising that advisors did not

TABLE 8 - 3 : Total and individual mean scores and the differences in scores between each grcup - Area 1 - Hypothesis 1(b)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	The rapid expansion of knowledge and the new technological discoveries, along with their effects on educational curricula have made the provision of educational technology necessary for all teachers at all levels	3.610	3.556	3.680	3.580	0.124	0.1	0.024	4
2	The use of audiovisual materials to complement regular classroom instructions has become a common instructional technique from pre-school activities through to graduate school and also into service training and development programmes	3.829	3.704	3.867	3.877	0.163	0.01	0.173	1

TABLE 8 - 3 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
3	Educational changes occurring in Bahrain require many of the skills and tools which educational technology can provide	3.614	3.519	3.653	3.642	0.134	0.2767	0.123	3
4	If teachers are to avoid becoming mere technicians applying other people's curriculum innovations, they will need sufficient educational technology skills to play an active and critical role in the development of innovation	3.633	3.852	3.173	3.914	0.679	0.741	0.062	2

consider this item as important as the rest. The interpretation for this perhaps is that some advisors did not like the first part of the statement, "If teachers are to avoid becoming mere technicians applying other people's curriculum innovations, they will need sufficient educational technology skills to play an active and critical role in the development of innovation". By "other people" here it is meant the authorities responsible for curriculum development in Bahrain which include advisors too. Teachers in Bahrain, however, do apply curriculum which is planned by the authorities without their participation or their ideas being considered.

In summary there are no practically significant differences in the mean scores between the groups for items 1,2 and 3. In item 4 there are practically significant differences in the mean scores between teachers and advisors; and lecturers and advisors. When considering individual items then, hypothesis 1(b) is accepted with regard to items 1,2 and 3 but rejected with regard to item 4.

8.2.2 Area 2

Reasons for not using AVAs

Hypothesis 2(a)

There is no significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the overall validity of the specified reasons for the non-use of audiovisual aids.

Hypothesis 2(b)

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the validity of each of the specified reasons for the non-use of audiovisual aids.

Area 2 consists of 5 items concerning the reasons for not using audiovisual aids. As it can be noted in Table 8-4 the value of F Ratio is very high and F. Probability is equal to zero to 3 decimal points. This indicates that there are significant differences between the three groups on the overall validity of the reasons given for the non-use of audiovisual aids. Hypothesis 2(a) is therefore rejected.

TABLE 8 - 4 : Analysis of Variance
Area 2, Hypothesis 2(a)

Source	D.F.	Sum of Squares	Mean of Squares	F.Ratio	F.Prob
Between Groups	2	6.0150	3.0075	27.112	0.000
Within Groups	207	22.9621	0.1109		
Total	209	28.9771			

TABLE 8 - 5

Group	Count	Mean	S.D.	S.F.
Group 1	54	1.7889	0.3462	0.0471
Group 2	75	1.7440	0.3488	0.0403
Group 3	81	2.1086	0.3083	0.0343
Total	210	1.8962	0.3727	0.0257

It can be noted in Table 8-5 that the mean scores of group 1 (the lecturers) and group 2 (the advisors) are below 2, the neutral value, while the mean score of group 3 (the teachers) is higher than the neutral value. This means that teachers agree more with some items than the other groups. Table 8-6 which is related to hypothesis 2(b) makes this point clear as it shows each item with respect to total and individual mean scores, and the difference in scores between each group.

Item 1 "Because they are not available in your college or school" has the highest mean score, while item 5 "Because you consider them to be a waste of time" has the lowest, (see the rank order). With regard to item 1, the mean scores of all the groups are high showing their very strong agreement with this reason as one of the main obstacles for not using audiovisual aids. There is, however, a practically significant difference between the teachers with the highest score and lecturers with the lowest. This perhaps indicates that audiovisual aids are more available in the university than in schools in general.

Item 2 is the second in the rank order with respect to mean score. This indicates that most of

TABLE 8 - 6 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Area 2, Hypothesis 2(b)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Because they are not available in your College or School	3.543	3.241	3.493	3.790	0.279	0.297	0.549	1
2	Because you do not knew how to use them	3.333	3.130	3.067	3.716	0.063	0.649	0.586	2
3	Because they are not applicable in your field	0.400	0.556	0.400	0.296	0.156	0.104	0.26	4
4	Because the authorities do not demand their use	2.024	1.944	1.533	2.531	0.411	0.998	0.587	3
5	Because you consider them to be a waste of time	0.181	0.074	0.227	0.210	0.153	0.017	0.136	5

the educationists involved in the study strongly agree that not knowing how to use audiovisual aids is again one of the main reasons for not using them. However, there is a practically significant difference between the teachers (with the highest score) and advisors (with the lowest); and teachers and lecturers. The former difference perhaps indicates that some advisors do not wish to admit that the non-use of audiovisual aids is because teachers are not trained (or not trained adequately) to use them; while the latter difference perhaps shows that lecturers are more acquainted with the use of audiovisual aids than teachers.

In Item 4, there are practically significant differences as between teachers with the highest score and advisors with the lowest score, and as between teachers and lecturers. The former indicates that some advisors possibly do not want to blame themselves or the authorities for the non-use of audiovisual aids. The latter case with lecturers having the lower score perhaps shows that lecturers in the University are not clear whether the advisors or authorities in the Ministry of Education demand from teachers to use audiovisual aids in schools.

Almost everybody disagreed with item 3,

"Because they are not applicable in your field" and item 5, "Because you consider them to be a waste of time". This indicates that educationists in Bahrain, being lecturers, advisors or teachers have considerable respect for the use of audiovisual aids. It can be noticed, however, that the causes of not using audiovisual aids in teaching in Bahrain are firstly because they are not available in some schools and secondly if they are available in some schools teachers are not able to use them.

In summary there are practically significant differences between either two or all three groups for items 1,2 and 4, but there are no practically significant differences as between the groups for items 3 and 5. Hypothesis 2(b) is rejected with regard to items 1,2 and 4; and accepted with regard to items 3 and 5.

8.2.3 Area 3

Pre-determined Objectives

Hypothesis 3

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each of the principle objectives of Educational Technology.

This area consists of eight items concerning overall educational technology objectives. It is obvious that the major theme in the application of educational technology is to improve the effectiveness of and efficiency in education and training.

The existing problem, however, within the field of educational technology, especially in developing countries is the tendency towards the absolute hardware approach. The appropriate educational technology is mainly concerned with the analysis of the learning situation such as deriving relevant objectives, designing instructional strategies which include the application of various methodologies and the utilization of the available resources to bring about the achievement of these objectives.

It is hoped that these objectives will help to develop appropriate educational technology programmes for University education in Bahrain.

As can be noted in Table 8-7 all the eight items have positive values of total mean scores in excess of two, indicating agreement with all the statements made. This indicates that considerable

TABLE 8 - 7 : Total and Individual Mean Scores and the Differences in Scores between Each Group - Area 3, Hypothesis 3

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Aware of and value the importance of educational technology in the educational processes	3.362	3.630	3.587	2.975	0.043	0.612	0.655	5
2	Value the principle of a technology of education and training	3.762	3.037	2.680	2.654	0.357	0.026	0.383	4
3	Formulate Objectives	3.890	3.870	3.947	3.852	0.077	0.095	0.288	3
4	Select Content	3.352	3.815	2.333	3.988	1.482	1.655	0.173	6
5	Select appropriate learning experiences	3.948	3.852	3.960	4.000	0.108	0.04	0.148	1
6	Choose appropriate material and equipment	3.905	3.759	3.933	3.975	0.174	0.042	0.216	2

TABLE 8 - 7 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
7	Evaluate the effectiveness of the overall course in achieving the objectives	3.300	3.370	2.547	3.951	0.823	1.404	0.581	7
8	Recommend future improvements in the light of evaluation so as to better achieve the objectives	3.071	3.167	2.160	3.852	1.007	1.692	0.685	8

attention must be given to such items in the construction of educational technology courses. The highest mean (3.948) was scored by the statement number 5, "Select appropriate learning experience" and the lowest mean (3.071) was scored by the statement number 8, "Recommend future improvement, in the light of evaluation so as to better achieve the objectives".

There were no practically significant differences (0.5 or more) between lecturers, advisors and teachers in the mean scores of items 2,3,5 and 6. In respect of these items hypothesis 2 is accepted.

In item 1 the teachers have the lowest mean scores and there are practically significant differences between the mean scores of lecturers and teachers; and advisors and teachers. This implies that lecturers and advisors agree almost to the same extent on this item while teachers are less in favour. This suggests that teachers do not take the affective objective of education technology so seriously. This is also confirmed to some extent in item 2 where teachers have the lowest mean scores, although the differences are not practically significant.

In item 4, "Select Content" there are practically significant differences between teachers

and advisors; and lecturers and advisors. Advisors gave least weight to this item which suggests that some advisors are not strongly in favour of including teachers in the selection of content as being their own task with perhaps some co-operation from higher authorities. This tends to verify the unwillingness of some advisors to ask teachers to participate in the selection of content of syllabuses in Bahrain. On the other hand one may note that this item obtained one of the teachers' highest mean scores which indicates their eagerness to participate in this activity.

The same phenomenon can be perceived in items 7 and 8. There are practically significant differences in the mean scores among all the three. In these two items the teachers have the highest mean scores, while advisors have the lowest. This again indicates enthusiasm of teachers to learn to participate in evaluating the effectiveness of a course and recommending improvements and the unwillingness of some advisors to involve teachers in such tasks.

In summary, therefore, hypothesis 3 is accepted with respect to items 2,3,5 and 6, but rejected for items 1,4,7 and 8.

Recommended Curriculum

The following seven areas were selected in accordance with the pre-determined objectives (area 3) to include the curriculum recommended for the provision of educational technology in the University College of Bahrain.

8.2.4 **Area 4**

1. Selected Theoretical Aspeccts

Hypothesis 4

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Theoretical Aspect section.

This area consists of 9 topics covering selected theoretical aspects of educational technology, and represents more or less the philosophical aspects and its value in today's educational systems of the advanced world.

As can be noted in Table 8-8 item 1, "The Concept of Educational Technology" has the highest total mean score, and item 2, "Educational Technology in a Changing Worlds" has the lowest (see the rank

TABLE 8 - 8 : Total and Individual Mean Scores and the Differences in Scores between Each Group - Area 4, Hypothesis 4.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	The Concept of Educational techn-ology	3.152	3.778	3.507	2.407	0.271	1.1	1.371	1
2	Educational Technology in a Changing World	0.514	0.870	.0520	0.272	0.818	0.22	0.598	9
3	Educational Technology and Developing Count-ries	1.195	1.574	1.147	0.988	0.427	0.159	0.586	7
4	Media Technology and Educational System	2.476	2.852	3.053	1.691	0.201	1.362	1.161	3
5	Potentials and Limit-ations of Visualised Instruction	2.762	3.296	3.307	1.901	0.011	1.406	1.395	2
6	The Process of Communication	1.914	2.278	2.213	1.395	0.065	0.818	0.883	6

TABLE 8 - 8 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
7	The Computer and Educational Technology	1.952	1.704	1.627	2.420	0.077	0.793	0.716	4
8	Resource Centres and Resource Management	1.290	1.463	1.387	1.086	0.076	0.301	0.377	5
9	The Impact of Research on the Philosophy of Educational Technology	1.110	1.222	1.600	0.580	0.378	1.02	0.642	8

order).

Items 1,4 and 5 have positive values of mean scores in excess of two, the neutral value. This indicates that generally the educationists involved in the study agree with these three propositions, although the scores in items 4 and 5 are not as high as for item 1.

The rest of the items (2,3,6,7,8 and 9) have total mean scores lower than the neutral value, an indication of general disagreement.

It is interesting to note that teachers have the lowest mean scores with regard to all the items except for item 7 "The Computer and Educational Technology". This suggests that most teachers disapprove the inclusion of theoretical aspects in educational technology programmes. In item 7, however, teachers have higher mean score than the other two groups. The clarification for this possibly is that teachers in Bahrain have never been exposed to computers, and generally do not have ideas about what really a computer can do. It is possible such ignorance about computing which highlighted the curiosity of some teachers and created an interest among them to learn more about it.

There are practically significant differences between advisors and teachers, and lecturers and teachers with regard to items 1,4,5,6,7 and 9. Teachers with the lowest mean scores in all these items manifest their lack of enthusiasm towards these propositions. There are no practically significant differences between lecturers and advisors in these items. This indicates that both groups (lecturers and advisors) agree with items 1,4,5 and 6 and disagree with items 7 and 9 almost to the same extent.

Although all the groups disagree with item 2, there are practically significant differences between the mean scores of lecturers and advisors; and lecturers and teachers. Advisors and teachers disagree on this item almost to the same extent. That lecturers have the highest mean score of the three groups, is an indication that some of them perhaps consider that such a topic, "Educational Technology in a Changing World" important, as it can make the learner aware of the role of educational technology in such a changing society as Bahrain.

In item 3 there were no practically significant difference between the mean scores of lecturers and advisors; and advisors and teachers,

but there was a practically significant difference in the mean scores as between lecturers with the highest score and teachers with the lowest. This could also mean that some lecturers hold that such a topic as "Educational Technology and Developing Countries" to be important as it can make the learner aware of problems encountered by some developing countries when trying to apply educational technology in their educational system.

One last remark to be made here is that the author considers that item 6, "The Process of Communication" which did not score highly enough to be considered, is actually a consequential proposition to be thought of when contemplating educational technology programmes. As can be noted in Table 8-8, it was the teachers' low score which made this item the sixth in the rank order. Both lecturers, and advisors have the mean scores of more than 2, the neutral value, an indication of their degree of agreement with this proposition.

In summary there are practically significant differences in the mean scores between either two or the three groups for all the items except item 8. So hypothesis 4 is rejected with regard to items 1,2,3,4,5,6,7 and 9; and accepted with regard to item 8.

8.2.5 Area 5

2 - Educational Objectives

Hypothesis 5

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Educational Objectives section.

This area consists of 9 topics concerning educational objectives which are considered as one of the vital aspects of the educational technology field.

As can be observed from Table 8-9 item 3, "Behavioural Objectives" has the highest mean score, and item 8, "Using Instructional Objectives in Marking and Reporting" has the lowest, (see the rank order). Except for items 7 and 8 all have positive value mean scores; most items, in fact have very high mean scores. This suggests that generally educationists in Bahrain consider the use of educational objectives as a necessity. All the propositions in this area must therefore be given thorough attention when devising educational technology programmes. Items 7 and 8, however, because of their low scores seem to be not quite so important. This is perhaps due to the lack of awareness on the part of some educationists in

TABLE 8 - 9 : Total and Individual Mean Scores and the Differences in Scores between Each Group - Area 5, Hypothesis 5.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Aims and Objectives	3.433	3.407	3.627	3.272	0.22	0.355	0.135	5
2	General Instructional Objectives	3.767	3.611	3.907	3.741	0.296	0.166	0.13	2
3	Behavioural Objectives	3.824	3.778	3.893	3.790	0.115	0.103	0.012	1
4	Terminal and Enabling Objectives	3.662	3.500	3.787	3.654	0.287	0.133	0.154	4
5	Taxonomy of Educational Objectives	2.314	2.481	1.813	2.667	0.668	0.854	0.186	7
6	Relating Objectives to Classroom Instruction	3.667	3.259	3.853	3.765	0.594	0.088	0.506	3

TABLE 8 - 9 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
7	Using Instructional Objectives in Test Preparation	1.790	2.611	1.440	1.568	1.171	0.128	1.043	8
8	Using Instructional Objectives in Marking and Reporting	1.343	1.870	0.947	1.358	0.923	0.411	0.512	9
9	Advantages and Problems Involved in Using Objectives	3.081	3.426	3.173	2.765	0.253	0.408	0.661	6

Bahrain about the role objectives can play in test preparation and marking. The author however still feels that both items (7 and 8) are important and should be given considerable attention.

There are no practically significant differences in the mean scores between the groups with regard to items 1,2,3 and 4.

As far as item 5 "Taxonomy of Educational Objectives" is concerned, there are practically significant differences between teachers with the highest score and advisors with the lowest; and between lecturers and advisors. Lecturers and teachers agree on this item almost to the same extent. It is surprising to note that the score of advisors in this item is actually lower than the neutral value, indicating their disagreement with the inclusion of this proposition in the educational technology programme. The reason why some advisors did not value this topic is perhaps because of their lack of knowledge about it.

In item 6, although all the groups have high scores, there are practically significant differences between advisors with the highest score and lecturers with the lowest; and between teachers and lecturers.

Advisors and teachers agree on this item almost to the same degree. There is no evident justification why some lecturers should disagree with this item.

Regarding items 7 and 8 there are practically significant differences in the mean scores between lecturers with the highest score and advisors with the lowest; and teachers and lecturers. A probable reason has been given above for the low score in these two items; but there is no really apparent cause for the differences in scores.

In item 9 there are no practically significant differences in the mean scores between lecturers and advisors, and advisors and teachers; but there is a practically significant difference between lecturers with the highest score and teachers with the lowest. This is probably because some teachers do not consider learning about the advantages and problems involved in using objectives is crucial. It is perhaps thought that matters as such would be discovered by themselves when they use objectives in their teaching procedure.

In summary there are no practically significant differences in the mean scores between the groups for items 1,2,3, and 4. There are practically significant differences in the mean scores between

either two or the three groups for items 5,6,7,8 and 9. Hypothesis 5 is accepted with regard to items 1,2,3, and 4; and rejected with regard to items 5,6,7,8 and 9.

8.2.6 Area 6

3 - Learning Experiences

Hypothesis 6

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Learning Experience section.

This area consists of 4 topics regarding learning experiences deemed essential for the provision of educational technology programmes.

As shown in Table 8-10 item 4 "Teaching Strategies" has the highest mean score and item 1 "Analyzing Objectives", the lowest. All the items have positive values of mean scores, with items 2,3, and 4 having very high scores, indicating strong approval of these propositions.

In item 1, "Analyzing Objectives", there is a practically significant difference in the mean scores between advisors with the highest score and teachers

TABLE 8 - 10 : Total and Individual Mean Scores and the Differences in Scores between Each Group - Area 6 - Hypothesis 6.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Analyzing Objectives	2.881	2.870	3.170	2.617	0.303	0.556	0.253	4
2	Considering Subject Matter	3.229	3.667	2.147	3.938	1.52	1.971	0.271	3
3	Learning Sequences	3.786	3.889	3.760	3.741	0.129	0.019	0.148	2
4	Teaching Strategies	3.871	3.926	3.907	3.802	0.019	0.105	0.124	1

with the lowest, while there are no practically significant differences between advisors and lecturers, and lecturers and teachers. It is strange to note that teachers have the lowest score in this item, as in Area 5 "Educational Objectives" teachers generally have very high scores for most of the items. On the one hand teachers show their strong support towards such items as "General Instructional Objectives", and "Behavioural Objectives", while on the other hand an item such as "Analyzing Objectives" is not strongly supported. It should be known that being able to formulate instructional objectives is not enough in itself, one must also learn how to analyze the formulated objectives. This presents rather a contradictory attitude on the part of some teachers which was not expected. It is to be stressed here that only some teachers contradicted themselves, as the score is actually above the neutral value, which indicates that a majority of the teachers are in favour of this proposition.

Regarding item 2 "Considering Subject Matter" there are practically significant differences in the mean scores between teachers with the highest score and advisors with the lowest; and lecturers and advisors. Lecturers and teachers agree on this proposition almost to the same degree, while advisors

agree less. The interpretation for some advisors not being in full agreement with this item is because they are not keen to involve teachers in considering subject matters. What supports this point is that advisors have also the lowest score for item 4 "Select Content" in Area 3 (see Table 8-7) which is one of the objectives of providing educational technology programmes, and is strongly related to item 2 "Considering Subject Matter" in Area 6.

In summary there are practically significant differences in the mean scores between the groups for items 1 and 2, but there are no practically significant differences in the mean scores between the groups for items 3 and 4, and hypothesis 6 is rejected with regard to items 1 and 2 and accepted for items 3 and 4.

8.2.7 Area 7

4 - Media and Methods

Hypothesis 7

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Media and Methods section.

This area consists of 24 topics most of which

have never been taught or tried in Bahrain, of those which applied never were successful, because of the lack of adequate training. These subjects are important and any educational technology programme should include some, if not all according to the requirements and particular situation of a country. It is accepted that such a long list of propositions could not be covered in one session, but they should be introduced at different stages according to their importance and priorities.

It can be seen from Table 8-11 that all items have positive values of mean scores, except items 17,13 and 22. None of these was expected to have such a low score. Explanation of such phenomena is not completely possible, as all these topics could be useful in Bahrain if taught properly and applied correctly.

In item 17 "Dramatisation" (which has the lowest mean score among all the items) there is a practically significant difference in the score between teachers with the highest score and lecturers with the lowest. Although this proposition has the lowest score it could be an effective method of teaching in primary schools if teachers were conscious of how and when to use it.

TABLE 8 - 11 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Area 7, Hypothesis 7.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	The Terminology of Media	2.852	3.537	2.853	2.395	0.684	0.458	1.142	15
2	Principles of Media Utilization	2.514	3.056	2.413	2.247	0.643	0.166	0.809	18
3	Criteria for Media Selection	2.757	3.037	2.720	2.605	0.317	0.115	0.432	16
4	Graphic Materials	2.724	3.444	2.507	2.444	0.937	0.063	1.000	17
5	Charts	2.910	3.389	3.013	2.494	0.376	0.519	0.895	14
6	Types of Teaching Boards	3.529	3.444	3.707	3.420	0.263	0.287	0.024	5
7	Displaying	2.190	2.056	1.987	2.469	0.069	0.482	0.413	21

TABLE 8 - 11 Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
8	Transparencies for Overhead Projection	3.743	3.815	3.773	3.667	0.042	0.106	0.148	1
9	Still Pictures	3.000	2.704	2.933	3.259	0.229	0.326	0.555	12
10	Teaching with Films	3.414	3.148	3.387	3.704	0.239	0.317	0.556	8
11	Teaching with Audio Materials	3.600	3.241	3.720	3.728	0.479	0.008	0.487	3
12	Teaching on Television	3.405	3.204	3.360	3.580	0.156	0.22	0.376	9
13	Educational Radio	1.705	1.611	1.520	1.938	0.091	0.418	0.327	23
14	Uses of Photography in Teaching	3.048	2.870	3.013	3.198	0.143	0.185	0.328	11

TABLE 8 - 11 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
15	Real Things and their Models	3.581	3.611	3.733	3.420	0.122	0.313	0.191	4
16	Games and Simulation	2.219	2.056	2.520	2.049	0.464	0.471	0.007	20
17	Dramatization	1.576	1.185	1.680	1.741	0.495	0.061	0.556	24
18	Community Resources	3.333	3.296	3.480	3.222	0.184	0.226	0.074	10
19	Free and Inexpensive Supplementary Materials	3.619	3.704	3.827	3.370	0.123	0.457	0.334	2
20	Printed Text and Reference Materials	3.448	3.333	3.640	3.346	0.307	0.294	0.013	7
21	Development of Programmed Instruction	2.943	3.222	2.360	3.296	0.862	0.936	0.074	13

TABLE 8 - 11 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
22	Physical Facilities	1.890	1.833	1.867	1.951	0.034	0.084	0.118	22
23	Improving the Room Environment	2.329	2.130	2.413	2.383	0.283	0.03	0.253	19
24	Field Trips	3.500	3.444	3.440	3.593	0.004	0.153	0.141	6

Item 13, "Educational Radio" with the second lowest score can also be a useful means of teaching. Educational Radio, however has been tried in Bahrain for several times, but unfortunately it has never been as successful as it should have been, possibly because lack of qualified planners in this realm. Low scores in this item occur perhaps because of this past unsuccessful experience. If those responsible for broadcasting and the educationists (mainly teachers) become aware of the various ways which radio-broadcasting can be usefully employed in teaching learning situations, then this ignored medium could become a useful means for educational enhancement in Bahrain.

The low score in item 22 which is the third lowest in this area, is perhaps because most of the educationists involved in the study considered that such a topic was not worthwhile including in the educational technology programme. The reason behind this could either be the thought that most people are quite conscious of what good physical facilities constitute (and there is no need to teach it), or that such a matter is not the responsibility of lecturers, advisors or teachers. If the former point is valid (in other words if most of the people know what is

meant by good physical facilities), then it is not clear why most of the educational institutions are established in Bahrain with inadequate physical facilities. With regard to th latter point one may argue that any educationist, be he a lecturer, teacher or an advisor must be fully aware of what is meant by physical facilites. Whether it is their reponsibility or not, their views must be taken seriously when the physical facilities of an educational establishment are being considered. For their views to be useful they must have a good grasp of the need for all types of physical facilities required for a good educational environment.

Item 8 "Transparencies for OHP" has the highest mean score in this area. Item 19, "Free and Inexpensive Supplementary Materials" has the second highest score and item 11 "Teaching with Audio Materials" has the third, (see the rank order). There are no practically significant differeces in the mean scores between the groups for items 3, 6 ,7, 8, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23 and 24.

In items 1,2 and 4 there are practically significant differences in the mean scores between lecturers and advisors; and lecturers and teachers. It is to be noted that in these three items lecturers

have the highest scores and teachers have the lowest. All these propositions, "The Terminology of Media", "Principles of Media Utilization" and "Graphic Materials" are essetial for educational technology programmes. The justification for some teachers' disregard of the first two is perhaps that they considered them more theoretical than practical, however there is no apparent reason why item 4 "Graphic Material" was opposed by some teachers.

In item 5 "Charts" there are practically significant differences in the mean scores between lecturers (highest mean) and teachers (lowest mean); and advisors and teachers. Lecturers and advisors agree on this item almost to the same extent while teachers agree less. It is strange that some teachers regarded charts as unnecessary although these can be useful in many different fields. There is no clear reason for such an attitude on behalf of teachers.

In items 9 and 10, there are practically significant differences between teachers with the highest score and lecturers with the lowest. The reason for the teachers' higher score in these two propositions "Still Pictures" and "Teaching with Films" is perhaps their desire to try new approaches

to teaching so as to examine their effectiveness.

With regard to item 21 "Development of Programmed Instruction", there are practically significant differences in the mean scores between teachers with the highest mean score and advisors with the lowest; and lecturers and advisors. Lecturers and teachers agree on this topic almost to the same extent. The explanation for advisors having lowest mean score in this item is possibly because some advisors do not think it is worthwhile for teachers to be involved in developing programmed instruction. They perhaps consider that the production of such materials is the responsibility of higher authorities and not teachers; to include such a topic in an educational technology programme then is not necessary.

In summary hypothesis 7 is accepted with regard to items 3, 6, 7, 8, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23 and 24, and rejected with regard to items 1, 2, 4, 5, 9, 10, 17 and 21.

8.2.8 Area 8

5 - Audiovisual Aids and Machines

Hypothesis 8

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in Audiovisual Aids and Machines section.

This area consists of 26 different types of teaching aids and machines, which are inferred to be beneficial in the teaching processes. Some of these machines such as the photocopier may not be regarded as audiovisual aids. The writer felt, however, that being able to use such machines besides the more common audiovisual aids would help teachers to prepare their lessons and undertake their extra activities work more swiftly. Of course this does not mean that in Bahrain there are no people in charge of photocopying or duplicating. However, from the author's experience, ignorance of using such machines as photocopiers results in delay, inaccuracy, and at times, conflicts. Although most of these audiovisual aids are common in Bahrain, they have rarely been used in teaching learning procedures. The Ministry of Education is intending to introduce most of them and to encourage their use by teachers in primary and

secondary schools in the near future.

As can be observed from Table 8-12, 16 items in this area have positive values with mean scores higher than the neutral value, and two items have total mean scores of just above 2, while 8 items have scores lower than the neutral value. This means that attention must be given to most of these audiovisual aids and machines. Items 7 "Tape-Recorder", 3 "Slide-Projector" and 1 "Overhead Projector" have in turn the highest mean scores among all the 26 items. In these three items there are no practically significant differences in the mean scores between the groups.

There are no practically significant differences in the mean scores between the groups for items 2, 6, 12, 14 and 21. In items 4 "Filmstrip Projector" and 9 "Synchroniser" there are significant differences in the mean scores as between advisors and teachers, and teachers and lecturers. There is no logical explanation for these differences.

In item 10 "Micro Projector" there are practically significant differences in the mean scores as between teachers with the highest, and lecturers with the lowest; teachers and advisors, and advisors

TABLE 8 - 12 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Area 8, Hypothesis 8.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Overhead Projector	3.776	3.796	3.787	3.753	0.009	0.034	0.043	3
2	Opaque Projector	3.190	3.204	3.187	3.185	0.017	0.002	0.019	7
3	Slide Projector	3.781	3.630	3.827	3.840	0.197	0.013	0.21	2
4	Filmstrip Projector	2.962	2.722	2.707	3.358	0.015	0.651	0.636	10
5	8mm Sound Projector	2.024	1.852	1.827	2.321	0.025	0.494	0.469	18
6	16mm Sound Projector	3.476	3.370	3.547	3.481	0.177	0.066	0.111	4
7	Tape or Cassette Recorder	3.933	3.870	3.987	3.926	0.117	0.061	0.056	1
8	Record Player	1.519	1.426	1.573	1.531	0.147	0.042	0.105	20

TABLE 8 - 12 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
9	Synchroniser	3.095	3.426	3.333	2.654	0.093	0.679	0.772	9
10	Micro Projector	2.252	1.463	2.120	2.901	0.657	0.781	1.438	14
11	Television Set	3.362	3.074	3.320	3.593	0.246	0.273	0.519	5
12	Video-Tape Recorder	3.271	3.074	3.280	3.395	0.206	0.115	0.321	6
13	TV Camera	0.414	0.463	0.373	0.420	0.09	0.047	0.043	24
14	Language Lab	3.186	3.167	3.373	3.025	0.206	0.348	0.148	8
15	Computer	2.024	1.611	1.693	2.605	0.082	0.912	0.994	17
16	Still Camera	2.352	2.315	1.973	2.728	0.342	0.755	0.413	13
17	16mm Camera	0.319	0.463	0.160	0.370	0.303	0.143	0.093	26

TABLE 8 - 12 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
18	8mm Camera	0.433	.593	0.267	0.481	0.326	0.151	0.112	25
19	Close-Up Attachments	1.819	2.019	1.560	1.926	0.459	0.336	0.093	19
20	Tape Splicer	2.157	2.296	1.827	2.370	0.469	0.543	0.074	16
21	Lettering Devices	2.214	2.370	2.000	2.309	0.37	0.309	0.061	15
22	Spirit Duplicator	1.010	1.315	0.867	0.938	0.448	0.071	0.377	21
23	Ink Duplicator	0.876	1.315	0.747	0.704	0.568	0.043	0.611	23
24	Photocopier	2.767	3.352	2.133	2.963	1.219	0.83	0.389	11
25	Transparency Maker	2.710	3.185	2.347	2.728	0.838	0.381	0.457	12
26	Automatic Stencil	0.886	0.926	0.773	0.963	0.152	0.19	0.037	22

and lecturers. The reason why lecturers have a low mean score here is probably because some of them consider this instrument not to be effective with the large teaching groups with which they usually deal. If that is the case, then it should be realised that instructors do not always deal with large groups, besides individual and small group learning (which is very rare in Bahrain) needs to be encouraged. There is an urgent need for audiovisual aids which may be helpful in individualized or small group learning. Teachers are perhaps more appreciative of the usefulness of such instruments in learning teaching procedures.

In item 11 "Television Set" there is practically significant difference in the mean score between teachers and lecturers in favour of the teachers, even though the latter scored positively. This means that the number of lecturers holding that teachers do not need to be trained to use television more than that was expected. It is strange to note that there are still some who would resist the use of television which can be of real value in instructional procedures. There is no real explanation for this.

In item 20 "Tape Splicer" there is a practically significant difference in the mean scores

as between teachers and advisors in favour of teachers. In item 24 "Photocopier" there is a practically significant difference in the mean scores between lecturers and advisors, and teachers and advisors in favour of the former in each case. In item 25 "Transparency Maker" there is a practically significant difference in the mean scores as between lecturers and advisors. In all these items lecturers have the highest scores and advisors have the lowest. This indicates that lecturers and teachers accept (more than advisors) the idea that teachers must be able to use these machines. This is perhaps because they are in a situation where these inadequacies are more immediately apparent and are familiar with the inadequacies which can emerge if one does not know how to use such equipment. It has been stated, however, by the author that inadequacies are common when teachers are not skillful in using such equipment.

Regarding item 16, "Still Camera" there is a practically significant difference in the mean scores as between teachers with the highest score and advisors with the lowest. Advisors in fact scored lower than the neutral value. There is no valid justification for advisors opposing "Still Camera" more than the lecturers and teachers, as this instrument can be very useful in many fields.

Items 5 "8mm Sound Projector" and 15 "Computer" have total mean scores of just above 2. This indicates that the groups are almost neutral in their agreement as on the value of these items. There are no practically significant differences as between the mean scores between the groups in item 5. In item 15, however, there are practically significant differences in the mean scores between teachers who had the highest score and lecturers with the lowest, and teachers and advisors. Advisors and lecturers perhaps consider that it is not necessary to train teachers to use computers as this is not in demand in Bahrain. The fact that some teachers are in favour of this item is possibly due to their curiosity about computing. This phenomenon was seen in area 4 "Selected Theoretical Aspects" item 7 "The Computer and Educational Technology". In this area teachers agreed only with two items one of which was item 7. In this item teachers also scored higher than the other groups (see Table 8-8 item 7).

As it has been mentioned above 8 items in this area were negatively rated by the three groups, as they have total mean scores lower than the neutral value. These items in order of their low mean values are 17, 18, 13, 23, 26, 22, 8, and 19 (see the rank

order in the Table).

With regard to items 17 "16mm Camera", 18 "8mm Camera" and 13 "TV Camera", there are no practically significant differences in the mean scores as between groups. It is odd however to note that all the three groups almost entirely disapproved of training educational technology learners in the use of three types of movie-cameras, as the mean scores for these three items are the lowest of all the items. The reason behind this is perhaps the fact that instructing in the use of movie-cameras is costly and time consuming and is related to constructing programmes, further in terms of cost effectiveness they are expensive. It is probably thought too, that cameras are not really practicable in Bahrain at the moment.

There are no practically significant differences in the mean scores between the groups for items 22 "Spirit Duplicator" and 26 "Automatic Stencil". In item 23 "Ink Duplicator" however, there are practically significant differences in the mean scores between lecturers with the highest score and teachers with the lowest; lecturers and advisors. Lecturers in fact have higher scores than the other groups in all these three items. The total low mean scores for all these items (22, 26 and 23), is however

an indication of general lack of feeling of the need to train teachers to use such equipment. It is perhaps thought that such duties should be undertaken by others who should be made responsible for such tasks. The author however feels that being able to use such equipment is worthwhile for the reasons mentioned above. While it is true that all groups have low mean scores in these items, it could be held that the higher scores of lecturers (in the three items) indicate that a few of them perhaps agree on the utility of learning to use such equipment.

In item 8 "Record Player" and 19 "Close-Up Attachment" there are no practically significant differences in the mean scores as between the groups. The low total mean scores in both items denote that the three groups generally reject the use of the two pieces of equipment. The opposition to the record-player is perhaps due to the fact that it can be replaced by a tape-recorder (item 7) which is more flexible than the record-player in almost all situations. Rejecting close-up attachment is not so easily explained since it can be very beneficial when in use with "Still Camera" (item 6) which had a total mean score higher than the neutral value. In both items (16 and 19) advisors had lower scores than the other groups.

In summary hypothesis 8 is accepted with regard to items 1, 2, 3, 5, 6, 7, 8, 12, 13, 14, 17, 18, 19, 21, 22 and 26 and rejected with regard to items 4, 9, 10, 11, 15, 16, 20, 23, 24 and 25.

8.2.9 Area 9

6 - Evaluation

Hypothesis 9

There is no practically significant difference between the three groups, lecturers, advisors and teachers in the degree of their agreement on the importance of each topic in the Evaluation section.

This area consists of 4 topics which were considered to be essential for inclusion in an educational technology programme, as currently modern methods of assessment and evaluation techniques are almost completely ignored in Bahrain.

As can be observed from Table 8-13 all the items have positive values of mean scores. Item 4, "Evaluation Techniques for Cognitive and Affective Objectives" has the highest mean score. All groups agreed with the propositions in this area.

As there were no practically significant differences, hypothesis 9 was accepted for all items.

TABLE 8 - 13 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Area 9, Hypothesis 9.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Assessment and Evaluation	3.219	3.185	3.040	3.407	0.145	0.367	0.222	2
2	Summative Evaluation	2.238	2.352	2.000	2.383	0.352	0.383	0.031	3
3	Formative Evaluation	2.233	2.352	2.000	2.370	0.352	0.37	0.018	4
4	Evaluation Techniques for Cognitive and Affective Objectives	3.614	3.537	3.560	3.716	0.023	0.156	0.179	1

8.2.10 **Area 10**

7 - Improvement

Hypothesis 10

There is no practically significant difference between the three groups, lecturers advisors and teachers in the degree of their agreement on the importance of each topic in the Improvement section.

In item 3, "Remedying Weaknesses", (as can be observed in Table 8-14) there is a practically significant difference in the mean scores as between teachers with the highest score and advisors with the lowest. Although the score of advisors is the lowest it is still enough to reveal their support for this proposition. It was surprising, however to note that some advisors would oppose the inclusion of such an important topic.

In item 4 "Reviewing and Updating Courses" there are practically significant differences in the mean scores as between teachers with the highest score and advisors with the lowest; between teachers and lecturers; and between lecturers and advisors. Teachers have a very high score indicating their firm support for the inclusion of this topic in an educational technology programme as they are keen to partake in such activity. The low scores of advisors

TABLE 8 - 14 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Area 10, Hypothesis 10.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Finding Strength and Weaknesses	3.662	3.759	3.800	3.469	0.041	0.331	0.29	2
2	Identifying Course Difficulties	3.724	3.815	3.813	3.580	0.002	0.233	0.235	1
3	Remedying Weaknesses	3.190	3.019	2.507	3.938	0.512	1.431	0.919	3
4	Reviewing and Updating Courses	2.410	1.889	1.173	3.901	0.716	2.728	2.012	4

and lecturers (especially advisors) is a clear indication of their disapproval of including such a topic in educational technology programmes for teachers, because as stated before, they regard that such an activity should only be undertaken by higher authorities which of course include advisors.

Hypothesis 10 is therefore accepted with regard to items 1 and 2 and rejected with regard to items 3 and 4.

8.2.11 Area 11

Medium of Instruction for Educational Technology

Hypothesis 11

There is no practically significant difference between the proportions of lecturers, advisors and teachers who believe the appropriate medium (or media) of teaching Educational Technology courses to be Arabic, English and a mixture of both.

This area is concerned with the medium (or media) of instruction to be used in teaching educational technology programmes. In Bahrain the medium of instruction in science subjects is English and for the rest of education Arabic. Because educational technology is regarded as falling in the educational field it is therefore expected to be

taught in Arabic. It was felt however, by the author that teaching educational technology in Arabic is inconvenient as most of the urgently needed books and articles in this subject are actually written in English. There are some articles written in Arabic, but unfortunately they are mostly unsuitable for use.

As can be observed in Table 8-15 items 1 "Only Arabic" and 2 "Only English", both have total and individual mean scores much lower than the neutral value. This suggests that all the groups almost entirely reject the use of either Arabic on its own, or English on its own as the medium of instruction in educational technology programmes. All groups, on the other hand, agreed with the use of a mixture of both Arabic and English languages as media of instruction in this field, since the score within item is high for all groups.

In item 1, however, there are practically significant differences in the mean scores between advisors and lecturers and teachers and lecturers. Teachers and advisors have precisely the same mean scores, while lecturers' mean score is much lower. This indicates that there are very few advisors and teachers who prefer Arabic to a mixture of both (English and Arabic). Their claim possibly is that

TABLE 8 - 15 : Total and Individual Mean Scores and the Difference in Scores between Each Group- Area 11, Hypothesis 11.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Only Arabic	1.010	0.574	1.160	1.160	0.586	0.00	0.586	2
2	Only English	0.171	0.352	0.200	0.025	0.152	0.175	0.327	3
3	Both (English and Arabic)	3.533	3.444	3.533	3.593	0.089	0.06	0.149	1

in an Arab country the medium of instruction for all subjects must be Arabic. This claim could be true to some extent, but it is quite obvious that at the moment many countries of the world are not ready to teach many subjects through their own languages. This is because such countries still lack adequate research, good writers and perhaps reliable translators who are able to translate technological and scientific articles at the appropriate level.

Hypothesis 11 is accepted with regard to items 2 and 3, as there are no practically significant differences in the mean scores between the groups, but rejected with regard to item 1 for the differences mentioned above.

8.2.12 **Area 12**

Evaluation of Programmes

Hypothesis 12

There is no practically significant difference between the three groups, lecturers, advisors and teachers in their sympathy towards the Evaluation Techniques in the Evaluation Programme section.

This area is comprised of 8 items concerning methods of evaluation to be applied when evaluating overall educational technology programmes. Evaluation of programmes or courses is usually made on

student achievement tests in Bahrain, and the use of other methods is rare. It is essential, however, to apply several evaluation techniques, and to involve different personnel if the results are to be of use for future improvement.

As can be seen from Table 8-16 all items have positive values of mean scores (above the neutral value) which denotes that all the techniques proposed have generally been accepted for use although there is some discrepancy between the groups on some of the items.

In item 1 "Observation by tutors in charge and course organisers" there are practically significant differences in the mean scores as between advisors with the highest score and teachers with the lowest, and advisors and lecturers, and lecturers and teachers. Although the difference in the scores between lecturers and advisors is actually high there is no one clear explanation for such a situation. The high score of advisors, however indicates that most of them strongly agree on this item. This is perhaps because most of their work does involve observation. The low score (lower than the neutral value) of teachers, on the other hand suggests that many of them dislike being observed while teaching.

TABLE 8 - 16 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Area 12, Hypothesis 12.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Observations by tutors in charge and course organisers	2.614	2.944	3.640	1.444	0.696	2.196	1.5	6
2	Student achievement tests	3.871	3.759	3.960	3.864	0.201	0.096	0.105	1
3	Teachers- reactions written or oral	3.319	3.704	2.307	4.000	1.397	1.693	0.296	2
4	Questionnaires	2.405	2.481	2.653	2.123	0.172	0.53	0.358	7
5	Interviews	2.681	2.537	2.787	2.679	0.25	0.108	0.142	5
6	Follow-up to discover whether the ideas disseminated in a course being successfully implemented in the classroom	3.171	3.574	3.413	2.679	0.161	0.734	0.895	3

TABLE 8 - 16 (Contd)

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
7	Comparison should be made between the sessions to show the progress towards a set of goals	3.124	3.481	3.387	2.642	0.094	0.745	0.839	4
8	All personnel should participate in follow-up procedure.	2.167	1.519	1.413	3.296	0.106	1.883	1.777	8

The author, however, considers that observation is necessary and needful. By observation one can identify the type of weaknesses which is impossible to discover through any other process. One of the reasons for teachers disapproving of observation is possibly because the weaknesses discovered by advisors or inspectors are usually held against teachers rather than as points for helping to improve their teaching skills.

In item 3 "Teachers Reactions", there are practically significant differences as between teachers with the highest score and advisors with the lowest and lecturers and advisors. Teachers all strongly agree on this item. Lecturers too, strongly agree on this item, but not to the same extent as teachers. One of the reasons for this optimum mean score by teachers is probably because their views and reactions have not as yet been considered in Bahrain. Teachers at all levels of education have rarely, if ever, been asked to participate in, or give ideas for, course improvement or renewal. Although the advisors' mean score is higher than the neutral value it is low compared with the teachers and lecturers. The low score of advisors indicates that some perhaps disbelieve in using teachers' ideas when designing or renewing programmes. Yet it is the teachers who have

to use the designed courses and who are in direct contact with students. Not to take their reactions into account is unacceptable.

In item 4 "Questionnaire" there is a practically significant difference in the mean scores between advisors with the highest score and teachers with the lowest. There is no clear justification for such a difference between these two groups. Questionnaires, however are now often regarded as an effective way of seeking people's views, especially by those removed from the classroom situation which could help to explain the greater enthusiasm of the advisors.

In item 6 "Follow-Up..." and 7 "Comparison ...." there are practically significant differences in the mean scores between lecturers with the highest scores and teachers with the lowest; and between advisors and teachers. Lecturers and advisors agree on these two items almost to the same degree, while teachers agree less. The total mean scores of both these two items are quite high, and both of the techniques are necessary if sound evaluation is to be made. There is no clear explanation for the lower score of teachers in these two items, except perhaps their general lack of practice in their use.

With regard to item 8 "All Personnel should Participate in Follow-Up Procedure" there are practically significant differences in the mean scores between teachers with the highest score and advisors with the lowest, and teachers and lecturers, in favour of the teachers. Lecturers' and advisors' mean scores are lower than the neutral value, an indication of general disagreement with the idea that all personnel should participate in the follow-up procedure. The reason behind this is perhaps that they consider that follow-up activities should be the responsibility of higher authority. On the other hand, teachers being much in favour of this item obviously regarded 'all personnel' as meaning involving them, and they feel the need to be reckoned as active participants in follow-up procedure.

As far as items 2 and 5 are concerned there are no practically significant differences in the mean scores as between the groups. Hypothesis 12 is therefore accepted with regard to items 2 and 5 and rejected with regard to items 1, 3, 4, 6 and 8.

8.3 COMMUNICATION FIELD

8.3.1 Introduction

The communication field consists of 9 items, each assumed to be a complete course by itself. The Centre for Communication in the University College of Bahrain (UCB) offered three of these courses (Numbers 1, 2 and 3, see table 8-19) in the academic year 1981-82. The University authorities decided that such courses must be discontinued and the Centre for Communication was therefore abolished, and its media services placed under the library's control. However, the author during his service in the UCB encountered many who thought that such courses were completely irrelevant to the situation in Bahrain at the moment, while others considered them to be needed.

All nine items were repeated in the questionnaire. Once to examine the opinions about the applicability of such courses in the current situation, and secondly to see if there might be any change in opinions about the suitability of these courses ten years time, in the future.

The final part of this section examines what language (or languages) should be used as a medium (or media) of instruction when teaching any of the

communication courses.

8.3.2 Communication Courses at Present

Hypothesis 13(a)

There is no significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the overall need for communication courses in Bahrain at the present time.

Hypothesis 13(b)

There is no practically significant differences between the three groups, lecturers, advisors and teachers in their sympathy to the need for each of the communication courses in Bahrain at the present time.

It can be seen from Table 8-17 that the value of the F. Ratio is very high and F.Probability is equal to zero to 3 decimal points. This indicates that there are significant differences between the three groups and so they are not equally sympathetic to the need for overall communication courses at the present time in Bahrain. Hypothesis 13(a) is therefore rejected.

It can be noticed in Table 8-18 that the mean scores for all the groups are below 2, the neutral

TABLE 8 - 17 : Analysis of Variance for Hypothesis 13(a)

Source	D.F.	Sum of Squares	Mean of Squares	F.Ratio	F.Prob
Between Groups	2	16.5812	8.2906	27.403	0.000
Within Groups	207	62.6278	0.3025		
Total	209	79.2091			

TABLE 8 - 18

Group	Count	Mean	S.D.	S.E.
Group 1	54	1.4815	0.7162	0.0975
Group 2	75	1.0267	0.4072	0.0470
Group 3	81	0.7668	0.5382	0.0598
Total	210	1.0434	0.6156	0.0425

value. This indicates that all the groups generally oppose the provision of all nine communication courses at the present time in Bahrain. Although all the mean scores are low, there are still differences between them. Group 1 (lecturers) has the highest mean score while group 3 (teachers) has the lowest mean score (far below the neutral value) among the three groups. This means that teachers generally are more hostile to some items than the other groups, while the lecturers agree more on some items than the other two goups. Table 8-19 which is related to hypothesis 13(b) makes this point clear, as it gives individual mean score for lecturers, advisors and teachers for each item, and the differences in mean scores between them.

It can be observed in Table 8-19 that all the items have been rejected, as they all have total mean scores below the neutral value. Although the total mean scores are low, there are practically significant differences in the mean scores either between two or all the group for items 1, 4, 5, 6, 7, 8 and 9, but there are no such differences in the mean scores between the groups for items 2 and 3. There is no valid explanation for such differences between the scores in these items. It can be noted however, that lecturers have the highest mean scores in all the

TABLE 8 - 19 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Hypothesis 13(b)

Item No.	STATEMENT (Courses)	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Theories of Communication	1.533	2.074	1.947	0.790	0.127	1.157	1.284	2
2	Film Making	0.481	0.630	0.400	0.457	0.23	0.173	0.173	8
3	Television Production	0.952	0.926	0.893	1.025	0.033	0.132	0.099	6
4	Photography	1.181	1.759*	1.187	0.790	0.572	0.397	0.969	4
5	Broadcasting	0.457	0.833	0.227	0.420	0.606	0.193	0.413	9
6	Advertising	0.519	1.130	0.240	0.370	0.89	0.13	0.76	7
7	Journalism	1.314	1.944	1.493	0.728	0.451	0.765	0.216	3
8	Public Relations	1.119	1.870	0.987	0.741	0.887	0.246	1.129	5
9	Tourism	1.833	2.167	1.867	1.580	0.3	0.287	0.587	1

items. In fact, in item 1 "Theories of Communication" and 9 "Tourism" they have mean scores higher than the neutral value. It is to be noticed that in these two items advisors and teachers also have higher mean scores compared to their scores in the rest of the items.

Generally speaking, all these communication courses are disapproved by all the groups. It is perhaps felt that it is still premature to provide such courses in Bahrain; and attention should be devoted at the moment to other educational sectors which are thought to be more needful. If however, any attention is to be given to communication courses at present, then items 1 "Theories of Communication" and 9 "Tourism" must be considered, as they were more appreciated by all the groups.

In summary hypothesis 13(b) is accepted with regard to items 2 and 3 and rejected with regard to items 1, 4, 5, 6, 7, 8 and 9.

8.3.3 Communication Courses in Future

Hypothesis 14(a)

There is no significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the overall need for communication

courses in Bahrain in ten years time.

Hypothesis 14(b)

There is no practically significant difference between the three groups, lecturers, advisors and teachers in their sympathy to the need for each of the communication courses in Bahrain in ten years time.

It can be noticed in Table 8-20 that the F.Ratio is high and F. Probability is equal to zero to 3 decimal points. This denotes that there are significant differences between the three groups, and thus they are not equally sympathetic to the need for overall communication courses in ten years time in Bahrain. Hypothesis 14(a) is therefore rejected.

It can be noticed in Table 8-21 that the mean scores of all the groups are below 2, the neutral value. This indicates that all the groups more or less disapprove the need for the provision of such courses in ten years time. However, when comparing Table 8-18 with Table 8-21 it can be noticed that all the mean scores in Table 8-21 are higher than those in Table 8-18. This suggests that such communication courses are considered to be possibly more needed in the future. Although all the scores are lower than the neutral value there are still differences in their

TABLE 8 - 20 : Analysis of Variance for Hypothesis 14(a)

Source	D.F.	Sum of Squares	Mean of Squares	F.Ratio	F.Prob
Between Groups	2	12.8944	6.4472	23.673	0.000
Within Groups	205	55.8306	0.2723		
Total	207	68.7250			

TABLE 8 - 21

Group	Count	Mean	S.D.	S.E
Group 1	54	1.9732	0.6281	0.0855
Group 2	75	1.3481	0.4626	0.0534
Group 3	79	1.7229	0.4946	0.0557
Total	208	1.6528	0.5762	0.0400

scores. Group 1 (the lecturers) has the highest mean score, while group 2 (the advisors) has the lowest. This indicates that lecturers are the most sympathetic, in respect of the need for communication courses in future. Table 8-22 which concerns hypothesis 14(b) clarifies this point, as it provides the individual mean scores for each group regarding each item, with the difference between the scores.

It can be noticed in Table 8-22 that there are practically significant differences in the mean scores between two or all the groups. Hypothesis 14(b) is therefore rejected with regard to all items in this case. There is no explicit justification for such differences in the scores between the groups. The following explanation however, could be given for the general approval or disapproval of the items.

While the provision of all courses has been rejected in respect of the present situation in Bahrain, three of them (by having total mean scores higher than the neutral value) have been generally accepted as being desirable to be offered in future (see Tables 8-19 and 8-22). These three courses (according to the rank order) are "Tourism" with the highest mean score among all the nine items, "Journalism" and "Public Relation".

TABLE 8 - 22 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Hypothesis 14(b)

Item No.	STATEMENT (Courses)	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Theories of Communication	1.718	2.185	2.120	1.025	0.065	1.095	1.16	5
2	Film Making	0.827	0.833	0.560	1.076	0.273	0.816	0.243	9
3	Television Production	1.582	1.315	1.147	2.177	0.168	1.03	0.862	6
4	Photography	1.784	2.241	1.347	1.886	0.894	0.539	0.355	4
5	Broadcasting	0.846	1.074	0.333	1.177	0.741	0.844	0.103	8
6	Advertising	1.053	1.833	0.427	1.114	1.406	0.687	0.719	7
7	Journalism	2.191	2.870	2.013	1.900	0.857	0.113	0.97	2
8	Public Relations	2.053	2.574	1.693	2.038	0.881	0.345	0.536	3
9	Tourism	2.827	2.833	2.493	3.139	0.34	0.646	0.306	1

Issues such as tourism, public relations and journalism have not as yet been given much attention in Bahrain. Most journalists in Bahrain for example are non-Bahrainis, and most of the government and commercial establishments have sections for public relations which are usually occupied by unqualified personnel. Tourism is absolutely neglected in the country, because of the belief that there are no interesting places to see and that the country has unbearable weather during summertime. It is perhaps fair to claim that tourists nowadays look for peaceful places with sunshine, fine weather and clean sea-shores. Bahrain is a peaceful country surrounded by beautiful beaches with at least 5 months of pleasant weather. This industry could be developed and it might perhaps be a useful source of income for the country in future.

It could be argued, however, that the disapproval of these three courses at the present time is not due to the fact that they are not demandable, but rather owing to other priorities. There are other fields and specialization which the country is in urgent need of at the moment. What confirms this argument is that these three courses are acceptable for ten years later, as has been mentioned above (see

Table 8-22).

The rest of the items have all been opposed as they have total mean scores lower than the neutral value. Item 1 "Theories of Communication" however, has been accepted by lecturers and advisors, but not by the teachers. The author himself considers "Theories of Communication" as a beneficial course in various situations; and courses such as "Journalism" or "Public Relations" may not be effective unless they corporate communication theories. It is obvious that anyone working in public relations or journalism should have mastered the art of communication. As far as "Photography" (item 4) is concerned, it can be useful in many scientific and educational fields. In this item lecturers did score higher than the neutral value. Photography could perhaps be provided as an elective course and not as a specialization, for those who feel they can benefit from it in their future career.

"Film Making", "Television Production", "Broadcasting" and "Advertising" seem to have no place at the present or in the future. Disagreement with the introduction of these courses in both cases (present and future) is possibly because they are thought to be impractical for such a small country

with a small population and ultimately limited resources. However, such propositions might be workable in future if all the Gulf States were to adopt a joint policy with regard to manpower forecasting in these fields. Nevertheless such a development is subject to further and more detailed study.

8.3.4 Medium of Instruction for Communication Courses

Hypothesis 15

There is no practically significant difference between the proportion of lecturers, advisors and teachers who believe that the appropriate medium or media of teaching communication courses to be Arabic, English and a mixture of both.

It can be noticed from Table 8-23 that items 1 "Only Arabic" and 2 "Only English" were disapproved by all the three groups as they have total and individual mean scores lower than the neutral value. Item 3 "Both (Arabic and English)" was highly approved by all the groups as the total and individual mean scores are considerably higher than the neutral value.

In item 1 "Only Arabic" there are practically significant differences in the mean scores between

TABLE 8 - 23 : Total and Individual Mean Scores and the Difference in Scores between Each Group - Hypothesis 15.

Item No.	STATEMENT	TOTAL MEAN SCORES	INDIVIDUAL MEAN SCORES			DIFFERENCE IN MEANS			RANK ORDER
			Lecturers	Advisors	Teachers	Lecturers & Advisors	Advisors & Teachers	Teachers & Lecturers	
1	Only Arabic	1.010	0.574	1.133	1.185	0.559	0.052	0.611	2
2	Only English	0.148	0.278	0.160	0.049	0.118	0.111	0.229	3
3	Both (Arabic and English)	3.505	3.409	3.520	3.556	0.113	0.036	0.149	1

teachers with the highest score and lecturers with the lowest, and advisors and lecturers. This indicates that there are few teachers and advisors who prefer Arabic to the English or a mixture of both to be used as a medium of instruction. This tends to contradict the generally heard notion that in any country the national language must be used as a medium of instruction for all subjects and at all levels of education. In fact many developing countries where English or French is used as a medium of instruction have attempted to change the medium of instruction in scientific and technological fields to their own national languages, but the endeavour has not been successful. This is probably because developing countries are still heavily dependent on developed countries for their scientific and technological advancement. Besides, lack of good translators (as it was mentioned before) adds to this problem.

However, such communication courses as "Journalism" and "Public Relation" can in fact be taught in Arabic. Journalists, for example mostly write in Arabic in Bahrain. Nevertheless people working in such fields must have a wide knowledge of the English language, since their work includes contacting people and officials from various parts of the world; and knowing an international language is a

definite advantage in communicating, thus the use of both Arabic and English as medium of instruction for communications courses is quite sensible.

Hypothesis 15 is accepted with regard to items 2 and 3, as there are no practically significant differences in the mean scores between the groups, but rejected with regard to item 1 for the differences mentioned above.

8.4 STUDENT QUESTIONNAIRE

Hypothesis 16

Students are generally sympathetic towards the use of audiovisual aids.

The 'chalk and talk' method is the common way of teaching in schools at all levels of education in Bahrain. Modern methods of teaching and audiovisual aids are rarely, if ever, used. It could perhaps be said that one of the main reasons for boredom in schools in Bahrain is the outdated and unchanging methods of teaching, and the non-use of audiovisual aids. The intention behind the student quesstionnaire was to examine their attitudes towards the use of audiovisual aids in teaching procedures.

The questionnaire contained 15 items. The first 10 consisted of positive statements towards audiovisual aids while the last 5 represented opposing

statements. The scales for positive statements are : (SA = 4, A = 3, N = 2, D = 1, SD = 0) whereas the scales for negative statements are : (SA = 0, A = 1, N = 2, D = 3, SD = 4). The results in table 8-24 were obtained by adding the scores on answers (1-15) for each student to get an index (minimum 0, maximum 60) of favouring AVA's. A score of above 30 is regarded as generally sympathetic and score of below 30 is regarded as generally unsympathetic.

It can be seen from Table 8-24 that 372 students out of 390 scored above 30, and only 18 students had scores lower than 30; so that the total mean score was actually high. This indicated that students generally had positive attitudes towards audiovisual aids. Table 8-25 shows mean scores for each individual item. It can be seen that all items have scores higher than the neutral value. Among the positive statements item 9 "Auidovisual Aids Should Occupy a More Important Place than they have done in the Past" had the highest mean score (see the rank order). This suggests that students in Bahrain could be keen to see their teachers using audiovisual aids in their teaching process. Backing this is that the second highest score was obtained by item 8 "Pupils Really Like Audiovisual Aids".

TABLE 8 - 24 : The Number and Percentage of Students in favour (and sympathetic) towards AVAs

Scores Above 30		Scores Below 30		Missing		Total Mean Score
No of Students	Perc-entage	No of Students	Perc-entage	No of Students	Perc-entage	
372	93	18	4.5	10	2.5	47.513

TABLE 8 - 25 : Mean Scores for Individual Items in Student Questionnaire.

Item No	Statement	Mean	Rank Order
	(Positive Attitudes SA=4 SD=0)		
1	Audiovisual aids are necessary for effective teaching	3.622	5
2	Audiovisual aids improve teaching to a great extent	3.532	6
3	Teaching with audiovisual aids is preferable to teaching without them	3.655	3
4	The use of audiovisual aids relieves pupils from boring lecturing	3.256	7
5	The use of audiovisual aids improve the pupils' attendance	2.387	8
6	Audiovisual aids increase the number of the pupils' questions on the subject matter	2.289	9
7	Audiovisual aids make teaching more pleasurable	3.637	4
8	Pupils really like audiovisual aids	3.750	2
9	Audiovisual aids should occupy a more important place than they have done in the past	3.787	1
10	The new generation will not forgive its teachers if they do not use the new tools now at their disposal	2.144	10

TABLE 8 - 25 (Contd)

Item No	Statement	Mean	Rank Order
	(Negative Attitudes SA=0 SD=4)		
11	The use of audiovisual aids results in pupils' being more occupied with them than the actual lesson	2.372	4
12	The use of audiovisual aids cause disciplinary difficulties for the teacher	2.290	5
13	Audiovisual aids are gimmicks	3.173	3
14	Audiovisual aids are not useful	3.722	2
15	Audiovisual aids are a waste of time	3.767	1

Item 10 "The new generation will not forgive its teachers if they do not use the new tools now at their disposal" had the lowest mean scores among the ten positive statements. The disagreement of some students with this item perhaps indicates that they do not want to blame the teachers for such a consequence. This item would perhaps have had a higher score if the word "teachers" was changed to a phrase such as "the responsible educationists".

Item 6 "Audiovisual aids increase the number of the pupils' questions on the subject matter", and 5 "The use of audiovisual aids improve the pupils' attendance" occupied respectively second and third lowest mean scores but these were still higher than the neutral value. This suggests that a number of students do not agree that audiovisual aids as stimulating pupils' questioning on the subject matter, nor improve pupils' attendance. It is obvious, however, that such matters are related to other environmental, social and psychological circumstances, even though audiovisual aids could arouse students' interest and possibly improve his concentration on the lesson. Nevertheless, many students agreed with these two items which perhaps indicates that for them audiovisual aids are useful. The rest of the items (among the positive statements) have reasonably high

mean scores.

With regard to the opposing statements in respect of audiovisual aids all the five items had mean scores higher than the neutral value. This suggests that students generally oppose speculations about AVA's. It is further indication of their positive attitudes towards the use of audiovisual aids.

Item 15 "Audiovisual aids are a waste of time" had the highest mean score among all the 5 statements. This indicates that students do not agree at all that AVA's is a waste of time. The lowest mean score (among all the five statements) belongs to item 12 "The use of audiovisual aids cause disciplinary difficulties for the teacher". This means that there are a minority of students who agree with the idea that the use of audiovisual aids can cause disciplinary difficulties. It is obvious however, that if a teacher is aware of how, when and what teaching aids are best in different situations, and if he is organised and well prepared beforehand, he is less likely to meet disciplinary problems, and vice versa.

In summary, as it can be seen from Table 8-25

that all the items in the student questionnaire had mean values higher than the neutral value. In fact most of the items had very high mean scores. This is evidence that students in Bahrain are generally sympathetic towards the use of audiovisal aids. Hypothesis 16 is therefore accepted.

8.5 INTERVIEWS

8.5.1 Introduction

In a study of this nature it was felt that a structured interview with higher officials responsible for directing and planning in the UCB, Ministry of Education and Ministry of Information would be beneficial. To this end, a structured interview was designed to fulfil objective 9 of the study. It consisted of 7 major questions most of which were sub-divided. Appendix XV provides the questions included in the interview. The author's intention was to interview all the departmental chairpersons in UCB and most senior officials in the Ministry of Education and Ministry of Information. However, this was not possible because some of the officials were unco-operative for undiscovered reasons. Nevertheless the investigator was able to interview 6 chairpersons and six other officials in UCB; 8 responsible officials in the Ministry of Education; and 4 in the Minstry of Information. Appendix XVI

provides the interviewees names and posts.

One of the main problems was the arrangement of times with the interviewees, many of whom changed the dates and times which were fixed by them. One of the interviewees changed the date five times, although they were all arranged by himself. This was a problem for the investigator who had very limited time, and it was a phenomenon which was not expected, especially with responsible officials.

The time of the interviews ranged between one to one and a half hours at the most. The author tried to record the answers but this was not possible as some disliked the idea. The answers were then noted down.

All the answers and views were summarised and tabulated. Similar replies were combined and summed up precisely, and the data analysed (as it was mentioned before) in terms of frequency and percentage.

TABLE 8-26

8.5.2 SUMMARY OF VIEWS

Q1 - (1) Please give your views on the importance of the following fields and courses for the current societal needs of our country.

Serial Number	Rank Order	Views: Officials / Fields & Courses	Important: 12 U.C.B.	Important: 8 M.of Ed	Important: 4 M.of Inf	Important: Total	Unimportant: U.C.B.	Unimportant: M.of Ed	Unimportant: M.of Inf	Unimportant: Total	Don't Know: U.C.B.	Don't Know: M.of Ed	Don't Know: M.of Inf	Don't Know: Total
1	1	Educational Technology	10	8	4	22 91.7%	-	-	-	0	2	-	-	2 8.3%
2	2	Communication Theories	4	7	3	14 58.3%	4	-	-	4	4 16.7%	1	1	6 25%
3	9	Film Making	0	1	2	3 12.5%	10	6	1	17 70.8%	2	1	1	4 16.7%
4	8	Television Production	1	1	3	5 20.8%	7	4	1	12 50%	4	3	0	7 29.2%
5	5	Photography	3	3	1	7 29.2%	4	4	-	8 33.3%	5	1	3	9 37.5%
6	7	Broadcasting	2	2	2	6 25%	5	4	-	9 37.5%	5	2	2	9 37.5%
7	5	Advertisements	2	3	2	7 29.2%	4	1	1	6 25%	6	4	1	11 45.8%
8	4	Journalism	2	2	4	8 33.3%	8	5	-	13 57.2%	2	1	-	3 12.5%
9	3	Public Relations	5	5	1	11 45.8%	4	2	0	6 25%	3	1	3	7 29.2%
10	9	Tourism	2	1	0	3 12.5%	6	2	1	9 37.5%	4	5	3	12 50%

TABLE 8-27

Q.1 (Contd)

(2) Please give your views on the importance of the following fields and courses for the future societal needs of our country.

Serial Number	Rank Order	Views: Officials / Fields & Courses	Important				Unimportant				Don't Know			
			U.C.B.	M.of Ed	M.of Inf	Total	U.C.B.	M.of Ed	M.of Inf	Total	U.C.B.	M.of Ed	M.of Inf	Total
1	1	Educational Technology	10	8	4	22 91.7%	-	-	-	0	2	-	-	2 8.3%
2	2	Communication Theories	6	7	3	16 66.7%	2	-	-	2 8.3%	4	1	1	6 25%
3	7	Film Making	3	3	3	9 37.5%	6	1	1	8 33.3%	3	4	-	7 29.2%
4	5	Television Production	3	3	4	10 41.7%	3	2	-	5 20.8%	6	3	-	9 37.5%
5	7	Photography	5	3	1	9 37.5%	1	1	-	2 8.3%	6	4	3	13 54.2%
6	5	Broadcasting	4	4	2	10 41.7%	3	2	-	5 20.8%	5	2	2	9 37.5%
7	10	Advertisements	2	3	2	7 29.2%	5	1	1	7 29.2%	5	4	1	10 41.6%
8	3	Journalism	3	7	1	11 45.8%	3	-	1	4 16.7%	6	1	2	9 37.5%
9	3	Public Relations	5	5	1	11 45.8%	3	-	1	4 16.7%	4	3	2	9 37.5%
10	9	Tourism	5	2	1	8 33.3%	3	1	-	4 16.7%	4	5	3	12 50%

Q2.

Is it worthwhile establishing an Educational Technology and Communication Centre in the University College of Bahrain ?

YES				NO				DON'T KNOW			
UCB	M.of Ed	M.of Inf	Total	UCB	M.of Ed	M.of Inf	Total	UCB	M.of Ed	M.of Inf	Total
4	5	3	12	5	1	-	6	3	2	1	6

TABLE 8-28

Q.2 (Contd)

TABLE 8-29 : Reasons for the comments given in Table 8-28.

	Rank Order	Reasons	UCB 12	M.of Ed 8	M.of Inf 4	Total 24
1	1	There is a crucial need for such a centre, as teaching is becoming a complex procedure, and chalk and talk can't be regarded as the only way to transfer information to students.	1	3	3	7 29.2%
2	4	A university without Educational Technology and Communication Centre or dept. is not complete at all, and any educational Course without the inclusion of Ed.Tech. is incomplete and outdated.	3	2	-	5 20.8%
3	2	The establishment of such a centre is prematured at the moment for University College of Bahrain.	5	1		6 25%
4	2	No reason given	3	2	1	6 25%

Q.3. What would be the main problems and difficulties to be faced in establishing such a centre?

TABLE 8-30

S No	Rank Order	Problems and Difficulties	UCB 12	M.of Ed 8	M.of Inf 4	Total 24
1	1	Lack of specialists	10	7	4	21 87.5%
2	2	Lack of awareness about the importance of this field	8	7	2	17 70.8%
3	7	Persuasion of higher authorities for enough budget	7	1	1	9 37.5%
4	3	Lack of capable supervisors and administrators in such a field	10	4	2	16 66.7%
5	8	No encouragement for those who have interest in this field	5	-	2	7 29.2%
6	4	Strong influence of the past conventional methods of teaching	8	4	3	15 62.5%
7	5	No adequate building and enough equipment	7	5	2	14 58.3%
8	6	Lack of sufficient background in such fields	4	5	3	12 50%

Q4.

Is it possible to establish a Council for Educational Technology in Bahrain as a central organisation for promoting the application and development of educational technology and media services in all sectors of education ?

YES				NO				DON'T KNOW			
UCB	M.of Ed	M.of Inf	Total	UCB	M.of Ed	M.of Inf	Total	UCB	M.of Ed	M.of Inf	Total
6	4	2	12	3	2	1	6	3	2	1	6

TABLE 8-31

Q.4 (Contd)

TABLE 8-32: Reasons for the comments given in Table 8-31.

No	Rank Order	Reasons	UCB 12	M.of Ed 8	M.of Inf 4	Total 24
1	1	This is a very good step to be taken. Such a council can provide better service to all educational sectors in the country, whether formal or non-formal. It can give advice in the use, production and purchase of soft and hardware, and perhaps organize the types of workshops needed in the country.	6	4	-	10 41.7%
2	3	This is perhaps a good idea, but it is much better to establish such a council joined with other Gulf States as Bahrain is a small country and a council may be more than what it is needed.	-	-	2	2 8.3%
3	2	In such a small country, like Bahrain, it is better to have two small units, one attached to the University and another to the Ministry of Education and there might be no need for a council for such a purpose.	3	2	1	6 25%
4	2	It is premature at the moment. There might be a need for such a scheme in future	3	2	1	6 25%

TABLE 8-33

Q.5 Would you support the idea of :-

Serial Number	Rank Order		Yes				No				Don't Know			
			U.C.B. 12	M. of Ed 8	M. of Inf 4	Total 24	U.C.B.	M. of Ed	M. of Inf	Total 24	U.C.B.	M. of Ed	M. of Inf	Total 24
1	2	Offering a diploma and Masters Degree in Ed.Tech.	9	6	3	18 75%	1	1	1	3 12.5%	2	1	-	3 12.5%
2	4	Establishing CCTV in UCB	5	3	3	11 45.8%	5	2	-	7 29.2%	2	3	1	6 25%
3	3	Establishing School TV receiver in Secondary Schools	4	6	4	14 58.4%	5	-	-	5 20.8%	3	2	-	5 20.8%
4	1	Provide at least two hours a day of educational programmes by Bahrain TV	10	5	4	19 79.2%	2	-	-	2 8.3%	-	3	-	3 12.5%

TABLE 8-34

Q.6 What are the problems involved in training teachers to use audio-visual aids?

	Problems	UCB	M.of Ed	M.of Inf	Tot-al
1	Unavailability of trained personnel in such a field	10	7	2	21 87.5%
2	Lack of good studies to see what types of training schemes teachers need in this field	11	6	1	18 75%
5	Teachers do not have enough time for the preparation of software	9	4	3	16 66.7%
6	There is no follow-up scheme after the training programmes to see if teachers do really use the new methods and aids which have been learned to use.	7	4	4	15 62.5%
7	There is no follow-up scheme to examine the potentiality of new aids and methods (if they are used)	10	3	1	14 58.3%
3	Unsuitable classroom and school conditions dis-courage teachers to use audio-visual aids.	10	3	4	17 70.8%
3	Unavailability of enough aids and materials	9	4	4	17 70.8%

TABLE 8-34 (Contd)

Q.6 (Contd)

	Problems	UCB	M.of Ed	M.of Inf	Tot-al
7	Lack of efficient maint-enance	7	4	3	14 58.3%
9	Lack of motivation among some teacher-trainers and teachers	7	2	2	11 45.8%
10	Lack of sufficient finance and support	6	1	3	10 41.7%

Q7.

What language should be used as a medium for teaching educational technology and communication Courses ?

	Only Arabic	Only English	Both
UCB	1	1	10
M.of Ed	1	1	6
M.of Inf	1	-	3
Total	3 (12.5%)	2 (8.3%)	19 (79.2%)

TABLE 8-35

Q.7 (Contd)

TABLE 8-36 : Reasons for the comments given in Table 8-35.

		Reasons	UCB 12	M.of Ed 8	M.of Inf 4	Total
Both English & Arabic	1	English is the language of science and it is regarded as an international language. Most of the materials in this field are written in English. Arabic is the national language of the country, so it is advisable to use a combination of both languages according to the situation.	10	6	3	19 79.2%
Only Arabic	2	Everybody can understand much better if Arabic is used as a medium of instruction in this field, as it is the national language of the country. Besides not everybody knows English in this country. All the materials can easily be translated into Arabic from English as any other language.	1	1	1	3 12.5%
Only English	3	There is no doubt that English is an international language and everybody should try to learn it. Besides using English as a medium of instruction in this field will help teachers to improve their English and give them better opportunity to acquaint themselves with up-to-date materials which are usually written in English.	1	1	1	2 8.3%

8.5.3 General Review of Views

In questions 1-1 and 1-2, it can be seen that most of the interviewees (91.7%) regarded Educational Technology as an important field of study, both for current and future societal needs, (see Table 8-26 and 8-27). In both cases (current and future) none of them regarded this field as being unimportant, although two lecturers from UCB remained undecided. This is perhaps due to the existence of some educationists teaching at the University level who still do not possess enough knowledge about what such a field can actually offer in the teaching learning situation.

14 of the 24 regarded "Communication Theories" as an important course in the current situation. The rest of the communication courses did not really gain enough support as being needed in the present situation in Bahrain (see Table 8-26). In respect of Table 8-27 although most of the communication courses obtained a higher percentage of frequency for future offerings, they still remained at a low level of favour by having a frequency lower than 50%, with the exception of "Commmunication Theories" (which obtained higher support (see Table 8-27). "Advertisements" and "Public Relation" retained the same frequency percentage for current societal needs and future.

In question 2, 50% of the interviewees considered the establishment of an Educational Technology and Communication Centre as worthwhile (see Table 8-28). The reasons given by the 12 interviewees in favour of such a centre could be regarded as satisfactory, (see Table 8-29). Those who were not in favour (25%) pointed out that it was premature to take such a step. It is strange how some regard such a centre as premature at the time when the university has been comissioned to train and re-train all non-graduate or non-trained Bahraini teachers at all levels; and when such a field has been agreed upon by most educationists in Bahrain to be vital for any teacher at any level.

In question 3 all the problems stated by the interviewees are valid and they all should be taken seriously into account, before establishing such a centre. However, the author regards problem number 2 "Lack of awareness about the importance of this field" as a very serious one. The authorities need to examine this problem in a much deeper way, and to work towards the development on awareness of its vital role in the improvement of instructional procedures. "Lack of specialists' had the highest frequency among all the problems (see Table 8-30). It is true that

Bahrain lacks specialsts in educational technology, but unless the authorities become fully aware of the role that this field can play in the up-dating of instructional procedures, it will remain hard to convince them to devote finace to train the required number of specialists needed.

In considering the possibility of establishing a Council for Education Technology 50% of the interviewees were in favour of the idea, whilst 25% did not find it worthwhile and the rest remained undecided (see Table 8-31). From the reasons given it can be seen that three (1, 2 and 3, see Table 8-32) are worth considering whilst number 4 which was given by those who replied negatively to such an idea was not really logical. A country with more than half a century of formal education cannot be regarded as being in a situation where it is premature to establish such a Council. One may argue, however that the reason number 3 was given by those undecided is perhaps reasonable. This means that an Educational Technology Department in UCB and a complete unit or section for Educational Technology in the Ministry of Education would prhaps serve the purpose, if a council is regarded as being more than what is needed at the moment. Reason number 2 given by 2 of those in favour of such a Council is also

worth considering, as it might be a good idea to establish such a Council linked with the other Gulf States, but this of course would need to be subject to detailed study.

As far as question 5 is considered, three statements (1, 3 and 4) were supported by most of the interviewees, whilst the second statement was supported by 11 out of 24 (see Table 8-33). One point which merits attention here is that 9 out of 12 from UCB interviewees supported the idea of offering a Diploma and Masters degree in Educational Technology, but only 4 of them considered establishing an Educational Technology and Communication Centre to be worthwhile (see Table 8-28)

Two additional points could be mentioned here, one is that perhaps the 5 interviewees (from UCB) who were in favour of offering a Diploma and Masters degree, but not in favour of establishing a Centre for Educational Technology and Communication did not want a joint Centre for both fields - they only favoured an "Education Technology Centre". However, when the author raised these points with the interviewees, no clear explanation was provided. The other point is that this could be regarded as revealing a conflict in the replies of these 5 interviewees. It would seem

that the 5 assumed that a Masters degree and a diploma in Educational Technology could be offered without having a relevant centre or department. Surely if such degrees are to be offered there is a basic need for an adequate number of qualified professionals, enough equipment and materials and a proper space for training and storage. Whether one calls such a collection a department, unit, centre or section might not be important, but the facility would need to be supervised and orgnised by fully aware professionals, and it would be more effective if such a "collection" had their own department like other fields of study.

Regarding question 6 all the problems raised by the interviewees were quite consistent (see Table 8-34) and all need to be considered when planning educational technology programmes. It was good to see that most of the interviewees were aware of the kinds of problems which exist in promoing the use of audiovisual aids in Bahrain. Being alert and convinced that such problems do exist, especially on the part of higher authorities, should perhaps help to solve them more swiftly and smoothly.

With regard to the question of the medium of instruction for educational technology and communication courses 19 out of 24 (see Table 8-35),

considered that using both English and Arabic in teaching such fields was ideal, giving the reasons that English is the language of science and Arabic is the national language of the country (see Table 8-36). Three stated that only Arabic must be used, and two considered only English should be used. Reasons provided by both groups are stated in Table 8-36. The author accepts the idea that both languages, English and Arabic must be used in instruction for the reasons previously discussed in Chapter 8, area 11.

CHAPTER 9

THE_MODEL

9.1 INTRODUCTION

In this Chapter a model for an educational technology and communication system for University education in Bahrain is described - its objectives and functions outlined on the basis of :

(1) Concepts and principles derived from the relevant literature available.

(2) An analysis of findings of the questionnaires used in the study to outline a content for the provision of educational technology courses and the degree of suitability of communication courses.

(3) An analysis of questionnaires distributed among students to examine their attitudes towards the use of audiovisual aids.

(4) An analysis of interviews with higher officials in the University College of Bahrain, Ministry of Education and Ministry of Information as support evidence.

(5) A review of the educational technology and communication programmes conducted for a period of four years (1979-1983) in University College of Bahrain.

(6) Personal experience in the fields of educational technology and communications in University College of Bahrain.

(7) The author has also made a review of educational technology programmes offered in UCC. This has not been referred to in the study, but a copy of the programmes' objectives has been provided in Appendix XII.

The model has 3 phases (see Diagram 9-1). The provision of courses and services grows as the model passes from one phase to another with the consequence that the responsibilities of the educational technology officials also grow. As the Educational Technology section functioning under the Education department in phase 1 (perhaps) becomes an

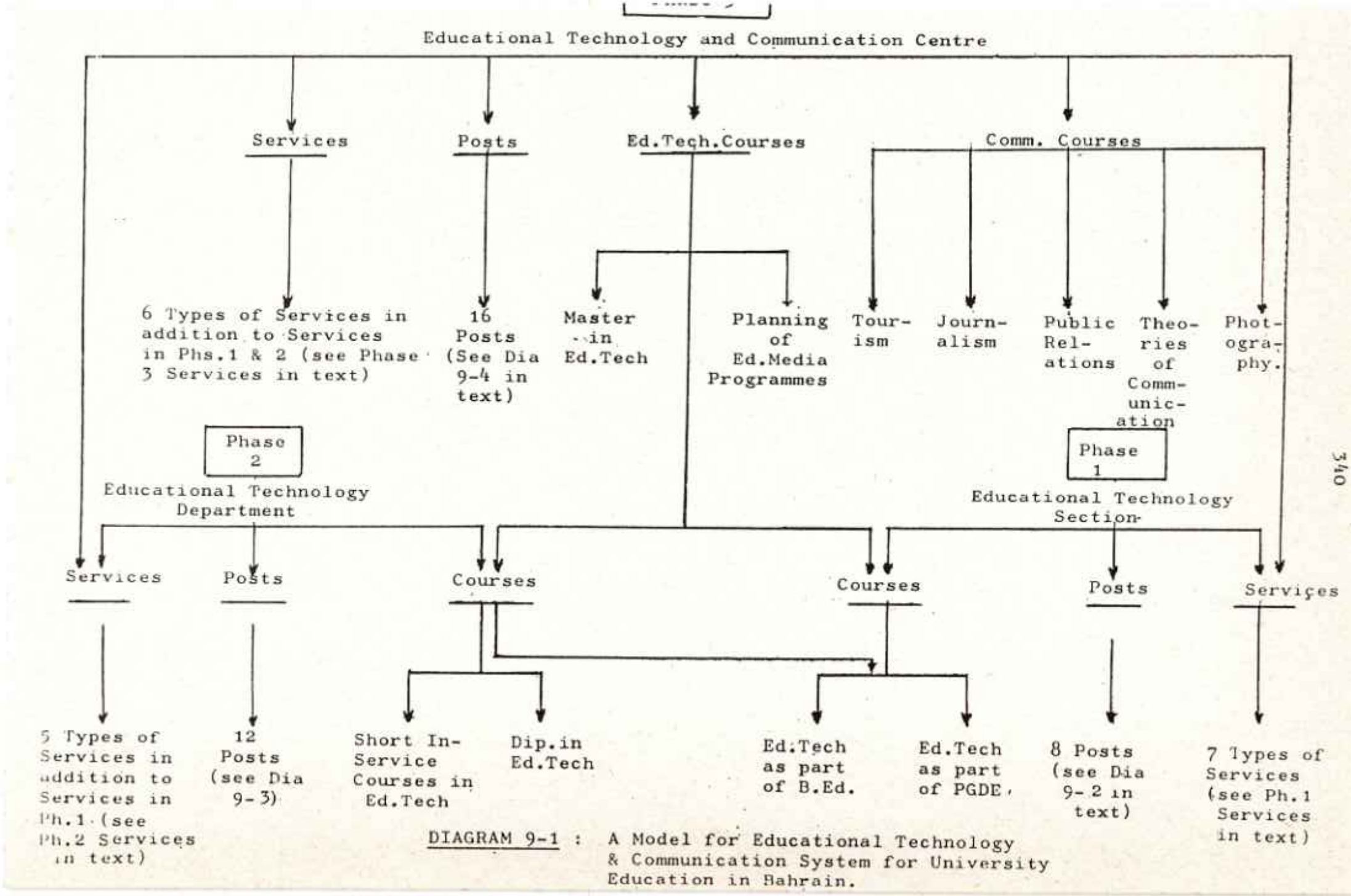


DIAGRAM 9-1 : A Model for Educational Technology & Communication System for University Education in Bahrain.

independent department in phase 2, with a wider range of activities, there will be a need for more professional staff to offer new services and activities developed according to the growing range of objectives emerging in response to the new requirements.

Although the responsibilities of the co-ordinator and his counterparts can be reviewed as wide (see Responsibilities of Suggested Posts, p. 346) they will function on a limited scale in phase 1, developing to cover all responsibilities listed under their posts in phase 3. It will also be the responsibility of co-ordinator and senior specialists to decide what types of personnel will be needed as the system develops. Diagrams (9-2, 9-3 and 9-4) indicate suggested posts needed for each phase.

The transfer from a lower phase to the next, is viewed as gradual, and there is no set time limit for any one phase, but once new needs become explicit and human and adequate resources become available, there will be no reason for hesitation to widen the scope of the operation.

A model such as this cannot be regarded as fixed, but provides a well planned basis to help

minimise the number of unforeseen problems. Equally too, all programmes once operating should be subject to ongoing evaluation, so as to enable them to be adjusted to new situation demands.

9.2 SUPPORT

(1) It was shown (in Chapter 8 area 1 "Rationale") that educationists (consisting of lecturers, advisors and teachers) had strong positive attitudes towards educational technology, and are almost all sympathetic to the need for services in this field;

(2) It was also found, that 91.7% of the higher officials interviewed in respect of educational technology regarded it as an important field of study;

(3) Bahraini students also had strong positive attitudes towards the use of audiovisual aids.

These have been taken to provide sufficient support for the construction of a model in this field in University College of Bahrain.

9.3 OBJECTIVES OF EDUCATIONAL TECHNOLOGY FOR ALL COURSES

Although the objectives of educational technology courses for B.Ed., PGDE, Dip. and Master degrees in Ed.Tech., are basically the same, the courses differ in degree of detail and with extra activities included in the two latter programmes as they have to provide more exposure and at higher levels. It has been assumed that those taking these two will be following careers in educational technology. The objectives of educational technology for the courses are based on Area 3 "Pre-determined Objectives",* and are as follows. After finishing the course successfully the learner should be able to:

1. Formulate objectives,

2. Select learning experiences,

3. Select content,

4. Choose appropriate material and equipment,

* Although the objectives of all courses are the same the degree of depth increases as the courses become more advanced.

5. Evaluate the effectiveness of the overall course in achieving the objectives.

6. Recommend future improvements in the light of evaluation so as to better achieve the objectives.

7. Be aware and value the importance of educational technology in the educational processes,

8. Value the principle of a technology of education and training.

9.4 PHASE_(1)

9.4.1 Objectives

1. Offer semester courses in Ed.Tech., as a part of B.Ed., and PGDE programmes.

2. Provide the following services to UCB departments :

1. Lend facilities for teaching purposes

2. Produce instructional materials for departmental use.

3. Encourage the use of visual material by group meetings and by contact with individual instructors.

4. Produce information (about the new knowledge and discoveries in the field), to be circulated at regular intervals.

5. Organise workshops in the operation of equipment and the production of some software for the staff of UCB.

6. Circulate motion pictures and prepare the condition for showing video-tapes to students of various specialisations in UCB.

7. Take photographs, video-tape and record special occasions.

9.4.2 Content of Ed.Tech.,Semester for B.Ed., and PGDE

The B.Ed., programme is intended for primary and intermediate school teachers whilst the PGDE is designed for secondary school teachers. The educational technology course content suggested for these two courses are similar with fewer hours to be spent on some topics with regard to the latter, as it is only a one-year course (see Topics to be Covered, p. 355).

As the educational technology course is a minor part of the B.Ed., and PGDE programmes, there will be insufficient time for depth study. A 3-credit course in educational technology is inadequate for a four-year course in education (B.Ed.,). The author suggests that a two-semester course in Ed.Tech., would be necessary, each possibly worth 3 to 4 credits. 32 to 34 hours of classwork would be expected for each semester, excluding lab-work and the required assignments.

As far as the PGDE is concerned the time provided for the provision of Ed.Tech., course is also short. To correct this it should be extended to a one-semester course in educational technology, worth 4 credits (instead of 3), and 56 hours of classwork at least should be allocated.

9.4.3 SUGGESTED ED.TECH. ESTABLISHMENT FOR PHASE 1

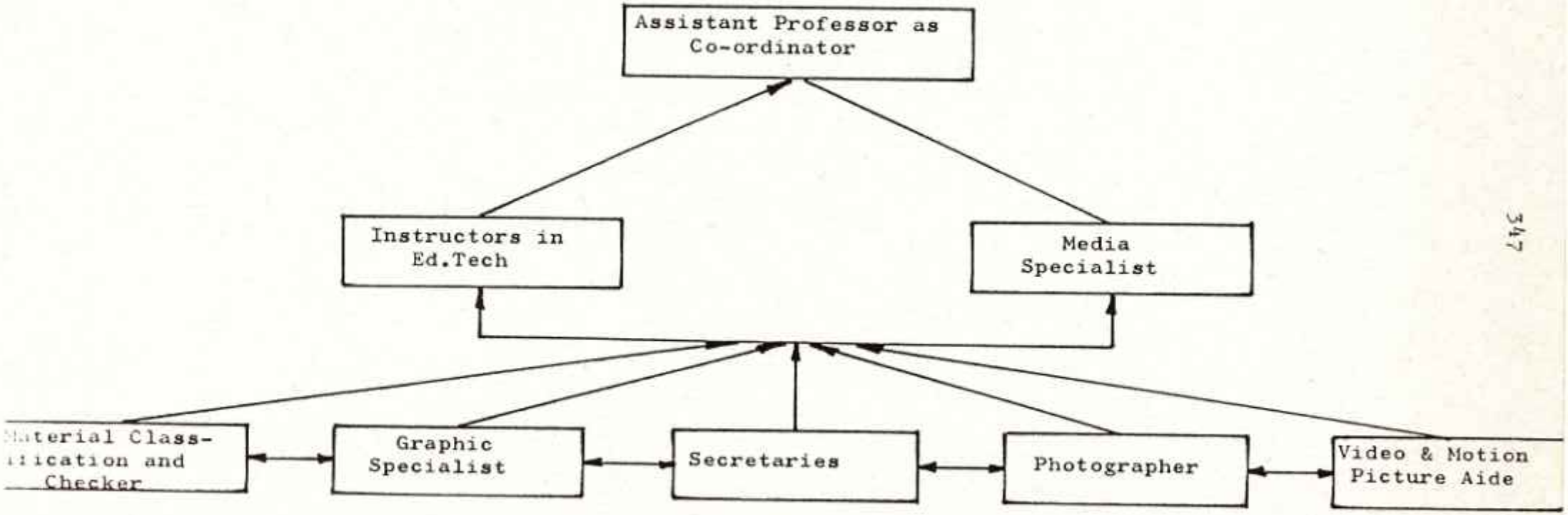


DIAGRAM 9-2

9.5 PHASE (2)

9.5.1 Objectives

Objectives of phase 2 will comprise objectives of phase 1 and have an addition :

2. Offer a nine-month diploma course in Ed.Tech.,

3. Offer short in-service courses in Ed.Tech., designed for particular aspects required by other institutions,

4. Provide such services (in addition to services of phase 1) as :

    8. Produce instructional material for all the departments.

    9. Organise workshops in the operation of equipment and the production of needful software for other institutions upon the request.

    10. Participate in the design of instructional systems in UCB and other establishments.

    11. Arrange joint seminars with other establishments.

12. Circulate educational materials for off-campus use in co-operation with other institutions.

9.5.2 Content of the Diploma in Educational Technology
(A nine-month course)

Students taking diploma course in Ed.Tech., must spend approximately 140 hours as classwork in theories and practice of educational technology, besides lab-work for the production of software, required assignments and a project (see Topics to be Covered, p. 355).

The activities will consist of :

1. Attending lectures,

2. Such practical work as -
   a. producing software

   b. operating the available teaching equipment

3. Submitting required assignments,

4. Sitting required examinations,

5. Preparing a project.

29 credits will be given to the course-work (parts 1,2,3 and 4) and with additional 3 credits for the project.

9.5.3 SUGGESTED ED.TECH. ESTABLISHMENT FOR PHASE 2

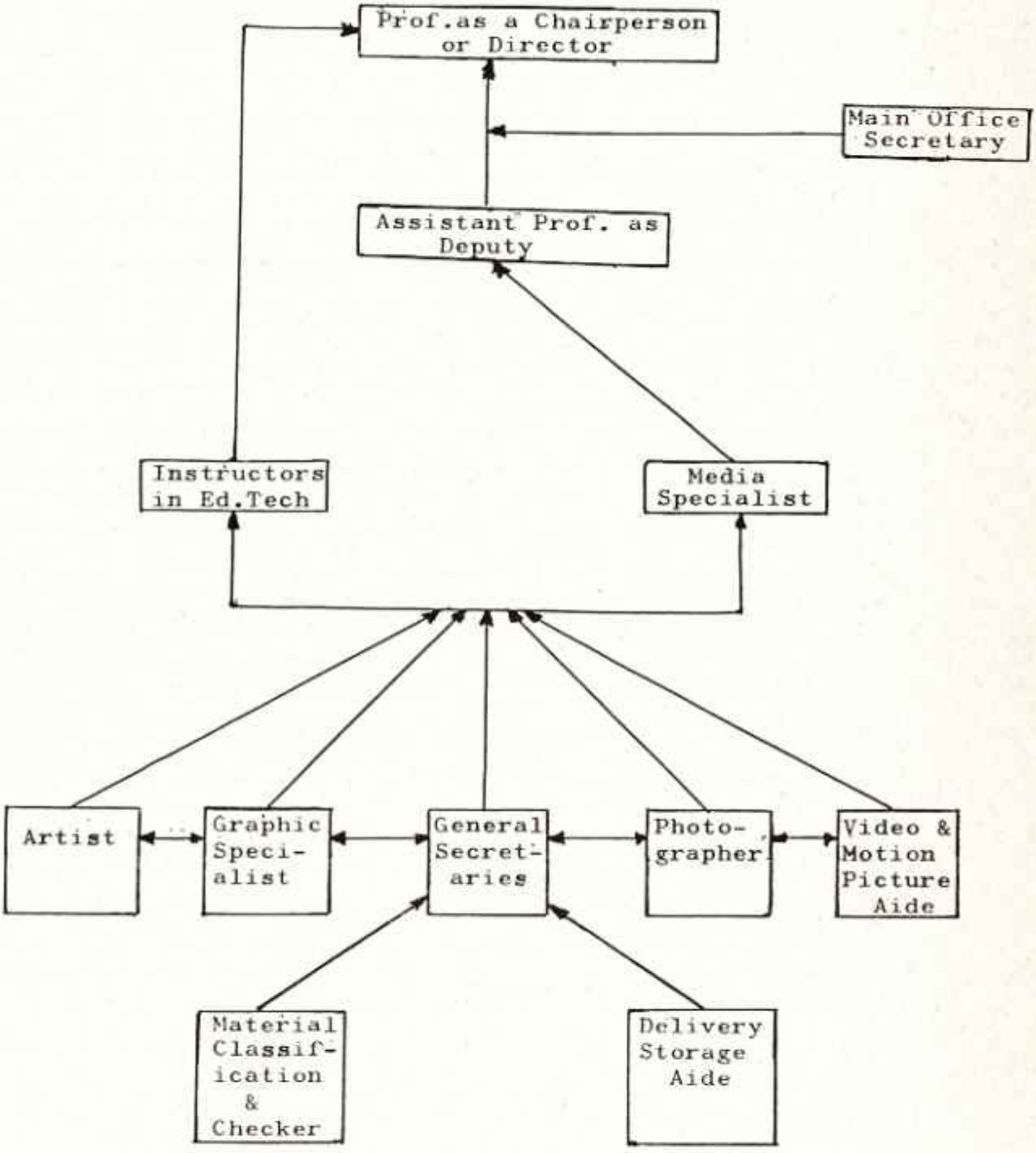


DIAGRAM 9-3

9.6 PHASE (3)

9.6.1 Objectives

Objectives of Phase 3 comprise objectives of phase 1 and phase 2, and in addition:

4. Offer a twelve month Master degree course in Ed.Tech.,

5. Further professional compentence with regard to the planning and direction of educational media programmes and research,

6. Provide in addition to the services in phases 1 and 2 such services as :

13. Undertake experimental development and trial of instructional devices, techniques and materials.

14. Assist Bahrain TV and Radio in providing programmes for educational purposes.

15. Advice in the use of language laboratories and other electronic teaching or learning facilities available in UCB.

16. Supervise programmed instruction.

17. Supervise such technical services as design, installation and maintenance of equipment.

18. Give advice in planning and designing new educational buildings and instructional facilities for promotion of efficient use of educational media.

9.6.2 **Content of the Masters Degree in Educational Technology** (a twelve month course)

Students taking Masters degree in Educational Technology must spend approximately 160 hours as classwork in theories and practice of educational technology, besides lab-work for the production of software, required assignments; and a dissertation to be undertaken after successfully finishing course-work and passing required examinations in the theoretical and practical aspects of the field; in addition to a one-month attachment to an Educational Technology Centre.

The activities cover:

1. Attending lectures,
2. Such practical work as -

a. producing software

b. operating the available teaching equipment,

3. Submitting the required assignments,

4. Sitting the required examination,

5. Writing a dissertation,

6. Attach to an Educational Technology Centre for a period of one month.

34 credits will be given to course-work (parts 1, 2, 3 and 4), 8 credits for the dissertation (part 5) and 4 credits for the attachment (part 6).

Topics to be covered in Masters degree are almost the same as the diploma. However, more time will be spent on some of the topics, as they will be dealt with in more depth, (see Topics to be Covered p.355)

9.6.3 TOPICS TO BE COVERED AND TIME ALLOCATION FOR EACH COURSE

It has to be considered that :

1 - Some topics are cancelled due to low scores.

2 - Although some topics had high scores, they could not be included in PGDE and B.Ed. programmes due to time constraint.

3 - Time allocation is according to the importance and the nature of the topic (as some topics need more time to be covered). However, this is subject to adjustment and modification.

Topics to be covered	PHASE			
	PHASE			
	PHASE 1		2	3
From Area (4)				
1. Theoretical Studies	Ed. Tech as part of PGDE	Ed. Tech as part of B.Ed.	Dip. in Ed.Tech	Masters in Ed.Tech
1. The Concept of Educational Technology	2	2	2	2
2. Potentials and limitations of visualised instruction	1	1	2	2
3. Media Technology and Educational System	1	1	2	2
4. The process of communication	-	-	1	2
5. Resource Centres and Resource Management	-	-	2	2
The computer and Educational Technology	-	-	1	2

From Area (5)

2. Educational Objectives

	PHASE			
	PHASE			
	PHASE 1		2	3
	Ed.Tech as part of PGDE	Ed.Tech as part of B.Ed	Dip. in Ed.Tech	Masters in Ed.Tech
1. Aims and Objectives	1	1	2	2
2. General Instructional Objectives	1	2	2	2
3. Behavioural Objectives	2	2	3	3
4. Terminal and Enabling Objectives	1	1	2	2
5. Relating Objectives to classroom Instruction	1	2	2	2
6. Advantages and Problems Involved in using Objectives	1	1	2	2
7. Taxonomy of Educational Objectives	-	-	2	3
8. Using Instructional Objectives in Test Preparation	-	1	2	2
9. Using Instructional Objectives in Marking and Reporting	-	-	1	1

	PHASE			
	PHASE			
	PHASE 1		2	3
From Area (6)				
3. Learning Experiences	Ed.Tech as part of PGDE	Ed.Tech as part of B.Ed	Dip.in Ed.Tech	Masters in Ed.Tech
1. Analysing Objectives	1	1	2	2
2. Considering Subject Matter	1	1	3	3
3. Learning Sequences	2	2	3	3
4. Teaching Strategies	2	2	3	3
From Area (7)				
4. Media & Methods				
1. The Terminology of Media	1	1	2	2
2. Principles of Media Utilisation	-	1	2	2
3. Criteria for Media Selection	1	1	2	2
4. Types of Teaching Boards	2	2	3	3
5. Transparencies for Overhead Projection	2	2	3	3

	PHASE			
	PHASE 1		PHASE 2	3
	Ed.Tech as part of PGDE	Ed.Tech as part of B.Ed	Dip.in Ed.Tech	Masters in Ed.Tech
6. Real Things and their Models	2	2	2	2
7. Community Resources	1	1	2	3
8. Teaching with Audio Materials	2	2	3	3
9. Teaching on Television	1	1	2	3
10. Teaching with Films	1	1	2	3
11. Still Pictures	1	1	2	2
12. Uses of Photography in Teaching	1	1	2	2
13. Graphic Materials	1	1	2	3
14. Charts	1	1	2	2
15. Free and Inexpensive Materials	2	2	3	3
16. Displaying	-	-	2	2
17. Games and Simulation	-	1	2	3
18. Printed Text and Reference Materials	1	1	2	3

	PHASE			
	PHASE			
	PHASE 1		2	3
	Ed.Tech as part of PGDE	Ed.Tech as part of B.Ed	Dip. in Ed.Tech	Masters in Ed.Tech
19. Improving the Room Environment	-	-	1	2
20. Field Trips	2	2	2	3
21. Development of Programmed Instruction	-	-	3	4
From Area (8)				
5. Audiovisual Aids & Machines				
1. Overhead Projector	1	2	3	3
2. Opaque Projector	1	1	1	1
3. Tape or Cassette Recorder	1	2	2	2
4. Slide Projector	1	2	3	3
5. Filmstrip Projector	1	1	1	1
6. Synchroniser	1	1	2	2
7. 16mm Sound Projector	1	1	2	3
8. 8mm Sound Projector	-	-	2	2

	PHASE 1		PHASE 2	PHASE 3
	Ed.Tech as part of PGDE	Ed.Tech as part of B.Ed.	Dip.in Ed.Tech	Masters in Ed.Tech
9. Micro Projector	-	-	1	2
10. Television Set	1	1	2	3
11. Video-tape Recorder	1	1	2	3
12. Language Lab	1	1	2	2
13. Still Camera	-	-	3	3
14. Close-up Attachment	-	-	2	3
15. Lettering Devices	-	-	2	3
16. Transparency Maker	1	1	2	2
17. Photographer	1	1	1	1
18. Tape Slicer	-	-	2	2
19. Computer	-	-	2	4
From Area (9)				
6. Evaluation				
1. Assessment and Evaluation	1	1	2	2

	PHASE			
	PHASE			
	PHASE 1		2	3
	Ed.Tech as part of PGDE	Ed.Tech as part of B.Ed	Dip.in Ed.Tech	Masters in Ed.Tech
2. Summative Evaluation	-	-	2	2
3. Formative Evaluation	-	-	2	2
4. Evaluation Techniques for Cognitive and Affective Objectives	1	1	3	3
From Area (10)				
7. Improvement				
1. Finding strength and weaknesses	1	1	2	2
2. Identifying Course Difficulties	1	1	2	3
3. Remedying Weaknesses	1	1	2	2
4. Reviewing and updating Courses	-	1	2	3
TOTAL HOURS	56	66	140	160

9.6.4 Communication Courses

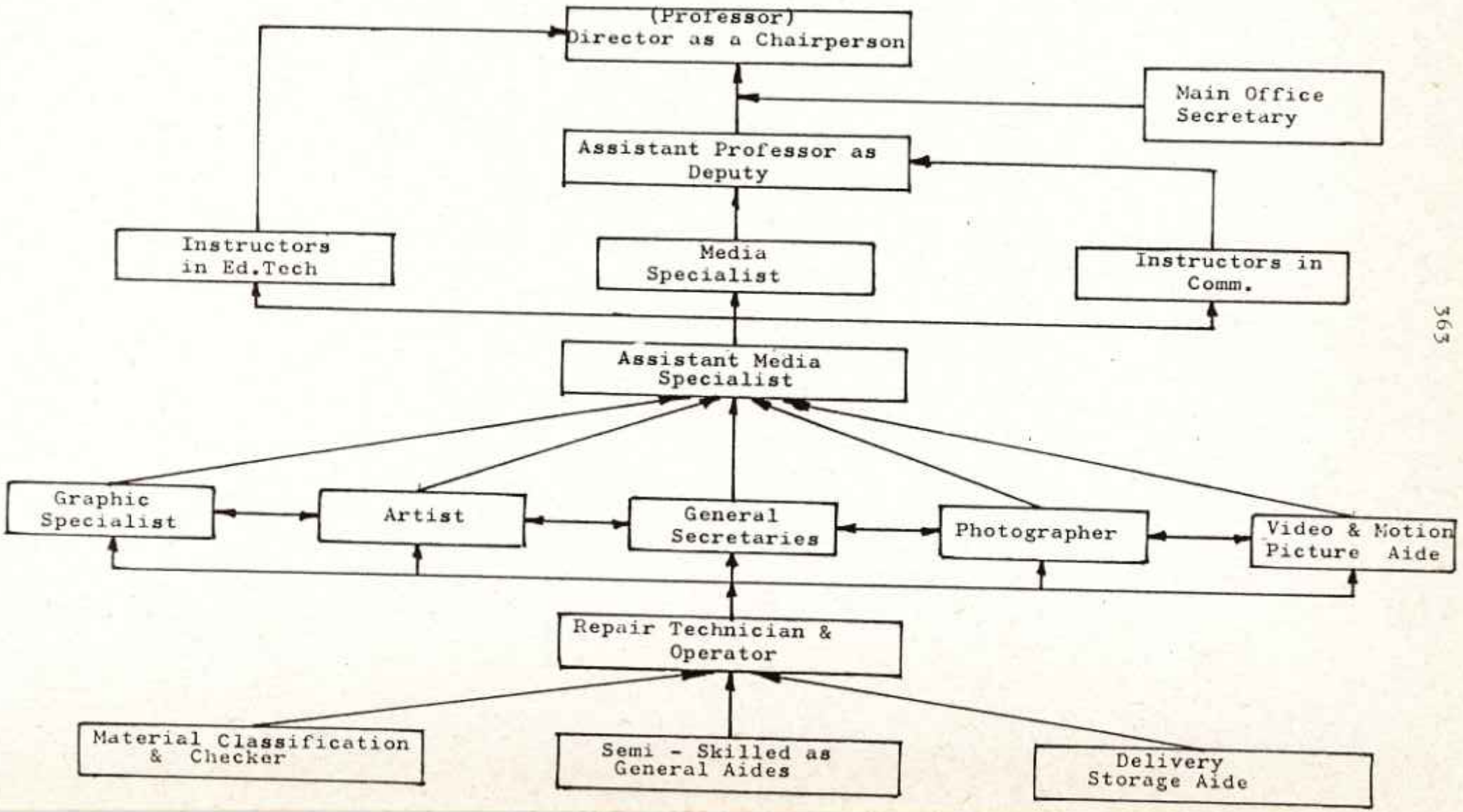
It was shown in Chapter 8 that communication courses have generally not gained enough support for them to be provided. However, a few of them were agreed upon as being desirable to be offered in future. It would seem feasible then to open a section for their provision in Phase 3. It would therefore be advantageous if the assistant director in Phase 3 were a specialist in a communication field so as to develop and direct communication courses.

The first three of the following courses have already been accepted as to being desirable. However, although the courses "Theories of Communication" and "Photography" have not been accepted they are perhaps worth providing for the reasons given in Chapter 8.

1. Tourism
2. Journalism
3. Public Relations
4. Theories of Communication
5. Photography.

9.6.5 SUGGESTED ED.TECH & COMM. ESTABLISHMENTS FOR PHASE 3

FIGURE 9-4



9.7 MEDIA OF INSTRUCTION FOR EDUCATIONAL TECHNOLOGY AND COMMUNICATION COURSES

It has been accepted (as it was shown in Chapter 8) that the two languages, Arabic and English must be used as media for instruction in educational technology and communication. However, it remains for the instructor himself to adjust when and where to use which, and at all times ensuring that the learners can comprehend his instructions and explanations thoroughly and without difficulty.

9.8 RESPONSIBILITIES OF SUGGESTED POSTS

The following activities are derived from the overall objectives of the phases. Each official in the Educational Technology section or department must be adequately qualified and sufficiently trained to undertake his responsibilities efficiently. This demand for high efficiency in turn requires an efficient procedure. New employees should be given three to six months on probation to prove that they are capable of carrying out their tasks effectively to the required standards; and show a real willingness to develop their skills further as new demands arise.

The responsibilities outlined below are not intended to be rigidly fixed, as any specialist or instructor should be willing and able to assist

colleagues whenever required, for co-operation among the staff in any Educational Technology Centre is a prime necessity for the effective conduct of operations.

The principle functions to be performed in the system organisation by each post are identified. There should however, be opportunities for moving upward in the organisation through improvement of original skills. The title and level of the individual work officer to whom he reports in each phase is also given.

9.8.1 **Co-Ordinator of the Section or Director as a Chairperson of the Department**

Reports to the Rector of the University

1. **Planning :**

    1. Planning the overall educational technology's activities beforehand for each session,

    2. Planning, organising and conducting workshops, seminars and conferences,

    3. Participate in planning and organising in-service education for Bahraini teachers upon demand,

4. Assist in planning and designing new building and instructional facilities for promotion of efficient use of educational media,

5. Co-operate with other agencies, and establishments in the country for the purpose of planning and directing educational media programmes and training and providing professional education,

6. Participate with higher authorities of UCB in planning and preparing budget for educational technology and communication programmes.

2. **Personnel :**

1. Identify and classify specific tasks which should be undertaken by different personnel (according to their specialisations) in the Centre.

2. Ensure the involvement of students and representatives from all UCB departments in working with staff of Educational

Technology and Communication Centre in continually evaluating the overall Centre's programmes.

3. **Materials :**

1. Evaluate suggestions of staff in the selection, purchase and use of equipment.

2. Recommend the purchase of equipment that will be helpful in the effective teaching of specific subjects.

3. Oversee the development and trials of instructional devices, techniques and materials.

4. **Other Responsibilities**

1. Supervise student research.

2. Encourage and co-ordinate research in the field of educational technology.

3. Visit other Educational Technology and Media Centres in developed and developing countries for the purpose of exchanging ideas and being abreast of new recommendations in the field.

4. Report to higher authorities about various activities undertaken and future demands and prospects of the section, department or centre.

9.8.2 **Deputy Director**

Reports to the Director of the Centre

1. **Planning**

   1. Planning the overall communication programmes beforehand for each session.
   2. Assist the Director of the Centre in all planning procedures.

2. **Supervision**

   1. Supervise all the production procedures in the Centre.
   2. Supervise research activities and course development in communication field.
   3. Supervise overall examination

procedures in the Centre.

4. Supervise student research.
5. Supervise Centre's overall evaluation procedures.

9.8.3 **Instructor in Educational Technology**
Reports to the Director of the Centre

1. Gives lectures in all theoretical aspects of educational technology.
2. Give appropriate assignments and prepares examination questions in advance; mark and grade the replies for immediate feedback.
3. Supervise programmed instruction.
4. Give practical lessons in the production of various types of software needed for classroom teaching.

9.8.4 **Instructor in Communication**
Reports to the Deputy-Director of the Centre

1. Gives lectures in all communication courses provided in UCB.
2. Give appropriate assignments and prepare examination questions in advance; mark and grade the replies for immediate feedback

9.8.5 **Media-Specialist**

Reports to the Deputy-Director of the Centre

1. **Planning**
   1. Plan and develop media educational programmes.
   2. Plan and supervise the production of audio and video material.

2. **Instruction**
   1. Give demonstration to staff and students in the production of software and operation of hardware.
   2. Assist Bahrain TV and Radio in the provision of educational programmes.
   3. Train assistants when required.

3. **Materials**
   1. Advise and co-operate in the production of specific material for particular department upon request.
   2. Supervise and assist in the production of graphic materials (charts, transparancies, handbooks, and the like).
   3. Assist innovative developments in instructional media .

4. Ensure effective utilization of material.
5. Continuously evaluate the media services to meet the changing requirements.
6. Assist in improving physical environment for media utilization.

9.8.6 **Assistant Media Specialist**
Reports to the Media Specialist

1. **Planning :**
   1. Assist the Media Specialist in all his planning procedures.
   2. Plan and control distribution of the materials and equipment.
   3. Consult departmental heads about new curricula needs and plans.

2. **Instruction :**
   1. Give demonstrations to staff and students in the production of audio and video material.
   2. Instruct and assist faculty members and students to prepare their own materials.

3. **Material :**

   1. Work with, and advise, the graphic specialist, artist, video specialist and photographer in all their production procedures.
   2. Consult departmental heads concerning their locally made material requirements.
   3. Evaluate the material produced for the purpose of improvement.
   4. Circulate information about the new materials available in the market or designed locally for the purpose of teaching.

9.8.7 **Special Responsibilities**

The following activities must be participated in by the Co-ordinator and his assistant, educational technology instructors, communication instructors, media specialist, and assistant media specialist :

1. Evaluation of the Centre's overall programmes.
2. Planning and renewing the curriculum.
3. Planning and participating in workshops and seminars.
4. Participating in research activities.
5. Participating in experimental development

and trail of instructional devices.

6. Monitoring programmed instruction.
7. Giving demonstration in various aspects.
8. Participating in the design of instructional systems.

9.8.8 **Graphic Specialist**
Reports to the Assistant Media Specialist

1. Make graphs, diagrams, charts and cartoons in Arabic and English.
2. Assist the artist in making posters, illustrations and maps.
3. Give demonstrations to students and staff in making graphs, charts and diagrams.

9.8.9 **Artist**
Reports to the Assistant Media Specialist

1. Make posters, illustrations and maps in English and Arabic.
2. Assist the Graphic Specialist in the painting of his work.

9.8.10 **Photographer**
Reports to the Assistant Media Specialist

1. Take photographs of all special occasions in UCB.
2. Print and develop photographs.
3. Give demonstrations in photography, printing and developing.

4. Assist the video specialist in the operation of TV camera.
5. Assist the Graphic Specialist and the Artist whenever required.
6. Keep albums for all the pictures taken according to dates and occasions.

9.8.11 **Video and Motion Picture Aide**
Reports to the Assistant Media Specialist

1. Produce video tapes for different activities required by UCB departments.
2. Operate television cameras.
3. Prepare the atmosphere for students and staff whenever there is a TV show.
4. Maintain the relationships between UCB and Mn. of Inf., with regard to TV production.
5. Circulate motion pictures and information about 16 and 8mm films available for various departments.
6. Seek advice from officials in Mn. of Inf., for the purpose of video production development.

9.8.12 **Main Office or Chairperson's Secretary**
Secretary to the Director and his Deputy

1. Type all office documentation.
2. Work as telephone respondent.
3. Duplicate office material.
4. File office information and reports.

5. Arrange appointments for students and staff to meet the co-ordinator or his assistant and the instructors.

9.8.13 **General Secretaries**
Secretaries to the Instructors and Media Specialists

1. Type all materials for circulation and production.
2. Work as telephone respondent for other staff in the Centre.
3. Keep records.
4. Send invoices.
5. Handle all office and circulation routines.
6. Arrange appointments for students and staff to see other specialists in the Centre.
7. Duplicate printed material in the required quantity.

9.8.14 **Repair Technician and Equipment Operator**
Reports to the General Secretaries

1. Provide maintenance service for all UCB equipment.
2. Advise and assist in installing instructional equipment.
3. Clean and service all equipment on regular basis.
4. Give demonstrations in the operation of all equipment to staff and students.

5. Advise on the use of language laboratory and other electronic teaching or learning facilities available in UCB.
6. Give demonstrations in the change of simple spare-parts to staff and students.
7. Advise the authorities about the weaknesses of aids.
8. Assist in purchasing the equipment.

9.8.15 **Material Classification and Checker**
Reports to the Repair Technician and Equipment Operator

1. Prepare and maintain catalogues.
2. Inventory materials.
3. Schedule materials and equipment.
4. Maintain circulation and inventory records.
5. Circulate information about the missing equipment and about the newly arrived units
6. Check all equipment when delivered and returned.
7. Assist the Repair Technician and Delivery Storage Aide in their tasks.
8. Write reports on the conditions of equipment and the new demand with regard to spare-parts.

9.8.16 **Delivery Storage Aide**
Reports to Repair Technician and Equipment Operator

1. Deliver and lend all the out-campus equipment.
2. Assist in purchasing the new equipment.
3. Store all the new equipment and material in proper and healthy way to avoid wastage.
4. Assist Repair Technician and Material Classification Checker in their tasks whenever possible.

9.8.17 **Semi-Skilled Aides**
Reports to the Repair Technician and Equipment Operator

1. Assist Repair Technician whenever required.
2. Assist in duplication and other production activities.

9.9 BUILDING_AND_PHYSICAL_FACILITIES

The Educational Techology Centre should have a pleasant physical environment and be correctly sided for the provision of various programmes and use of a variety of instructional resources. It would be advisable for the Centre to be located on the ground floor in the centre of University campus for the easy access of all departments and mobility of equipment. Diagram 9-5 gives a simple design for an Educational Technology and Communication Centre for University Education in Bahrain.

Flexibility and adaptability to unknown future requirements should be one of the main criteria in designing instructional facilities. Movable and removable walls, for example, are desirable to change space areas according to requirements. The following considerations are important for a University Educational Technology Centre.

9.9.1 Space

Space must be designed to serve such different purposes :

1. Large group teaching.
2. Medium and small group teaching.
3. Workshop and Laboratory work.

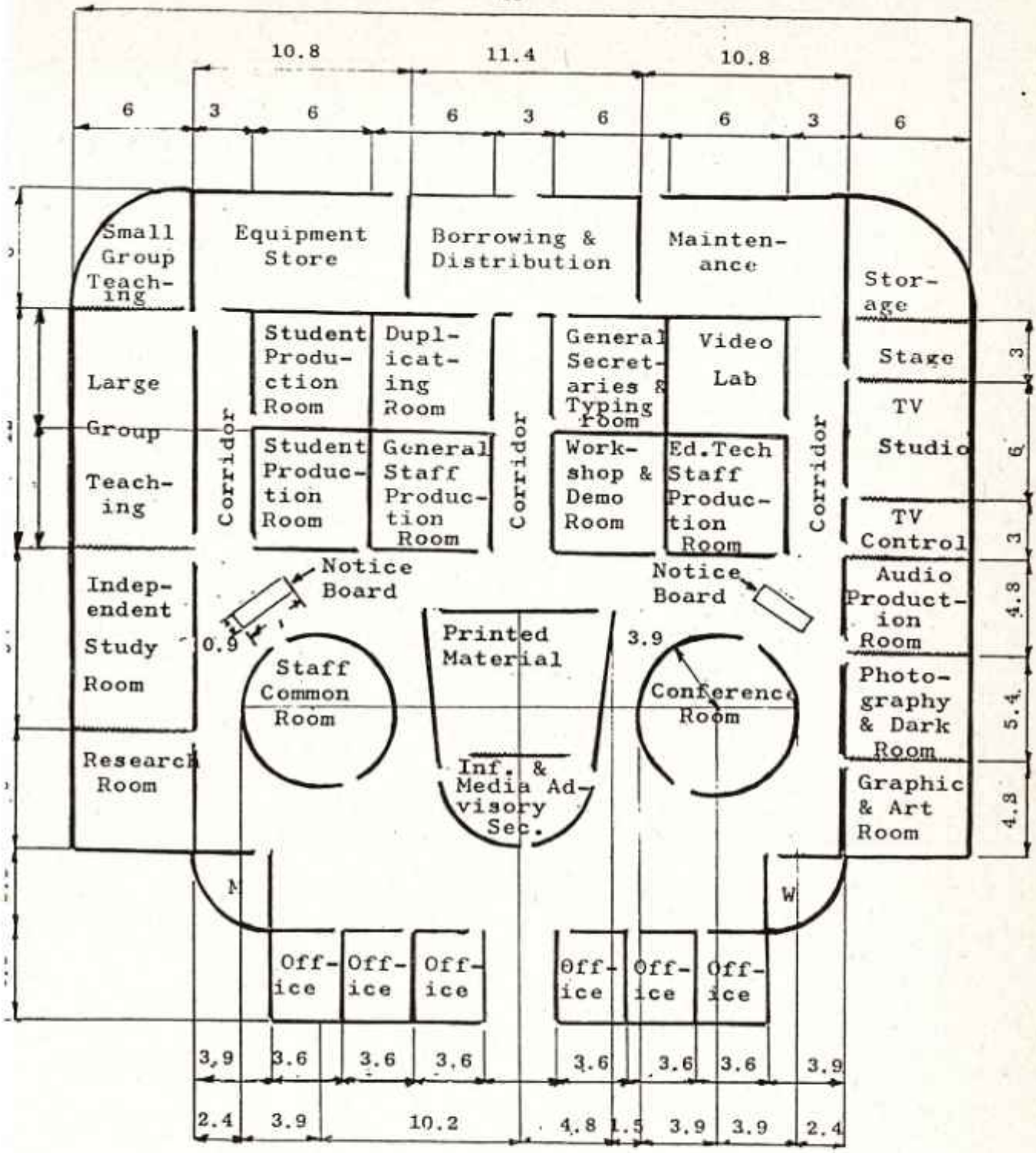


DIAGRAM 9-5

Simple Design for Educational Technology and Communication Centre for University College of Bahrain.

(Developed by Author)

1cm = 3m

$\frac{1}{300}$

Movable and Removable Walls

4. Provision of adequate individual study space.
5. Staff and student production activities.
6. Conferences.
7 Provision of space for video and television, audio recording, photography, graphics and art, typing and duplication.
8. Sufficient offices for all staff together with conveniences.

9.9.2 Display and Storage

In storage and display of the equipment the following points should be considered :

1. The system of cataloging used must be easily understandable and convenient for borrowers to use. It must serve the users by clearly identifying the Centre's resources, stocks and show their location.
2. There should be economic use of floor space.
3. Ready accessibility to materials for staff and students.
4. The storage area should be free from safety hazards, excess heat, dust, moisture and electromagnetic field.

9.9.3 Environmental Requirements

Consideration must also be given to such environmental necessities as :

1. Controlling light both natural and aritificial so as to provide comfort to enable sufficient working (to avoid glare and strain).
2. Ventilation and cooling system with controlled temperature, especially needed in a hot and humid climate like that of Bahrain.
3. Provision for sound control.
4. Provision of electric power of sufficient amperage and voltage conveniently operated with all required safety devices.
5. Permanent wall-type roller screens and chalk-boards for all teaching areas.

9.9.4 Equipment and Material Collection

The following equipment and materials are among the main items which a University Equipment Centre might be expected to hold. This would vary according to the demand of a particular University.

1. Projectors :

   Overhead projectors

   Slide projectors

Opaque projectors

Micro projectors

Filmstrip projectors

8mm and 16mm projectors

Microfiche readers

2. Audio-Television :

Tape or cassette recorders

Videotape recorders

Radio receivers

Amplifiers

Record players

3. Photographic :

Still cameras

Motion picture cameras (8mm)

Darkroom equipment

Tripods

Lights

Photocopiers

Development facilities

4. Graphic :

Lettering devices

Laminators

Colouring devices

Paper cutters

Dry-mount presses

5. Other Equipment :

Duplicating machine

Transparency production equipment

Portable screens

Projection stands

Wheeled carts

6. Printed Materials :

Reference books

Programmed materials

Centre catalogue

Professional material regarding Ed.Tech., & Com.

Journal of Education Technology

7. Audio-Materials :

Cassettes

Tapes

Disc recordings

8. Graphic and Photographic Materials :

Transparencies

Slides

Films

Pictures

Maps and globes

Art Aids

9. Other Materials :

Specimen collections

Models and mock-ups

Some examples of kits

Posters

Community resources examples

Video tape recordings

Recored cassettes

9.10 EVALUATION OF PROGRAMMES AND ACTIVITIES

All the techniques suggested for the evaluation of educational technology and communication programmes were accepted. They are outlined respectively in accordance with their degree of importance :

1. Student achievement tests.
2. Teacher reactions written or oral.
3. Follow-up to discover whether the ideas disseminated in a course are being successfully implemented in the classroom.
4. Comparison between sessions to show

progress towards a set of goals.

5. Interviews.
6. Observations by tutors and course organisers.
7. Questionnaire.
8. All personnel should participate in follow-up procedures.

CHAPTER 10

CONCLUDING_REMARKS_AND_FURTHER_RESEARCH

10.1 CONCLUDING REMARKS :

The study has shown the importance of educational technology in improving instructional procedures. It is thus becoming important that this field of study be comprehended and perceived by those responsible for the diffusion of knowledge. Among those responsible for the dissemination of knowledge, techers and curriculum planners have vital roles. University education must then include this field of study, and establish an organised Centre for the provision of courses and services in educational technology to prepare competent future teachers and re-train those ill-prepared at present.

> ...the place where educational technology can surely make its most important contribution is in the context of professional or curriculum studies whether these are part of undergraduate or postgraduate courses. It seems to be generally accepted now that the teacher of tomorrow will have to be more a manager and designer of learning than a public performer of compendious knowledge.
>
> Pope in Neville (1977,p.31)

However, it has been pointed out that the University College of Bahrain currently offers neither proper educational technology courses nor provides adequate services to the required standard. In

examining the development of Educational technology it seemed that the authorities did not carry out the necessary initial planning before its introduction. Due to this an adequate framework for its organisation has never existed. This has further been complicated by a misconception as to the nature of Educational Technology, as most of the emphasis was and still is on the hardware approach.

Teaching in Bahrain has so far concentrated on the use of textbooks, black-board and teacher talk. Further in general, teachers in Bahrain are unaware of new instructional techniques, unable to use the new equipment, incapable of producing good software or to make proper use of the library, and laboratory facilities, community resources and the like. The only aid commonly used is the blackboard which is also not properly used most of the time whilst the teaching method throughout the academic year is 'talk chalk'. The proper application of educational technology should help to improve such a situation.

It was found in the study that educationists (teachers, advisors and lecturers) and higher authorities (in the University College of Bahrain, Ministry of Education and Ministry of Information) are all strongly in favour of educational technology,

although the communication courses were not much appreciated. Students were also found to have strong positive attitudes towards the use of audiovisual aids. It would seem desirable then to introduce educational technology in its proper context and to provide efficient media services in the University College of Bahrain.

A model based on an in-depth investigation has been proposed for the provision of courses and services in the field of educational technology, for the university education in Bahrain. The model consists of three phases to allow for the development of a full educational technology and communication Centre. One important aspect is that those who will be responsible for the setting up of the initial stages of such a model must be thoroughly trained, qualified and enthusiastic about educational technology, for skill and expertise are essential to the success of the project.

In respect of the communication field three courses have been suggested for the near future. They are, Tourism, Journalism, and Public Relations. These communication courses should be offered initially with educational technology. Later development could include a full Educational

Technology and Communication Centre.

For the continuing success of such a Centre the following must be provided for :

1. In the planning and/or renewing educational technology and communication programmes an instructional design must be followed.

2. All departments in the University must be acquainted with and accept the general objectives of the Educational Technology and Communication Centre which in turn must not commit itself to tasks outside the scope of its ability so that its credibility is maintained.

3. The responsibilities of the teaching and non-teaching staff must be laid down clearly.

4. The study has also indicated that both languages, Arabic and English should be used as the media of instruction for educational technology and communication courses. The authorities should not impose only one language as the medium of instruction.

5. Continuing attention should be given to the problems of the non-use of audiovisual aids and of

overcoming resistance to the spread of educational technology.

6. It would be desirable to establish a joint Council for Educational Technology with other Gulf States but this will need further detailed study.

7. Studies should be made of the desirability of installing closed-circuit television in the University College of Bahrain.

8. Bahrain Television and Radio Broadcasting should devote more time to educational programmes which could be jointly planned with the Ministry of Education and University College of Bahrain.

9. School television receivers should be provided by the Ministry of Education in Bahrain for (at least) secondary schools.

10. Considerable attention needs to be given to the provision of workshops and seminars in educational technology for teachers.

11. Visiting professors and specialists in the field should help the continuing expansion of the educational technology and communication fields in

Bahrain.

12. Equipment selection must be based on sound criteria.

13. Building and physical facilities for Educational Technology and Communication Centre in the University College of Bahrain should be specially designed.

14. The budgeting of educational technology and communication programmes should be the responsibility of those who administer them and in accordance with the objectives of the Centre.

15. Evaluation of educational technology and communication programmes should be a continuous process.

16. Research activities should be engaged in, at the Centre involving the development, testing and implementation of media and instructional systems in relation to the goals of the University and school system in which they are to be employed.

17. Finally, the time has arrived for the authorities in the Ministry of Education and in the

University College of Bahrain to provide adequate finance for the proper application of educational technology of which teachers are in crucial need :

> The university is a social instrument for investment in man. The policies of investment cannot be decided on economic criteria alone, but it is important to apply some principles of cost efficiency to systems of higher education. When this is done, it is found that many improvements can be made. Among these improvements is an improved use of educational technology and a rephasing of higher education so that it is not concentrated in a few years after high school but is dispersed through a person's whole career.
>
> Ashby (1974,p.16)

It has to be borne in mind too that the success of any Centre will depend on continuing goodwill which in turn can only grow out of evidence of the productivity of the educational technology centre. In the author's opinion the suggested model if applied properly, could prove a useful guide for present and future action in an area which requires immediate attention and development.

10.2 FURTHER RESEARCH

Any Educational Technology programmes must engage in continuing research into short and long range planning, taking into account the changing trends in education and new developments in the field.

Such research activities should be partly based on the results of evaluation. Whilst evaluation seeks the continuous examination of the programmes, the research should attempt to discover solutions for identified weaknesses, besides attempting to apply and integrate new methods, techniques and teaching equipment. For such innovations to be fully effective proper attention must be devoted to the processes of research development and deployment.

There are many areas however, in which research would be beneficial in the development of instructional procedure, and the following may be regarded among the more essential.

1. An assessment of the effectiveness of new applications of educational technology.

2. Measurement of the performance of existing media and methodology in terms of cost-effectiveness.

3. Identifying those techniques most suitable for the presentation of particular concepts.

4. Discovering difficulties and problems involved in using media and material with regard to

such specific subject areas as Arabic and Religious studies.

5. Causes of the resistance to the use of media in education and in the means of overcoming them.

6. Studies in learning behaviour. Although such research is an accepted part of psychology, the involvement of media makes this also an interest of educational technology.

7. Studies to improve the organistional and structural format of instructional media.

8. Studies to show how educational technology programmes as a subsystem contribute to the functioning of the overall instructional system.

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APPENDIX I

AN INVESTIGATION TESTING THEORY OF REJECTION

An investigation has been conducted to test a theory of rejection compatible with research findings from adoption studies, and also to explain the "lag" in the adoption of educational innovations. The study attempted to develop a rejection classification for newer educational media (Eichholz, 1961). The newer media were defined as electromechanical innovations such as film projectors, tape recorders, television receivers, etc., and static innovations such as the flannel-board, mock-ups, models, programed instructional materials, etc. The classification system was part of a postulated rejection theory. The theory of rejection attempted to incorporate what is presently known of the adoption process, and to explain some seemingly incongruent behavior on the part of adopters. For example, Johnson and van den Ban (1959) found that some adopters of farm innovations did not continue using them. This phenomenon was labeled a "dis-continuance" and seemed to remain in isolated phenomenon, outside of the normal adoption process. Allen (1956) found discontinuances of certain educational practices

(including remedial reading) in 12 of 54 schools that he studied.

Figure 1 shows a postulated theory of rejection combining much of the basic research in adoption. This theory is an attempt to formulate a rejection-adoption theory based primarily on rejection, and incorporates "discontinuances" as a logical result of either the rejection or the adoption process.

PROCEDURE

In an effort to test this theory of rejection and validate the classifications postulated, forty-five teachers in a metropolitan school system were selected for interviews in 1960 on the basis of three criteria :

1. Grade_taught : 15 teachers were selected from each of the following grade levels : 1-2,3-4, and 5-6.
2. Teaching_experience : 15 teachers were selected from each of the following ranges of experience: 1-3 years, 7-10 years, and over 15 years.

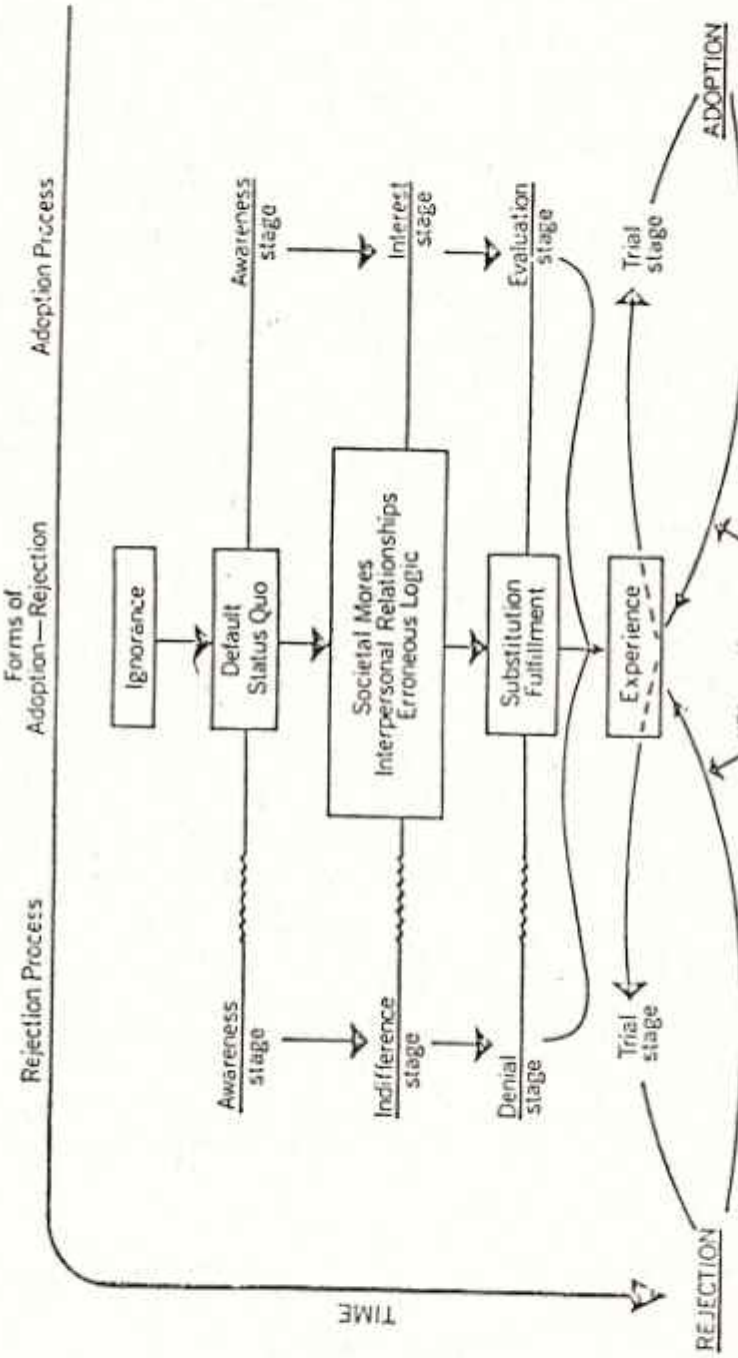


Figure 1. Diagram of a proposed rejection theory

3. Known_rejecter : A short six-question test was given to determine the non-users or rejecters of electromechanical innovations.

The criteria of grade taught and years of teaching experience were used because Kelly (1960) found them to be significant factors in the adoption of educational innovations. The sample of forty-five teachers made possible a comparison in terms of grade level and five at each experience level, with five teachers at each grade level and teaching experience, with five teachers at each grade level and five at each experience level. A six-item pre-test was given to all teachers; only those teachers found by this test to be rejecters of electromechanical innovations were included in the sample.

Each teacher included in the sample was interviewed with an open-ended questionnaire designed to uncover teachers' feelings toward the newer media. All interviews were over an hour in length, tape recorded, transcribed, and evaluated in terms of attitudes toward specific innovations. These attitude statements were tabulated on the basis of a previously developed rejection classification system. (See "Rejection Responses" below.)

The sample of forty-five teachers came from five elementary schools in a large metropolitan school system. Each school principal was also interviewed concerning his attitudes toward the newer media, and was asked to evaluate each teacher interviewed in his school. An inventory of the newer media available at each school was compiled and checked against the responses of the teachers concerning this equipment. The fact that equipment related to the newer media was available gave added significance to some of the responses.

Some representative responses to illustrate each postulated form of rejection are given below.

REJECTION_RESPONSES

1. Rejection_through_ignorance was assumed to exist when a given innovation was unknown, or its complexity led to misunderstanding.

> We have an opaque projector in the school. I never use it. [The projector available was a micro-projector.]
>
> I don't always know what audio-visual materials are available.
>
> I don't know how to use the movie projector; kind of embarrassed to admit it.

2. Rejection_through_default was expressed by admitting a knowledge of the innovation without any interest in its usage.

> I never use a tape recorder ... just don't use it, that's all. Might be very helpful in speech. I can run it, but we don't have time ... Let's be honest about it, we don't have time to do everything we want to do with the children.
>
> By the time we get through teaching what we have to teach, there is not too much time left for extras.

3. Rejection_by_maintaining_the_status_quo was expressed when the teacher did not accept an innovation because it had not been used in the past.

> I tend to do the teaching process [arithmetic] mechanically, because the book does it that way.
>
> I refuse to tell you that I use these aids all the time. I don't. I am an old-fashioned teacher and feel that we should use the text once in a while.

4. Rejection_through_societal_mores was expressed when the teacher thought her society did not find an innovation acceptable, and therefore did not use it herself.

> I find that children are watching lots of TV programs they should not be watching, and at hours they should be in bed.
>
> Use the record player once a week. I use it

> more when the children bring in records ... they were rock-and-roll, and I discouraged it because they were not worth listening to.
>
> I don't use the museum. There are only certain classrooms that visit the museum.

5. Rejection through interpersonal relationships was expressed by indicating that friends did not use an innovation, or that a particular school environment made using an innovation unacceptable. When some teachers or a principal were enthusiastic over the newer media, these attitudes were similarly reflected by rejecters.

> The equipment we have at school is excellent ... we have enough of everything.
>
> We have three television sets. Don't you think that is very good? But then the principal is very audio-visual minded, and sees that we get things.

On the other hand, indifference toward the newer media in other schools was expressed by rejecters.

> The principal doesn't think less of a teacher for not using audio-visual materials. She would probably like to see them used. We never talk about this sort of stuff at teacher's meetings ... they are all business.

Other personal relationships influence the use of the newer media.

> We sort of co-operate ... we tell each other what we have available and how good we think it is.
>
> I don't use the art program. One of the teachers in the second grade used it and said it was too complicated ... so she gave it up.

6. Rejection_through_erroneous_logic was expressed by giving "rational" but unfounded reasons for the rejection of a worthy innovation.

> The upper grades use the A-V materials more than the lower grades do.
>
> I suspect the lower grades use them [newer media] more than we do in the upper grades.
>
> I haven't used quite as many audio-visual materials this year because I have a slower group.
>
> Quite often my students think that when they go to see a movie it is fun ... so I don't use them. I don't use filmstrips either.

7. Rejection_through_substitution was expressed when a teacher spoke of using one practice over another that would have required the use of a particular innovation.

> I use two pieces of tag board instead of a screen ... there is a screen available but this is easier.
>
> If you are going to have a radio program ... something else will have to be dropped.
>
> I do more work on charts and things like that than on A-V materials.

8. Rejection through fulfillment was expressed when a teacher was certain she knew the "best" or "only" way to teach, making any innovation completely unnecessary.

> I would not take additional instruction in A-V materials because I think you take those things you are interested in, and I am interested in music and art.
>
> I have a cadet teacher that uses a flannel board, and the children enjoy it; but I find I can use the blackboard just as well.
>
> I use one film a morning for six weeks ... Some have asked why I don't use the radio; but why should I, if I study the material and know what I can present to the children?

9. Rejection through experience was expressed by telling of some incident when an innovation was tried and failed.

> I signed up one summer to take an audio-visual course, but it was filled.
>
> There are some teachers that order films and ask other teachers to show them.
>
> Now this year I don't use one program that is very good. Sort of ashamed of myself, but I get tired of hearing the same thing year after year.
>
> The children like filmstrips at the beginning because they are a novelty but after a while they get bored.

RESULTS

The findings of this study were not completely conclusive. For example :

1. Attitudes of rejecters were not related to the grade level at which a teacher taught, or to the number of years of teaching experience. This finding is not consistent with the prior findings of Kelly (1960).

2. No teacher, even though classified as a rejecter on the basis of the six-item scale, was a rejecter of all the newer media. Every teacher, while rejecting many of the electromechanical innovations, used many of the static innovations.

3. Each form of rejection postulated was expressed by at least 50 per cent of the sample. About 50 per cent of the sample expressed rejection through default, while 93 per cent of the sample expressed rejection through experience.

4. It became obvious that, for the teachers interviewed, the real reasons for rejection and the stated reasons for rejection were not always the same. The postulated forms of rejection could be considered neither complete nor mutually exclusive. Therefore,

it became necessary to establish a revised framework for the identification of rejection forms, reducing the nine original postulated forms to five basic forms.

Table 2 illustrates the revised framework for the identification of rejection responses. This framework gives typical responses for various forms of rejection, and differentiates between "real" and "stated" reasons for rejection. These forms of rejection appear to be more inclusive and parsimonious. Each form now stands in a direct one-to-one relationship with stages in both adoption and rejection processes. It is further possible to conceptualize a total process that might be known as an adoption-rejection (or "decision") process that incorporates the five forms and five stages of adoption-rejection. Figure 2, incorporating the revisions made as a result of this study, shows such a process.

FURTHER RESEARCH NEEDS

This study attempted to define the area of rejection in a limited field. The revised theory and classification of rejection noted here is neither complete nor final. While the classification seems

Table 2. A Framework for the Identification of Forms of Rejection

Form of Rejection	Cause of Rejection	State of Subject	Anticipated Rejection Responses
1. Ignorance	Lack of dissemination	Uninformed	"The information is not easily available."
2. Suspended judgment	Data not *logically* compelling	Doubtful	"I want to wait and see how good it is, before I try."
3. Situational	Data not *materially* compelling	1. Comparing	"Other things are equally good."
		2. Defensive	"The school regulations will not permit it."
		3. Deprived	"It costs too much to use in time and/or money."
4. Personal	Data not *psychologically* compelling	1. Anxious	"I don't know if I can operate equipment."
		2. Guilty	"I know I should use them, but I don't have time."
		3. Alienated (or estranged)	"These gadgets will never replace a teacher. ("If we use these gadgets, they might replace us.")
5. Experimental	Present or past trials	Convinced	"I tried them once and they aren't any good."

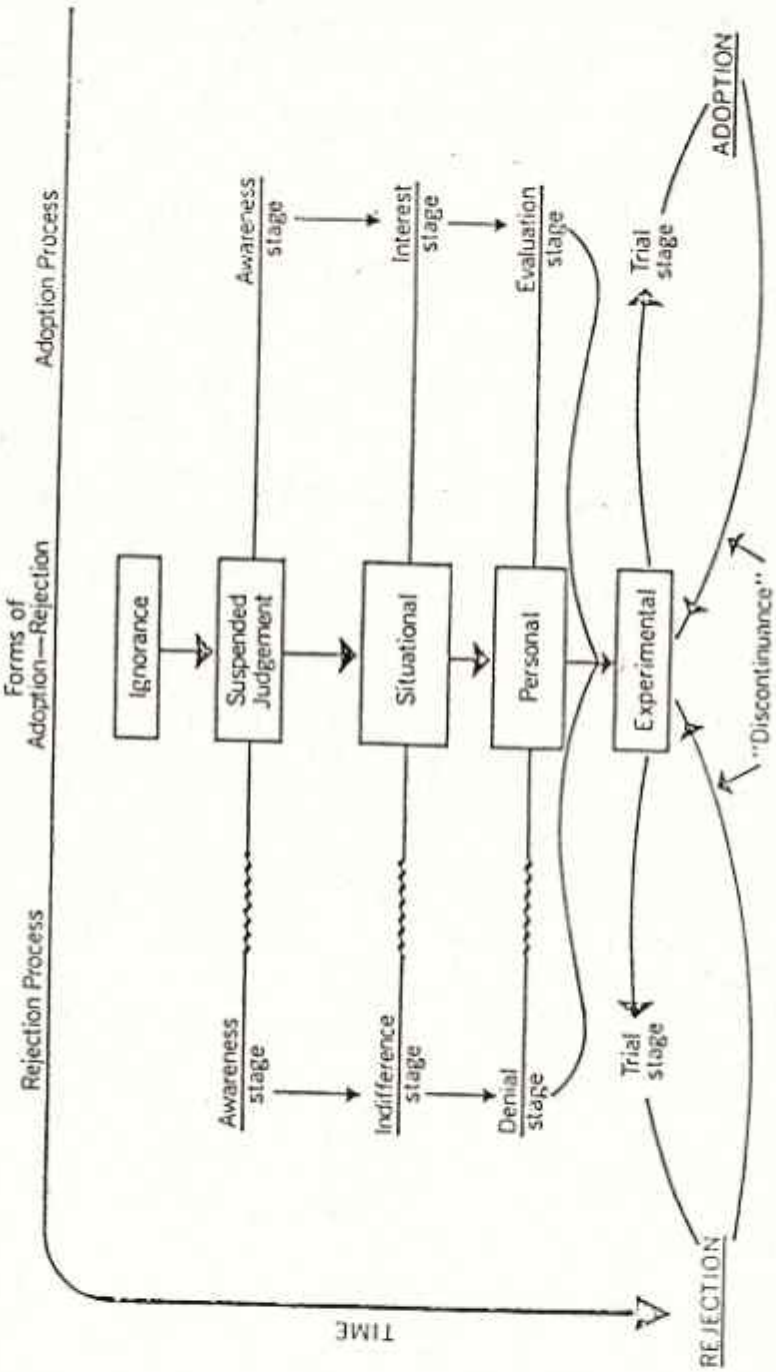


Figure 2. Diagram of revised rejection theory

substantiated in the light of the limited sample used, another study is contemplated to further substantiate these findings and to investigate the question of potential adopters-rejecters. There is some reason to believe that a person may be either a potential adopter or a potential rejecter, approaching an innovation with adopter or rejecter "sets". Other questions still unanswered are :

1. What factors differentiate the rejecters and accepters of the newer media?

2. Does a given innovation cause a certain form of rejection, or are all forms of rejection common to all innovation?

3. What happens when a series of many innovations related to teaching methodology is available in a short period of time? Are they adopted as a "cluster"? Is such a cluster or complex of innovations adopted more quickly or slowly than single innovations?

4. Are the means for shortening rejection time common to all forms of rejection, or must each form be treated differently?

5. Can tests be devised to isolate attitudes of rejection on the part of teachers, thereby giving administrators some indication of the potentional "lag" they can expect in the acceptance of innovations?

6. Should school administrators be responsible for pressing adoption of the newer media to secure an improved quality of education?

7. Are teachers morally obligated to reject the newer media until such time as they are personally certain of its worth and willing to alter their method of teaching to include the innovation?

APPENDIX II

IMPORTANT HISTORICAL EVENTS IN BAHRAIN

BAHRAIN - HISTORICAL DATES

903	The Carmathians, under the rule of Abu Sa'id Al Jannabi, seized Hajar.
1058	Bahraini revolt against the Carmathians.
1320	Kutb ed-Din of Hormuz reduced Bahrain.
1384	War between Bahrain and Qatif and the ruler of Qais island.
1475	Bahrain granted by Hormuz to Agwad bin Samigh.
1487	Omani invasion of Bahrain.
1514	Visit of Albuquerque to Bahrain.
1522	Portuguese occupation of Bahrain.
1602	Expulsion of the Portuguese.
1720	The Persians purchased Bahrain from the Omanis.
1738	Omani invasion of Bahrain.
1753	Bahrain seized by Shaikh Nasir Al Mathkur.
1776	Nasir killed in a Persian expedition against the Turks.
	First settlement of Mohamed Khalifa Al Utub in Zubara (Qatar coast).
1782	Conquest of Bahrain by Ahmed bin Mohamed Al Khalifa.
1796	Sulman bin Ahmed Al Khalifa succeeded his father together with Abdulla, his brother.
1799	Omani invasion of Bahrain.
1825	Khalifa bin Sulman Al Khalifa succeeded his father with Abdulla bin Ahmed as co-ruler.

1828	Agreement between Muscat and Abu Dhabi against Bahrain.
1834	Abdulla bin Ahmed remained only Ruler of Bahrain for nine years.
1843	Mohamed bin Khalifa became Ruler of Bahrain.
1847	Agreement between Bahrain and Abu Dhabi against slavery.
1855	Saudi claims on Bahrain.
05. 1856	Agreement between Bahrain and the British against slavery.
05. 1861	Perpetual treaty of peace and friendship with the United Kingdom.
1868	Ali bin Khalifa took power in Bahrain.
	The Qataris were recognized as independent from Bahrain.
1869	Isa bin Ali Al Khalifa was acclaimed Ruler of Bahrain.
1873	Shaikh Isa increased the Bahraini garrison in Zubara.
22.12. 1880	First exclusive agreement between Bahrain and the British.
13.03. 1892	Second exclusive agreement between Bahrain and the British.
30.04. 1898	Agreement between Bahrain and the British on arms' trade.
1902	A British political Agent posted in Bahrain.
16.07. 1909	Request of Shaikh Isa regarding jurisdiction on foreigners.
29.07. 1911	Britain received control of the concessions of diving and fishing.
19.06. 1912	Agreement in regard to establish a wireless telegraph in Bahrain.
07. 1913	Anglo-Turk agreement on the independence of Bahrain.

14.05.	1914	Britain received control of the mining concessions in Bahrain.
	1923	Hamed bin Isa became Deputy Ruler with his father for nine years.
	1930	Shaikh Hamed signed an agreement with the Bahrain Petroleum Company.
	1932	Shaikh Isa died, and was succeeded by the Deputy Ruler, Shaikh Hamed bin Isa.
	1933	Start of the production of oil in Bahrain.
20.02.	1942	Shaikh Hamed died, and was succeeded by his son Sulman.
	1956	Troubles in Bahrain.
	1958	Visit of Shaikh Sulman to Saudi Arabia.
23.11.	1961	Shaikh Sulman died.
16.12.	1961	Accession of Shaikh Isa bin Sulman Al Khalifa.
27.02.	1968	Agreement of Bahrain, Qatar and the Trucial States about a federation.
21.10.	1970	First Government in Bahrain.
18.05.	1970	The Iranian Senate recognized the independence of Bahrain.
14.08.	1971	British withdrawal from Bahrain.
17.08.	1971	Proclamation of the Emirate in Bahrain.
11.09.	1971	Bahrain became member of the Arab League.
21.09.	1971	Bahrain became member of the United Nations.
02.11.	1971	Bahrain became member of the World Health Organization.
01.11.	1971	Bahrain became member of the FAO.
22.02.	1972	Bahrain became member of the UNESCO.
07.09.	1972	Bahrain became member of the International Monetary Fund.
15.09.	1972	Bahrain became member of the IBRD.

APPENDIX III

CURRICULUM PLAN FOR TEACHER TRAINING COLLEGES - LITERARY SECTION

Field	No	Subject Provided	Number of Hours				Total Number of Periods
			1st Year		2nd Year		
			First Session	Second Session	Third Session	Fourth Session	
General Education Obligatory	1	Islamic Culture	2	2	-	-	4
	2	Arabic Language	3	3	2	-	8
	3	English Language	3	3	2	-	10
	4	The Arab World	2	2	-	-	4
	5	Fine Art	1	1	1	1	4
	6	Physical Education	½	½	½	½	2
	7	General Science	3	-	-	-	3
	8	Mathematics	3	-	-	-	3
	9	Societal Growth & Development	-	-	-	2	2
	9		17½	11½	5½	3½	38

APPENDIX III (Contd)

Field	No	Subjects Provided	Number of Hours				Total
			1st Year		2nd Year		
			First Session	Second Session	Third Session	Fourth Session	
Education Theory Obligatory	1	Introduction to Education	2	-	-	-	2
	2	Developmental Psychology	2	-	-	-	2
	3	Educational Psychology	-	2	-	-	2
	4	General Strategies	-	2	-	-	2
	5	Educational Aids	-	1	1	-	2
	6	Primary Strategies	-	-	3	-	3
	7	Evaluation and Assessment	-	-	2	-	2
	8	Curriculum	-	-	-	2	2
	9	Practical Education	-	1	1	4	6
	10	Science Strategies	-	1	1	1	3
	11	Mathematics Strategies	-	2	1	1	4
	11		4	9	9	8	30

APPENDIX III (Contd)

Field	No	Subject Provided	Number of Hours				Total Number of Periods
			1st Year		2nd Year		
			First Session	Second Session	Third Session	Fourth Session	
Specialization	1	Religion and Arabic Language	-	3	3	3	9
	2	English Language	-	3	4	4	11
	3	Fine Art	-	6	6	6	18
	4	Mathematics	-	6	6	6	18
	5	Social Sciences	-	6	6	6	18
		a. Ancient History	-	3	2	-	5
		b. History of Europe	-	2	2	-	4
		c. Islamic History	-	-	-	3	3
		d. Geography	-	-	3	3	6

APPENDIX III (Contd)

Field	No	Subjects Provided	Number of Hours				Total
			1st Year		2nd Year		
			First Session	Second Session	Third Session	Fourth Session	
Specialization	1	Mathematics and	3	3	6	6	18
		Physics	3	4	6	7	20
	2	Chemistry and	2	5	6	7	20
		Biology	2	5	6	7	20

SOURCE : Ministry of Education, Curriculum Plan for Teacher Training Colleges, 1977/78 'C' (pp. 1 & 2).

APPENDIX IV

ENGINEERING PROGRAMMES OFFERED IN GULF POLYTECHNIC 1982/83

OVERVIEW OF NEW ENGINEERING PROGRAMMES

The programmes in the Engineering Department are designed to meet industrial needs in Bahrain while keeping up with international standards of engineering education. The Gulf Polytechnic graduate will be able to take his place alongside engineering graduates from any other academic institution in the world and feel that his training has been equal to theirs. Also, our flexibility will allow the engineering graduate to exercise a limited choice in tailoring his programme to fit his personal career plans, whether those plans are for immediate employment or for graduate work.

The Engineering Diploma Programmes on the other hand are specifically designed to graduate senior technicians to meet the increasing demand of industry and government. Gulf Polytechnic is currently offering five Engineering Degree Programmes which closely follow the pattern of the programmes conducted at the University of Petroleum and Minerals in Dhahran, Saudi Arabia. The Polytechnic is also offering eight Engineering Diploma Programmes which have been designed locally to become the first of their kind in the region.

ORIENTATION YEAR FOR NEW ENGINEERING PROGRAMMES

High school graduates accepted to the Polytechnic as Engineering majors will have to successfully complete a preparatory orientation year where they are expected to

(1) Improve their English language proficiency
(2) Review and reinforce their knowledge of physical, mathematical and computer sciences, with English as the language of instruction.
(3) Familiarize themselves with new subject areas and techniques with 'hands-on' experiences such as shop (welding, machines, carpentry, etc.,) and mechanical drawing (graphs).
(4) Understand and consider the various academic specialities available at the Engineering Department.
(5) Acquire an orientation to the rigor of the demanding academic work of a technical institution.

Student performance in Orientation Year determines whether and in which programme (degree or diploma) they will be allowed to continue

BACHELOR_OF_SCIENCE_PROGRAMMES :-

A. **Chemical Engineering**

This four-year programme enables the graduates to seek employment in many fields such are petroleum, petrochemical, metals, and chemical industries. The Engineering Department has introduced several electives in the Field of Material Science, Desalination, Gas Technology, and Petrochemicals. These areas are of particular interest to the present industrial development of Bahrain.

B. **Civil Engineering**

The purpose of the four-year Civil Engineering Programme is to graduate engineers who will be concerned with the planning, design, construction, maintenance, and operation of private and public facilities such as buildings, transportation systems, water supply systems, and wastewater systems.

C. **Computer Science**

The four-year Computer Science Programme presents the special skills necessary to communicate with computers and to provide services to organizations.

The objective of this programme is to prepare the students for a professional career in system and application, data collection, control and data processing. The programme also provides a necessary background in related areas such as business, science and management.

D. **Electrical Engineering**

The four-year Electrical Engineering Programme enables students to specialize in the fields of electrical installation, power engineering, and electronics. Graduates will be qualified to specialize in areas of industrial electronics, manufacturing and instrumentation.

E. **Mechanical Engineering**

The four-year Mechanical Engineering Programme has been designed carefully to fit and satisfy the country's needs. Subjects like Fluid Mechanics, Thermodynamics, Machine Design and Material Science are essential in industries such as water desalination, natural gas recovery, steel mill construction, aluminium production, petroleum and petrochemical industries.

DIPLOMA PROGRAMMES IN ENGINEERING TECHNOLOGY :

A. Chemical

The Diploma Course is of two years duration on a full-time semester system and credit basis designed to meet the needs of senior operations to provide sound understanding of basic chemical engineering covering all unit operations, design principles, process calculations and chemical technology. The elective subjects are so chosen to meet the requirements of chemical plants in Bahrain.

B. Building

The two-year Diploma Course has been designed to develop the building profession. In isolation, the Diploma provides a broad base, both practical and academic, which should equip the students to function at the technician level in the industry.

C. Civil

This two-year Diploma Course provides the student with the opportunity to graduate at Senior Technician level with basic knowledge in Civil Engineering.

D. Land Surveying

This two-year course has been aimed at providing the general requirements necessary to enable land surveying technicians to have a proper understanding of the basic theory and practice of the profession. Students graduating from the course will be qualified for employment by the Directorate of Land Surveys of the Ministry of Housing in Bahrain. It is also anticipated that other Gulf States will support the course in order to meet their requirements for a cadre of qualified land surveying technicians.

E. Computer Science

The two-year Diploma Course in Computer Science provides graduating students with the opportunity for employment in all the fields of industrial and business sectors as computer programmers, system analysts, system planners, datas processing staff, computer operators, maintenance technicians, process plant operators, and so on. The curriculum includes programming with applications in the field of science, industry and business, file management techniques and data processing, system analysis, planning and organization.

F. **Mechanical**

This two-year Diploma Course provides students with a broad based training in the Mechanical Engineering discipline. This enables the diploma graduates to find a wide range of employment opportunities. They will be able to serve as senior technicians or supervisors in the various industries, workshops and power stations.

G. **Refrigeration and Air Conditioning**

The two-year Diploma Course in Refrigeration and Air Conditioning focuses on this highly demanded area of specialization. The diploma graduates will be able to serve as senior technicians in Refrigeration and Air Conditioning industries and commercial centres, and they will also be able to participate in the design and installation of central A.C. systems in large new buildings.

H. **Instrumentation**

The aim of this two-year diploma course is to provide the trainees with sufficient knowledge of the principles, application, installation, diagnosis and rectification of various measuring equipment and control systems used in industry. The subjects of study include instrument science, instrument technologies, electronics, automatic control, etc.

APPENDIX V

NEW ACADEMIC PROGRAMMES IN COMMERCIAL STUDIES, ACCOUNTING AND ASSOCIATED BUSINESS

1 - COMMERCIAL STUDIES CERTIFICATE (CSC)

CSC 101 - Organization and Management
3.0; 3 cr; annually

Nature and elements of organization. Management of organization. Setting and achieving objectives. Management controls. Human aspects of Management. Formal and informal groups. Management communication. Decision-making. Management and Motivation. Production and Operations Management.

CSC 110 and 111 - Accounting I and II
4.0; 4 cr; annually

Prerequisite : Orientation Accounting or consent of instructor. Basic objectives, assumptions and procedures of accounting. The accounting cycle. Principal accounting reports, cash receipts and disbursements. Accounts receivable and payable, plant assets and introduction to statement analysis. Depreciation policies and procedures, depletion and amortization, income determination. Introduction to partnership accounts, dividends and retained earnings.

CSC 112 - Specialized Accounting
3.0; 3 cr; annually.
Prerequisite : CSC111.

Special accounting procedures and problems relevant to specific sectors, e.g. banking, insurance, industry etc. Underlying concepts, techniques and practices of accounting as experienced in selected sectors. Choice of sector, changes subject to requirements.

CSC 123-Finance
30.0; 3 cr; annually.
Prerequisite: Econ 101

Capital Management. Introduction to cash budgeting and ratio analysis. Basic criteria for investment decisions. Applications within Bahrain environment.

CSC 124-Gulf Financial Systems
3.0; 3 cr; annually.
Prerequisite: CSC 123

Money and Capital Markets in the Gulf area. Role of institutional intermediaries. Relationship of public and private subsystems.

CSC 131-Basic Computer
2.0; 2 cr; annually.

Introduction and overview. Flow charting. Input/output statements. Arithmetic in Basic. Transfer statements. Counters and Summers. Character strings. Arrays. Looping Lists and tables. Functions and subroutines.

CSC 132-Computers in Business
3.0; 3 cr; annually
Prerequisite CSC 131

Fundamental concepts of computer structure, components and functions; uses and limitations of computers in business applications; different types of available computers and other recent technological developments; programming design; programming as a major business high-level language. Application of software packages.

CSC141 and 142-Marketing I and II
3.0; 3 cr; annually

A survey of Basic Marketing. The marketing environment and marketing information system; analysis of the consumer and industrial markets; product planning and development; branding, packaging and other product features; basic methods of setting prices; retailing; wholesaling channels of distribution; sales management; advertising and sales promotion; and international marketing.

CSC 145-Basic Supervision
3.0; 3 cr; annually.
Prerequisite CSC 101

Objectives and methods of supervision. Technical and behavioral aspects of supervision. Tools for effective supervision. Supervision: styles and approaches. Aids to supervision.

CSC 151-Gulf Business Environment
3.0; 3 cr; annually.

What is an environment? Importance of environment for oranizational survival and growth. Components of the internal environment of an organization. Components of the external environment : cultural, social, economic etc. Patterns of organization-environment interface. Characteristics of the Gulf environment. A look into the future.

CSC 155-Fundamentals of Banking
3.0; 3 cr; annually.
Prerequisite: CSC 123

Introduction to commercial banking. Elements of a commercial bank. Linkages among various units of a commercial bank. Bank operations in action.

CSC 161-Business Reporting
2.0; 2 cr; annually.

Role of communication in organizations. Types of organizational communication: written communication, verbal communication, silent language, similarities and differences. Business Reporting. Types and uses of reports. Fact finding and developing data base. Data processing - charts and other aids. Resumes and summaries. Making presentations.

CSC 171 and 172-Insurance I and II
3.0; 3 cr; annually

Introduction to risk management. Basics of life, property and business insurance. Operational dynamics of the insurance industry.

CSC 181 and 182-Basic Personnel I and II
3.0; 3 cr; annually
Prerequisite CSC 101.

Personnel Management in perspective. Managing the human factor. Organizing the personnel function. Plan human resources. Recruitment and selection. Personnel testing and interviewing. Employee discipline and morale. Supervision and control. Compensation and salary administration. Individual and group incentives. Safety management. Job analysis and evaluation. Developing the data base. Drafting job descriptions and specifications. Qualitative and quantitiive techniques. Performance evaluation. Continuing skill building. Pressing personnel cases in the Gulf.

CSC 191 and 192-Public Management I and II
3.0; 3 cr; annually
Prerequisite CSC 101.

Generic aspects of organization and management. Structural and functional variables. Goals, objectives and strategies. Rules, roles and procedures. Classical functions of government; National defense, internal security and justice. Changing role of government and emergence of the welfare state. Reasons for existence of public organizations. Major differences between public and private organizations. Performance measures in public organizations. The question of accountability. Third sector organizations. Introduction to public budgeting. Elements of a public budget. The budgetary cycle. Budgetary allocation and evaluation techniques. Central and departmental budget offices. Budget as a tool of fiscal policy. Systems budgeting in action. Role of budgeting in public management.

ECON 101-Introduction to Economics
3.0; 3 cr; annually

Survey and overview of Economics. Underlying concepts and constructs of micro and macro economics. Brief introduction to the economics of development and international trade.

STAT 101-Statistics for Commercial Studies
3.0; 3 cr; annually

Organizing group data. Describing group data; measures of central tendency and dispersion. Probability. Probability distributions. Sampling. Estimation. Testing Hypothesis. Correlation and Regression.

2. ACCOUNTING DIPLOMA PROGRAMME (ADP)

ADP 120-Commercial Law
3.0; 3 cr; annually

Law and Commercial Law, legal framework for commercial transactions, business firms as legal entities. Legal dimensions of major business activities.

ADP 123-Financial Accounting I
5.0; 4 cr; annually.

A survey of the accounting cycle; balance sheet and income statement preparation; closing entries; accounting for sales revenue and cost of goods sold; inventory valuation; cash; receivables; plant and equipment, and intangibles.

ADP 124-Financial Accounting II
5.0; 4 cr; annually.
Prerequisite: ADP 123.

Partnership Accounting; corporations - organizations; capital stock; dividends and retained earnings; long term liabilities and investments; statements of change in financial positions; cash flow; consolidated statements; analysis and intepretation of financial statements.

ADP 127-Cost Accounting I
4.0; 3 cr; annually.
Prerequisite: ADP 124

Purpose of cost accounting; cost concepts; cost-volume-profit relationships; job order accounting; budgeting; standard costs; overhead

control; direct costing income effects of alternative product-costing methods.

ADP 131-Managerial Psychology
3.0; 3 cr; annually.

Elements of organizational structure. An overview of management functions. An overview of management processes. Approaches to organization and management. Changing meaning of work. Communication within organizational network. Employee motivation, leadership and morale. Group dynamics. Supervision and control.

ADP 141-Banking Operation
3.0; 3 cr; annually

Management of commercial banks including bank organization and relationship to regulatory bodies and other relevant aspects of the environment.

ADP 145-Computer
3.0; 3 cr; annually.

Introduction to business applications of computers. Uses and limitations of formal computer languages in business. Computer - based information and decision systems.

ADP 212-Financial Management
4.0; 3 cr; annually.

Planning and control of working capital; cash budgeting, ratio analysis, capital budgeting, forecasting for investment decisions, elements of capital structure - leverage, financial risk, and cost of capital.

ADP 213-Management Accounting
4.0; 3 cr; annually.
Prerequisite: ADP 124

Nature of management accounting, cost terms, concepts and classification; cost accumulation for

product costing; cost-volume-profit relationships; profit planning; flexible budget; capital budgeting decisions; fund statements.

ADP 221 - Auditing I
5.0; 3 cr; annually.
Prerequisite; ADP 124

An overview of auditing; professional ethics; audit evidence and documentation; the study and evaluation of internal control-audit of cost, securities, receivables, inventories, plant assets, current and long term liabilities, proprietry accounts, income statement. The end result: the audit report.

ADP 223-Accounting Practicum
3.0; 3 cr; annually.
Prerequisite ADP 221.

Practical accounting intership, preparation and control of various accounting assignments, analysis of income statements, preparing and analysing of internal audit reports.

ADP 241-Cost Accounting II
3.0; 3 cr; annually.
Prerequisite: ADP 127.

Cost analysis and capital budgeting; inventory planning, control and evaluation, cost allocation; joint-product and by-product costs; process costing; spoilage, waste, defective units and scraps; accounting for materials and labor costs; cost reports for current control.

ADP 249-Accounting Systems and Controls
3.0; 3 cr; annually.
Prerequisite: ADP 124

An analysis of systems and procedures work, elements of the accounting system, design of books and forms, order procedures, sales procedures, cash receipts and disbursements procedures, accounts receivable procedures, accounts payable and payroll procedures; cost systems and reports.

ADP 251-Intermediate Accounting
4.0; 3 cr; annually.
Prerequisite: ADP 124

Accounting theory and practice; income statement, balance sheet and statement of changes in financial position; cash and marketable securities; receivables, inventories, plant assets; intangible assets, current liabilities; and corporations; paid in capital, stock rights, retained earnings and dividends.

ADP 255-Public Sector Accounting
4.0; 3 cr; annually
Prerequisite: ADP 251

An introduction to governmental accounting, Budgets; general funds and special revenue funds; expenditure accounting; capital projects funds; trust and agency funds; working capital funds; special assessment funds; general fixed assets group of accounts; cash control; governmental auditing and reporting.

ADP 261-Advanced Accounting
4.0; 3 cr; annually.
Prerequisite: ADP 251

Special problems confronting partnerships including division of net income or loss; admission, retirement of death of a partner; liquidation of a partnership. Branch accounting; business combinations, intercorporate investments, and consolidated financial statements.

ADP 271-Computerized Accounting.
4.0; 3 cr; annually.
Prerequisite: ADP 251 and ADP 145

Selected applications involving relevant computer accounting packages.

ECON III-An Introduction to the Principles of Microeconomics
3.0; 3 cr; annually
Prerequisite: Orientation Math or consent of istructor.

Introduction and overview; what is Economics about, the price system and the Market Economy. Price determination; Demand and Supply, Elasticity of demand and supply, applications. Theory of the Consumer; the concept of utility, analysis of consumer equilibrium. Theory of the Firm: Competetive Supply, analysis of costs. Market structures: Perfect competition, monopoly, imperfect competition; oligopoly and monopolistic competiton. Distribution of Income: Theory of Production, land rents, wages and collective bargaining, interest and capital, profits and incentives.

MATH 110-Business Math
3.0; 3 cr; annually.
Prerequisite: Orientation Math or consent of instructor.

Simple interest and simple discount; compound interest, annuities, prepetuities, bonds and depreciation. Fundamentals of life insurance.

STAT 151-Statistics for Accounting
3.0; cr; annually.
Prerequisite: Orientation Math or consent of instructor.

Introduction. Depreciation of statistical data. Theory of sampling. Probability and probability distribution. Estimation. Testing hypothesis. Regression and correlation. Chi-square applications.

3. ASSOCIATE BUSINESS DIPLOMA
Bachelor of Science Degree (ABD - BS)

B.Ad 101-Introduction to Business Administration.
3.0; cr; annually

A basic overview of Business Administration covering its various functional areas including management, accounting, finance and marketing. Its objective is to prepare students for more advanced specialized courses.

B.Ad 201-Accounting I
5.0; 4 cr; annually.

(See ADP 123)

B.Ad 202-Accounting II
5.0; 4 cr; annually.

(See ADP 124)

B.Ad 210-Organization and Management
3.0; 3 cr; annually.

Introduction to the study of organizational structures, functions and processes within an action frame of reference.

B.Ad 211-Cost Accounting
4.0; 3 cr; annually.
Prerequisite: B.Ad. 202

Theory underlying development of cost information for control and decision making. Utilization of cost budgets in planning and evaluation of performance. Cost classification in relation to behavior and cost contribution statements as tools for evaluating alternative courses of action. Problem of optimization through cost control.

B.Ad 216-Organizational Behavior
3.0; 3 cr; annually.
Prerequisite B.Ad. 210.

A study of the human factors in management with special reference to the relationship between the individual and the organization. The course provides for an investigation of linkages between organizational effectiveness, productivity and job satisfaction.

B.Ad 221-Marketing Management
3.0; 3 cr; annually.

Introduction to marketing concerning basic concepts, trends and variables affecting manufacturer, wholesaler, retailer and other participants in the marketing process. The course focuses on product planning, pricing, distribution and promotion.

B.Ad 225-Management Elective
3.0; 3 cr; annually.
Prerequisite: B.Ad. 210

This course is an inquiry into managerial problem solving concerning its structural, functional, technological and behavioral dimensions. It is based on real life simulations and role playing within an organizational context.

B.Ad 231-STAT I
3.0; 3 cr; annually.
Prerequisite: Math 202

Introduction to the Theory of Probability and Statistics. Measures of Central Tendency and Dispersion. Probability Theory. Testing hypothesis; one and two means. Estimation theory.

B.Ad 232-STAT II
3.0; 3 cr; annually.
Prerequisite: B.Ad 231

Non-parametric tests. Analysis of Variance. Chi-square. Regression and Correlation analysis. Time Series. Decision trees.

B.Ad 234-Quantitative Methods for Business Decisions
3.0; 3 cr; annually.
Prerequisite B.Ad.232.

Introduction to management science and its quantitative tools. Models and model building. Theory and techniques of allocation of resources; assignment, transportation, and linear programming. Introduction to inventory theory. Game theory. Queueing theory.

B.Ad 241-Business Law
3.0; 3 cr; annually.

Legal environment of Business in Bahrain and the Gulf. Commercial contracts and obligations, commercial papers and bankrupcy.

B.Ad 245-Managerial Economics
3.0; 3 cr; annually.
Prerequisite: Econ 201.

This course aims at the integration of economic principles with various areas of Business Administration. Application of economic analysis to the solution of business problems is highlighted. Investigation of management's chief economic problems include study of profits, competition, analysis of demand, production, cost, and determination of price policies and capital budgeting.

B.Ad 249-Human Resources Development
3.0; 3 cr; annually.

Prerequisite: B.Ad 210

Introduction to manpower planning concerning both general environment and operational techniques. Manpower development within a context of strategic planning. Personnel theories, policies and techniques.

B.Ad 251-Financial Markets and
Institutions.
3.0; 3 cr; annually
Prerequisite: Econ 202

Structure of money and capital markets, nature and function of institutional financial intermediaries with special reference to the Gulf.

B.Ad 252-Financial Management
3.0; 3 cr; annually.

Objectives, operations and indicators of effective capital management. Practical application in project evaluation, criteria for, investment decisions, optimization on the cost of capital.

B.Ad 257-Commercial Banking
3.0; 3 cr; annually.
Prerequisite: B.Ad 251

Management of commercial banks covers the structure of commercial system, the management and internal organization of commercial banks with special emphasis on the Bahraini Banking environment.

B.Ad 262-Computers in Management Systems
3.0; 3 cr; annually.

An introduction to the function, capabilities and limitations of high-speed computers in modern organizations. Fundamental concepts of computer structure. Types of available computers and other technological developments. Programming design. Programming as a major business high-level language. Applications of software packages.

B.Ad 265-Managerial Budgeting
3.0; 3 cr; annually.

Budgeting concepts, standard procedures and techniques in planning and programme budgeting (PPB). Zero-base budgeting. Planning and control systems.

B.Ad 275-International Marketing
3.0; 3 cr; annually.
Prerequisite: B.Ad.221

Problems of distribution and marketing in foreign countries. Foreign market surveys. Promotions by government and private agencies. Structural organization; marketing channels, foreign operations, foreign licensing, selection of marketing policies. Techniques and financial features of foreign trade.

B.Ad 276-Marketing Research
3.0; 3 cr; annually.
Prerequisite: B.Ad 232 and B.Ad 221.

The utilizations of quantitative techniques in the study of market characteristics, consumer behavior and opinions. Research methodology. Methods of collecting data through surveys, interviews and questionnaires. Analysis of data. Reporting of results.

B.Ad 281-Production Management
3.0; 3 cr; annually.
Prerequisite: B.Ad. 231

Analysis of the methods of factory management; production and quality control, plant layout, time and motion studies. System analysis. Method improvement techniques.

B.Ad 285-Investment
3.0; 3 cr; annually.
Prerequisite: B.Ad 251 and 252

The operations of securities markets, investment policies and valuation of individual securities. The principles of classical and fundamental investment models. Introduction to portfolio selection in investment decisions. Applications of investment principles to Bahrain environment.

B.Ad 291-Business Policy
3.0; 3 cr; annually.

A study of organizational strategic planning covering concepts and techniques. Organizational goal setting and priority mapping in the context of dynamic equilibrium within a changing environment.

PM-Public Management Elective
3.0; 3 cr; annually.

Management theories, analytical constructs and operational techniques relevant to the public sector.

Special reference will be made to policy applications in Bahrain and the Gulf.

ECON 201-Introduction to Micoreconomics
3.0; 3 cr; annually.
Prerequisite: Math 201

An introduction and overview. Analysis of markets. Theory of the consumer. Theory of the firm. Market structures. Income distribution.

ECON 202-Introduction to Macroeconomics
3.0; 3 cr; annually.
Prerequisite: Econ 201

National Income and Product: Meaning and Measurement. Income determination. Fiscal Analysis. Monetary Analysis. Synthesis of monetary analysis and fiscal analysis. International trade and finance. Economic development.

ECON 210-Intermediate Macroeconomics
3.0; 3 cr; annually.
Prerequisite: Econ 202

Introduction. Basic models of income determination. The theory of consumption and investment spending. Income determination model including money and interest. Selected topics.

APPENDIX VI

THE SERVICES OF THE DEPARTMENTS AND PROGRAMMES PROVIDED IN THE COLLEGE OF HEALTH SCIENCES IN BAHRAIN

DEPARTMENT OF ENGLISH

The Department of English exists as a service to all programs in the College. Its basic goal is to improve student skills in listening, speaking, reading and writing in English in order that students can communicate freely through the medium of English and follow successfully College courses. The department also endeavours to lay a firm foundation for any further studies, possibly abroad, in an English language medium. Students' confidence is built up so that they may be encouraged to pursue English studies individually. Generally and at all levels, the department seeks to broaden the students' intellectual horizon.

DEPARTMENT OF GENERAL SCIENCES AND MATHEMATICS

The General Sciences and Mathematics Department exists as a supporting academic department to the various college programs.

Courses are offered with two different purposes;

1. To provide students with the basic concepts and principles underlying the theories and techniques covered in all speciality programs.

2. To provide more advanced physics, chemistry, and mathematics that has more direct application in particular speciality programs.

DEPARTMENT OF LIFE SCIENCES

The Department of Life Sciences exists as a supporting academic department to the various College programs. The main goal of the department is to develop the general competencies in life science disciplines which all health professionals must have in order to effectively perform within their speciality. This department offers for all Programs. For the latter, two levels of courses are offered, a basic level required by all first year students and a more advanced level required by individual programs.

DEPARTMENT OF SOCIAL & BEHAVIOURAL SCIENCES

Students are introduced to the study of human behaviour as a science and as a useful tool in understanding and dealing with life situations as they are encountered in the professional health fields.

GENERAL NURSE PROGRAM

The General Nurse Program offers a three-year (seven semester) training leading to the Associate Degree in General Nursing. Graduates of this program

will take full responsibility for patient care and the smooth functioning of the ward, therefore, goes beyond patient care to include supervision, management and evaluation.

After a minimum of one year general experience with the Ministry of Health, the AD General Nurse might choose further professional development through the following options :

a. Progress as a general nurse, moving up the organization through experience and achievement.
b. Focus on a field of specialization, such as paediatric nursing, intensive care nursing, etc.
c. Pursue further post - basic education such as Midwifery, Psychiatric nursing, Bachelor of Science in Nursing.

NURSE - MIDWIFE PROGRAM

The nurse-midwife program is a three semester training course for the professional nurse, leading to the Midwifery Diploma. Graduates of this program will work under Ministry of Health auspices, giving care in the central and district maternity hospitals as well as in the homes of Bahraini families. The program is

designed to prepare the nurse-midwife to :

1. Give supervision, care and advice to women during pregnancy and labour and the post-partum period.
2. Give care and assess progress during labour, conduct normal deliveries and care for the normal newborn infant.
3. Detect early signs of illness and deviation from normality in mother and child, securing medical assistance & emergency measures when needed.
4. Provide health counselling and education including ante-natal education, preparation for parenthood, family planning and child care.
5. Teach and guide students and junior staff, plan, organise, and supervise the work in the hospital ward or health centre.

MATERNAL & CHILD HEALTH NURSE PROGRAM

The Maternal and Child Health Nurse program provides in-service training for the Practical Nurses, preparing her to function as an assistant to the Public Health Nurse and the Nurse-Midwife. Graduates of this two-semester course will deliver maternal and child health care at a primary level in maternity hospitals

and community health centres with an aim of promoting, maintaining and restoring the health of mothers, infants and children.

POST-BASIC PSYCHIATRIC NURSE PROGRAM

The College of Health Sciences in co-operation with the Psychiatric Department will offer a program for professional nurses leading to the Psychiatric Nursing Diploma. Graduates will be equipped to work in the psychiatric area on the wards, and in the community. Graduates will also be equipped to undertake further training in highly specialised areas of psychiatric nursing.

This post-basic program in pscyhiatric nursing will meet the immediate needs of Bahrain and also be a seminal influence in the development of future psychiatric nursing education as new needs are identified. From the graduates of the post-basic program a cadre will exist who can help to develop short courses in highly specialised areas such as drug addiction and child adolescent psychiatry.

HIGH SCHOOL NURSING STREAM

From October 1980, the equivalent to the practical nurse program has been amalgamated with the high school general education program. Thus, at the

end of the secondary school education the student, if successful, will have both the Tawjihia and a certificate to practice as a practical nurse.

The graduates of this program works as a member of the nursing team always in close proximity or under the supervision of an associate degree or similarly qualified nurse. She can care for individuals if ages with uncomplicated health problems in various settings - ward, clinic and health centre.

BACHELOR OF SCIENCE IN NURSING PROGRAM

The Bachelor of Science in Nursing program will provide the student with an in-depth study of the problem-solving approach to nursing practice. A broader and deeper knowledge base will be developed as a result of courses dealing with the behavioural and life sciences, managerial, teaching, communication and research skills. In addition to developing generic nursing competencies, the student will be given the opportunity to develop the skills and knowledge required by nursing speciality area.

The Bachelor of Science in Nursing program will be offered to Associate Degree in Nursing graduates from September 1982.

DIAGNOSTIC RADIOGRAPHY TECHNICIAN PROGRAM

The Diagnostic Radiography Technician Program offers training leading to the Associate Degree in Health Sciences. Graduates of this program will work as Radiography Technicians in the X-Ray departments of the hospitals and health centres in Bahrain, receiving, preparing and positioning patients, carrying out routine X-Ray exposures, and processing and evaluating films.

Advances in modern medicine have led to increased demand for more accurate evidence from which final diagnosis can be made. Properly exposed and developed X-Rays are heavily relied upon and are available when X-Ray departments are staffed with competent and confident radiography technicians.

MEDICAL EQUIPMENT TECHNICIAN PROGRAM

The Medical Equipment Technician Program offers training leading to the Associate Degree in Health Sciences. Graduates of this Gulf Regional Program will work in the various Arab Gulf states, helping to commission, inspect, repair and maintain Medical Equipment.

Health care is increasingly dependent in highly complex equipment which require preventitive maintenance, calibration and repair to keep it

functioning correctly and safely. Medical equipment technicians carry out these tasks and also advise doctors and other para-medical staff on the proper use of equipment.

MEDICAL LABORATORY TECHNICIAN PROGRAM

The Medical Laboratory Technician Program offers training leading to the Associate Degree in Health Science. Graduates of this program will work as Diagnostic Medical Laboratory Technicians in the laboratories of the Ministry of Health hospitals and health centres, performing routine and special laboratory procedures in the area of haematology, blood bank, microbiology, and histology and cytology.

Advances in modern medicine have lead to an increase in the demand for acurately performed clinical laboratory diagnosis, and prognosis of patients' condition. Certainly, the importance and complexity of these tests require well-trained competent technicians. The laboratory technician training program provides opportunity for students to apply scientific principles in solving case study problems thereby preparing them to assume their clinical responsibilities.

MEDICAL SECRETARY PROGRAM

The Medical Secretary Program offers training

leading to the Associate Degree in Health Sciences. Graduates of this program will work as medical secretaries in the wide variety of health service agencies, using their acquired skills in administration, clerical, and secretarial duties in the health agencies of Bahrain. It is the intention of this program to meet the Secretarial needs of the hospitals, the clinics, the public health agencies, and other medical institutions.

The complete medical secretary program will cover four semesters, with the student accumulating approximately 60 credits. Because the medical secretary program requires measurable skills, it is possible for a student to challenge a class, to take an examination over the class work, and to receive credit for the class.

PHARMACY TECHNICIAN PROGRAM

The Pharmacy Technician Program offers training leading to the Associate Degree in Health Sciences. Graduates of this program will work as Assistant Pharmacists in community health centres and hospital pharmacies, compounding, formulating, manufacturing, and dispensing medications.

Through its curriculum, the Pharmacy Technician

Program aims to give the student both a basic professional education and a scientific training in pharmaceutical operations so that he can meet his professional responsibilities with proficiency and scientific comprehension. This background is particularly important in Bahrain where there are so few fully qualified pharmacists.

PUBLIC HEALTH INSPECTOR PROGRAM

The Public Health Inspector Program offers training leading to an Associate Degree in Health Sciences. Graduates of this program will work as Public Health Inspectors under the Directorate of Public Health, the Municipality, or in the private sector. The duties of a Public Health Inspector include visiting, inspecting, reporting findings, taking part in remedial action and educating the public on matters relevant to public or community health.

The development of a country and its progress is intimately related to the health of its people; health being defined as a state of complete physical, mental and social well-being and merely the absence of disease or infirmity. The aim of the Public Health Inspector program is to graduate health personnel (sanitarians) endowed with sufficient knowledge and practical skills to play their vital role in the protection and promotion

of health in this rapidly developing part of the world.

SPORTS MEDICINE TECHNICIAN PROGRAM

The Sports Medicine Technician Program offers training leading to the Associate Degree in Health Sciences. Graduates of this program will use their acquired skills in prevention, care and rehabilitation of sport injuries in a variety of settings such as the sports clubs, sports medicine clinics and national teams of Bahrain.

The Sports Medicine Technician Program offers theoretical and practical experience in the area of sports injuries. The program will be of four and one-half semesters in length.

TEACHER TRAINING PROGRAM

The Teacher Training Program is designed for Nursing and Allied Health professionals to enhance their training ability and program planning skills and to increase their general competence to meet the ever-growing demand for qualified health professionals in the Arab/Gulf region.

The Teacher Training Program leading to the post-basic Diploma in Health Science Education has three main divisions.

English Language,
Educational Methodology, and
Professional Enrichment.

Initially over a 12-week period, all students have the opportunity to upgrade their English language proficiency to a university entrance level. Educational methodology courses follow for the remaining time in the first semester. Remedial English courses continue until students attain a satisfactory level on the TOFEL.

During the second semester Educational Methodology courses continue, and courses are offered which will enrich the professional competence. Students have the opportunity to increase mastery in their own field of speciality, i.e. Nursing, Medical Laboratory, Technology, etc.

APPENDIX VII

DEPARTMENTS AND THEIR PROGRAMMES IN UNIVERSITY COLLEGE OF ARTS, SCIENCE AND EDUCATION IN BAHRAIN

DEPARTMENT OF ARABIC AND ISLAMIC STUDIES :

The Department of Arabic and Islamic Studies offers courses and programmes leading to the B.A. degrees in Arabic, Islamic Studies, and in the Teaching of Arabic as well as Teaching of Islamic Studies. In addition, the department offers minors in Arabic and in Islamic Studies.

DEPARTMENT OF BIOLOGY :

The Department of Biology offers courses leading to the Bachelor of Science Degree in Biology and in the Teaching of Biology, with specializations in Botany, Zoology, Microbiology and Marine Biology.

DEPARTMENT OF CHEMISTRY :

The Department of Chemistry offers courses and programmes leading to the B.Sc. degrees in Chemistry and in the Teaching of Chemistry, with specializations in Inorganic, Organic, Physical, Macromolecular and Industrial Chemistry. Programmes are also offered in Chemical Education, Applied Chemistry and Biochemistry.

DEPARTMENT OF EDUCATION :

The Department of Education offers courses and programmes at the undergraduate level leading to the degrees of Bachelor of Arts and Bachelor of Science in a teaching subject through double-majors, e.g. English Education, Physics Education, Mathematics Education. It also offers courses leading to the degree of Bachelor of Education (B.Ed.) for the preparation of classroom teachers at the primary school level.

DEPARTMENT OF ENGLISH :

The Department of English offers courses and programmes in English language and literature leading to the B.A. Degree in English and in the Teaching of English. In addition, an English Language Centre (ELC) within the Department offers an intensive Preparatory Programme to develop the student's ability in basic language skills and a remedial course for those who fail to meet First Year standards but demonstrate particular improvement in the Preparatory Programme.

DEPARTMENT OF GENERAL STUDIES :

The Department of General Studies includes the following areas : History, French, Geography, Fine Art

and Sociology. It offers courses leading to a minor in History. In addition it offers courses which can be taken both as electives and as College requirements.

THE LIBRARY :

This course is primarily designed to acquaint students with the library in its active role as the "heart" of the educational process as opposed to its passive one as a simple storeroom or resource centre for textbooks. It examines the nature and structure of library resources and their use, the historical development of libraries, and the nature of the full range of library operations and services in a teaching/learning environment. Bibliographic and library instruction in general and orientation to the University College Library in particular will be included.

DEPARTMENT OF MATHEMATICS :

The Department of Mathematics offers programmes leading to the degrees of B.A. or B.Sc. in Mathematics and in the Teaching of Mathematics. In addition, the Department offers minors in Mathematics, Statistics and Computer Science.

DEPARTMENT OF PHYSICAL EDUCATION :

The Department of Physical Education offers courses and programmes leading to a Bachelor's degree with a double-major in Physical Education and Education. A SPECIAL PREPARATORY PROGRAMME is offered for in-service teachers of Physical Education, who are holders of the Diploma from the former Teacher Training Colleges to enable them to acquire Junior standing for progress towards their degree.

DEPARTMENT OF PHYSICS :

The Department of Physics offers courses and programmes leading to the B.Sc. degree in Physics and in the Teaching of Physics. In addition, the Department offers minors in Physics, Electronics and Applied Physics, the latter only in combination with a major in Physics. Courses in Integrated Science for Arts students are run in collaboration with the Departments of Chemistry and Biology. The Department also participates in the programme for the M.Ed. degree in Science Education.

DEPARTMENT OF PSYCHOLOGY :

The Department of Psychology offers courses and

programmes for six categories of students : those electing Psychology as part of the College requirements; those studying for the Postgraduate Diploma in Education; those preparing for careers in the teaching profession; those opting for Psychology as a minor; and those opting for a career in medicine.

TRAINING OF CLASSROOM TEACHERS : THE B.ED. PROGRAMME ;

The College offers a programme leading to the B.Ed. degree for both the in-service and pre-service training of classroom teachers at the primary level. For entry into the programme, a candidate must be sponsored by the Ministry of Education, Bahrain, and must meet the admission criteria of the University College.

Teaching is mainly, though not exclusively, in Arabic. The students are expected to acquire a proficiency in English which would permit them to read source and reference materials in English. To this end, students are expected to enrol in intensive courses in English (one in the September prior to entry and the other in the following September) in addition to the required courses in English as part of the degree programme.

RE-TRAINING OF SUBJECT TEACHERS :
CERTIFICATE COURSES :

Special programmes of study are offered for in-service re-training of subject-teachers of upper primary (or intermediate) and lower secondary schools who are holders of a Bachelor's degree in a particular subject but are, at present, teaching a different subject. A candidate must be sponsored by the Ministry of Education, Bahrain, for entry into the programme and must satisfy the admission criteria of the University College. Upon successfully completing the requirements of the programme, a student is awarded a Certificate.

THE PRE-MEDICAL PROGRAMME :

The College offers a two-year pre-medical programme to students from the seven countries of the Gulf: Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. Upon successfully completing the requirements of the programme, a student will be eligible to enrol for clinical studies at the Arabian Gulf University provided he/she meets the minimum requirements set by the Medical Faculty of the Arabian Gulf University.

For entry into the programme, a candidate must be sponsored by his/her government and must rank in the

top 15% in the overall average with scores in English in the top 10% in his/her secondary school examination. The actual scores for eligibility will, therefore, vary from year to year and will be set by the Admissions Committee of the Arabian Gulf University. Each applicant will also be given a series of tests including an ability (non-verbal I.Q.) test, a general knowledge test (in Arabic) and an English placement test (TEFL or equivalent) besides being asked to appear in an oral interview. Students will be admitted, in order of merit, depending on the number of places available. The decisions of the Admissions Committee are final.

POSTGRADUATE DIPLOMA IN EDUCATION :

The University College offers a one-year programme leading to the Postgraduate Diploma in Education (PGDE), to holders of a B.A., B.Sc., or an equivalent degree from a recognized university. The programme is designed primarily for in-service training of secondary school teachers to help them acquire the necessary experience and skills for their careers.

A full-time student is expected to register for 18 credits in the First Semester and 15 in the Second. However, a student wishing to enrol on a part-time basis is able to do so but he/she must register for a minimum

of 9 credits in any one semester.

M.ED. IN SCIENCE EDUCATION :

The University College offers a one-year full-time or two-year part-time programme of study, with special emphasis on Biology or Chemistry or Physics Education, leading to the M.Ed. degree. A student is expected to register for a further period of one year for the preparation and submission of a dissertation, preferably on a topic of direct relevance to the teaching of science in schools of the Gulf.

APPENDIX VIII

OTHER_UNIVERSITIES_OFFERING_AND_ADMISSIONS_SYSTEM_IN_UCB

STUDENT CENTRE :

The Student Centre provides an informal environment for interaction among students. Two rooms, one each for male and female students, are designated for prayers. There is also an auditorium for approximately 150 persons in this building.

LIBRARY :

A Library and two Reading Rooms are available for use by the students and staff. The library has a collection of 60,000 volumes, including approximately 15,000 in English in addition to 400 periodical titles. Additional facilities are envisaged in the near future.

GYMNASIUM :

The University College offers a broad scope of activities in physical education and athletics as an integral part of the undergraduate and postgraduate curricula. The Gymnasium provides facilities for basketball, volleyball, badminton, table tennis, fencing and other indoor sports.

Facilities for outdoor sports such as tennis, swimming and football are also available.

All students are invited to use the gymnasium during any free time, provided classes are not in session. Equipment is available for check out, but must not be removed from the premises. A student must have his I.D. card to check out equipment.

The swimming pool at Isa Town is open for recreational swimming at specified times during the warmer months.

MEDICAL :

Two well-equipped rooms, one each for men and women, are available in the gymnasium for first aid to, and minor medical necessities of, both students and staff. Two qualified nurses are in attendance. Should a consultation with a doctor be required, the Office of Student Affairs will arrange for a consultation at the nearest Medical Centre as well as for transport for the student.

TRANSPORT :

The University College provides free transport for students from designated stops. Students who desire transport should register with the Office of Student Affairs as soon as possible after the announcement of accepted candidates.

LOCKERS :

A locker is available for every two students for use while at the University College. The student will receive a key which must be returned at the end of the academic year. A nominal charge is made if the key is lost. Students should sign up with the Office of Student Affairs as soon as possible after registration. The College will not be responsible for any loss of, or damage to, materials left in the locker.

BOOKS :

A bookshop is maintained by the College; prescribed textbooks and materials are available at prices subsidized up to 50%. Students are urged to retain their books and start a personal library.

CAFETERIA :

A cafeteria offering light snacks and hot lunches is available for general use.

APPLICATIONS AND ADMISSIONS

ADMISSION REQUIREMENTS :

The University College is dedicated to quality education and, therefore, has adopted policies and procedures to ensure producing exceptionally qualified graduates, with a broad liberal arts background, capable of assuming leadership roles in society.

Entering students have the unique opportunity to enrol in a one-year Preparatory Programme offering a concentrated preparation in Arabic, Islamic Studies, English, Mathematics and the Sciences - a programme closely co-ordinated with undergraduate studies.

ADMISSION TO PREPARATORY PROGRAMME
AND UNDERGRADUATE STUDIES :

Admission to the Preparatory Programme, Arts or Science, is open to students who meet the following minimum requirements :

(i) Recent graduate of a recognized secondary school;

(ii) Score of at least 60% on the

General Secondary School Certificate Examination (TAWJIHIA) or equivalent.

Admission to University College is selective; merely satisfying the minimum requirements is not a guarantee of acceptance. Each student is given a series of achievement tests and is interviewed by the Committee on Admissions.

Students who score at least 85% on the TAWJIHIA or equivalent examination may be considered for direct entry to the FIRST YEAR CLASS. They are given entrance tests in each of their intended subject of study and are interviewed by the Committee on Admissions. Students will be admitted in order of merit, depending on the number of places available. The decision of the Committee on admissions are final.

ADMISSION TO THE POSTGRADUATE DIPLOMA IN EDUCTION :

Applications for admission to the Postgraduate Diploma in Education should be submitted to the Committee on Admissions before the date prescribed in the Calendar.

The applicant must normally be a Bahraini and hold at least a B.A., B.Sc. or an equivalent degree from

a recognized university. Preference will be given to those with a specialization in any of the following : Arabic, Islamic Studies, English, Mathematics, Physics, Chemistry and Biology (Botany or Zoology).

Methods courses are also offered in Geography and History.

ADMISSION TO THE M.Ed. PROGRAMME :

Applications for admission to the M.Ed. programme should be submitted to the Registrar before the date prescribed in the Calender.

Candidates must normally be in possession of either an approved science degree and a graduate certificate or diploma in education, or of a B.Ed. majoring in science and must normally have had at least two years teaching experience or other approved experience in education. Places will be offered to successful candidates after an interview. A satisfactory knowledge of spoken and written English is essential, as all courses in this programme will be taught in English.

APPENDIX IX

A SELECTION OF COURSES OFFERED IN THE CENTRE FOR COMMUNICATION BETWEEN 1979 AND 1983

1 1979/80

Com. 101 : Introduction to Communication Process and Theory;

An introductory course in various theories of communication and models of communication process with particular emphasis on the societal conditions in Bahrain.

Com. 121 : Film Making : Spring;

A course in the technique of super 8 filming for communication, television, etc., including techniques of production necessary for news, documentary, developmental communication and other TV formats, with particular emphasis on informative programmes. (The course is limited to a maximum of 12 students).

2. 1980/81

COM 101 : Introduction to Communication Process and Theory :

An introductory course in various theories of communication and models of communiction process with particular emphasis on the societal conditions in Bahrain.

COM 121 : Film_Making :

A course in the technique of super-8 filimg for communication, television, etc. including techniques of production necessary for news, documentary, developmental communication and other TV formats, with particular emphasis on informative programmes. (The course is limited to a maximum of 12 students.)

COM 202 : Media_Production_Skills :

A course in production skills in such media as graphics, photography and sound recording.

COM 221 : Television_Production :

A basic knowledge of production of closed-circuit television programmes is developed. Each student is expected to design and produce his own television programme during the course.

Departmental Requirements for a Minor in Communications are :

* COM 301 ; COM 302
* At least 16 additional credits in courses the 300-400 levels chosen in consultation with, and with the approval of, the Co-ordinator of the Centre for Communications.

COM 511(ED 511) : Educational Technology :

An introductory course in the use of Media in the classroom ; theory and application for the selection, utilisation and production of instructional materials. The course includes the theoretical aspects of modern technology for learning and instruction and implementation of communication research in the educational field.

3. 1981/82 :

COURSES OFFERED BEGINNING 1981-82

COM 301 : The Theories of Communication

COM 302 : Media in Communication

COM 306 (ED 306) : Introduction to Educational Technology

COM 311 : Mass Communication

COM 312 : Writing for Television and Radio

COM 321 : Film-making for Television

COM 322 : TV Production - Directing I

COM 351 : Programmed Instruction

COM 422 : TV Production - Directing II

COM 441 : Instructional Television Production I

COM 442 : Instructional Television Production II

COM 451 : Instructional Systems Development

COM 491 : Communication Research Methods

COM 492 : Media Management

COM 493 : Communication Practicum

COM 101 : Introduction to Communication Process and Theory :

Not offered in 1982-83

COM 121 : Film Making

Not offered in 1982-83

COM 202 : Media Production Skills :

A course in production skills in such media as graphics, photography and sound recording.

COM 211 (ED 211) : Production of Inexpensive Teaching Material :

This course emphasizes helping the students to acquire the necessary techniques and skills in the production of various types of inexpensive teaching material such as models, display, demonstration board, diorama, graphics, puppets, etc.

COM 221 : Television Production

Not offered in 1982-83

COM 311 (ED 311) : Introduction to Educational Technology :

An introductory course in the selection, utilization and production of instructional materials for specified subject matter. The course includes the

implementation of communication research results for the construction of an instruction media package. The package will be field tested. Laboratory and field assignment will form an integral part of the course.

COM 312 (ED 312) : Programmed Instruction :

Examination of the history, theory and research relevant to the design and development of programmed instruction. Each student prepares an instructional programme, beginning with a statement of objectives and progressing through each stage, including a formative evaluation and subsequent revision.

COM 511 (ED 511) : Educational Technology :

An introductory course in the use of media in the classroom; theory and application for the selection, utilization and production of instructional materials. The course includes the theoretical aspects of modern technology for learning and instruction and implementation of communication research in the educational field.

4. 1982/83 and 1983/84 :

ED 311 : Introduction to Educational Technology :

A predominantly laboratory-based course stressing the application of educational technology to instruction and learning. A systematic approach towards the selection, design, production and evaluation of inexpensive instructional materials for use in the stage for which the student is prepared.

ED 312 : Programmed Instruction :

Examination of the history and research relevant to the design and development of programmed instruction. This course also includes analysis of the linear and branching systems with their different means of application. Each student prepares an instructional programme beginning with a statement of objectives and progressing through each stage, including a formative evaluation and subsequent revision.

ED 511 : Educational Technology :

A predominantly laboratory-based course stressing the application of educational technology to instruction and learning. A systematic approach towards the selection, design, production and evaluation of inexpensive instructional materials for

use in the stage for which the student is prepared. The course will include field testing of an instructional media package designed by the student.

APPENDIX X

SURVEY OF AVAILABLE AUDIO-VISUAL AIDS AND EQUIPMENT IN UCB

Materials and Equipment	Available and no. where necessary	Condition of Equipt.			Estimated Number Needed
		Operational	Needs Repair	Out of Order	
Radio	nil	nil	nil	nil	nil
Gramaphone	3	1	1	1	nil
Tape Recorder	32	20	7	5	-
Slide Projector	10	10	-	-	-
Synchroniser	2	2	-	-	-
Filmstrip Projector	6	6	-	-	-
8mm Projector	4	2	1	1	-
16mm Projector	13	8	4	1	-
Television Set	8	8	-	-	-
Video Cassette	4	4	-	-	-
8mm Cine Camera	2	2	-	-	-
16mm Cine Camera	-	-	-	-	-
TV Camera	7	3	4	-	-
Photographic Camera	6	6	-	-	-
Developing and Printing Equip.	2	2	-	-	-
Developing (photocopying) Equipment	nil	nil	-	-	-
Overhead Projector	17	12	5	-	-

APPENDIX X (Contd)

Materials and Equipment	Available and no. where necessary	Condition of Equipt.			Estimated Number Needed
		Operational	Needs Repair	Out of Order	
Opaque Projector	7	4	3	-	-
Screens	15	11	-	4	-
Wall Charts	20	20	-	-	-
Micro Projector	nil	-	-	-	-
Spirit Duplicator	1	-	-	1	-
Ink Duplicator	nil	-	-	-	-
Transparency Maker	2	2	-	-	-
Automatic Stencil	1	-	1	-	-
Cutter	10	10	-	-	-
NC Scriber	1	1	-	-	-
Editing Machine	1	1	-	-	-
Splicers	3	3	-	-	-
Eraser	1	1	-	-	-
Amplifier	5	5	-	-	-

APPENDIX XI

CURRENT EDUCATIONAL TECHNOLOGY (Ed.511 AND Ed. 311) PROGRAMMES FOLLOWED IN UNIVERSITY COLLEGE OF BAHRAIN

1. **Theoretical Part**
   (Two hours per week)

   1. The Development of Concept and Terminology of Teaching Aids.
   2. The Classification of Teaching Aids and the sources of obtaining them.
   3. The Importance of Teaching Aids in :
      a. Teaching-learning process
      b. Overcoming some teaching obstacles
   4. The Principles of Teaching Aids selection.
   5. The Principles of Teaching Aids Utilization.
   6. Evaluation of Teaching Aids.
   7. Designing Media package.
   8. The study of some Audio communicational Aids:
      a. Radio
      b. School Broadcasting
      c. Recording Aids
      d. Record Players
      e. Language Laboratory
   9. Displaying:
      a. Chalkboards

b. Bulletin boards

10. Graphics and Diagrams.

11. Printed Texts.

12. The study of some Visual Aids :

a. Flat Pictures

b. Transparencies

e. Slides

f. Still Projection

g. Soundless Motion Picture

13. The study of some Real Things and Models.

14. Games and Simulations.

15. Dramatization.

16. Field trips.

17. Exhibitions and Museums.

18. The study of some Audiovisual Aids:

a. Sound Motion Picture Film

b. Closed Circuit TV

c. Open Circuit TV

d. The Cable TV

f. The Satellites

2. **Practical Part**
(Two hours per week)

1. Introduction to the Teaching Aids and Equipment available in the lab.

2. Explanation of points to be considered in the operation of the Aids.

3. Operation of the Following:

    1. Cassette Recorder
    2. Tape Recorder
    3. Language Laboratory
    4. Overhead Projector
    5. Slide-Projector
    6. Synchronizer
    7. Filmstrip Projector
    8. Opaque Projector
    9. Loop Projector
    10. 16mm and 8mm Sound Projectors
    11. Television
    12. Photography Production (Still Camera)

APPENDIX XII

OBJECTIVES OF PROGRAMMES FOLLOWED IN EDUCATIONAL TECHNOLOGY COURSE AT UNIVERSITY COLLEGE OF CARDIFF

M.ED. (EDUCATIONAL TECHNOLOGY) STUDY GUIDE

The Educational Technology option is taught entirely in the Centre for Educational Technology, 8 North Road, Cardiff. Apart from the first class, all classes for part-time students will begin at 6.00 p.m. on Monday evenings. Full time students will have their class at 9.30 a.m. on Monday mornings.

COURSE AIMS .

The course is specifically designed to introduce the concepts and principles of Educational Technology to the teacher rather than to train Educational Technologists. Although audio visual aids are included as an element in the course, it forms only a part of a larger study, the general aims of which can be summarised as follows:-

1) To provide guidance in the planning of lessons and courses and to encourage the systematic preparation and management of such lessons and courses.

2) To relate teaching objectives to teaching methods, teaching strategies, teaching media and to

learning styles and the learning problems of students.

3) To demonstrate a wide variety of teaching methods including A/V aids, gaming, simulation, programmed instruction, computer aided instruction, C.C.T.V., tape-slide, small group instruction, problem solving techniques etc.

4) To highlight the advantages and disadvantages (both economic and educational) of the variety of teaching methods covered.

5) To introduce the practical problems of handling audio visual and programmed materials both in their production and storage and their use in class.

6) To demonstrate the relative merits of a variety of methods of assessing students and evaluating courses and lessons.

7) To encourage the efficient management of resources and the recognition of the potential value of school-based resources.

8) To develop an overview of the ways in which educational technology may be employed by the teacher in didactic methods, self-paced methods, classroom management etc.

COURSE PHILOSOPHY

Educational Technology is perhaps best defined as the application of a problem solving approach to lesson design and curriculum development. It is, therefore, an applied subject which tends to bring the results of pure and applied research to bear in innovative educational developments. We hope that you will not restrict yourself to simply learning something about aims and objectives, the use of media, the value of different assessment systems etc., but instead will try and relate the ideas presented in this course to the overall problems facing you in your teaching job. In particular we want to avoid the simplistic idea that one method of teaching may be better than another for the same teaching aim. We are trying to advocate the idea that teaching should involve the use of a wide range of integrated strategies, each one relating to the particular objective being taught.

COURSE STRUCTURE

The contact time on this course is limited and we believe it is a waste of time to employ didactive techniques such as lectures. You will find, therefore, that a great deal of hand-out and reference material is given to you and that the classes are used for discussion, workshop exercises, small group study

etc. You will gain most from the course by keeping up-to-date with the hand-outs and recommended reading and also by contributing to the discussion. The course is designed for experienced in-service teachers and we can all learn from one another. Therefore, you inputs to the course based on your own expertise are one of the important resources of the course.

ASSIGNMENTS

Since there is no examination in the Educational Technology option there are additional course work assignments. The dual purpose of the assignments is to measure the extent of your reading and in-depth study of the course references (done by the course journal, seminar and essay) and to develop practical skills in lesson design and the preparation of teaching materials (done by the remaining assignments).

If at the end of the year you are judged by both internal and external examiners to be a border-line candidate then you will be required to complete a further essay assignment under controlled conditions.

Your performance on this extra assignment may only be used to improve your status.

All of the assignments will be marked on the following basis:-

A - Excellent

B - Satisfactory

C - Unsatisfactory

In practice the M.Ed. Programme operates on a simple pass-fail system, but grades such as B-, B+ and A-, may also be given to indicate tutors' opinions of your work. In order to pass you need to achieve six satisfactory grades from seven assignments. Details of the assignments are as follows:-

ASSIGNMENT 1 - Design Exercise .

On just two A4 sheets of paper identify your chosen lesson topic, the target class (age, expertise etc.) your general aim, an overall teaching objective, a list of subsiduary objectives and an indication of the logical sequence in which the objectives will be taught. The list of objectives must include at least one from the analysis, synthesis or evaluation category. The criteria for assessment will be whether the objectives are expressed in behavioural terms, the 'match' between the objectives and the audience, and the logical structure of the teaching sequence.

ASSIGNEMENT 2 - Essay.

Write a 1,000 word essay on a topic to be presented during the first term. A strict word limit will be enforced for this assignment.

We are looking for evidence of your having read the set texts and gained an overview of the basic components of educational technology.

ASSIGNMENT THREE - Course Journal.

At the beginning of the course you will be asked to choose (and have approved) a topic for in-depth study throughout the year. You will keep a course journal (probably in a large ring-binder) of photocopies and other material relating to this study, together with your comments on the articles . The file should have a clear structure, with a contents page, and should not merely be a collection of paper or exemplary material. Credit will be given for depth of research and quality of personal comment.

ASSIGNMENT FOUR - The Seminar.

During the second or third term of the course you will be asked to prepare and present a seminar to your colleagues on the course. This has a strict

presentation time limit (20) minutes followed by discussion. Credit will be given for the structure of the presentation and for the actual style and expertise of the presentation. We assume that you will want to devise your seminar from your course journal, but you are free to choose an unrelated topic (though one relevant to ed.tech.) if you wish.

You are asked to hand in two A4 sheets of notes and references, 14 days before the seminar, so that these may be typed and circulated to your colleagues. You will lose credit if your seminar is relatively devoid of significant content or if it tried to do too much and/or runs over time.

ASSIGNMENT FIVE - A/V Project Design.

You are asked to identify a target audience and write a set of aims and objectives, together with a script (which should include outline details of pictures and sound effects as well as narrative) for a 15-20 minute teaching package and a test for the objectives. Your choice of media (tape slide or video) must be justified. The time limit of 20 minutes is not critical but we do not recommend you try and design a longer programme.

ASSIGNMENT SEVEN - Programmed Instruction .

You are asked to write a programme suitable for a programmed text or a C.A.L. (computer assisted earning) package. The programme should identify aims, objectives and target, audience (which may be based on assignmet one) and should contain 20 'frames' of instruction, with test questions, criteria frames and a pre and post test of the objectives. Credit will be given for the accurate relationship between stated objectives and content of the frames and test questions. Logical teaching structure and skill in developing concepts will also be rewarded.

OBJECTIVE HIERARCHIES & TEACHING SEQUENCES

AIM

Having established the nature and classification of educational objectives we need to examine how they may be used to determine teaching sequences in a logical manner.

OBJECTIVES

After completing this exercise you will be able to:-

1) Recognise and distinguish between enabling and terminal objectives.

2) State what is meant by an objective hierarchy.

3) Define the term 'entry behaviour' and say why it is important.

4) Produce objective hierarchies for subject areas of your choice, taking account of entry behaviour and teaching problems.

5) Distinguish between content selection and content presentation.

CONTENT SELECTION

Selection of content for a course at whatever level is very often a hit or miss affair. This is so even when detailed content syllabuses are available since these tend to be vague and non-specific leaving a great deal of scope for interpretation by the individual teacher. With a purely academic subject, based largely on factual material this is difficult to avoid. The governing constraints of such courses seem to be the time available to teach them rather than the skills attained.

For example the Professor of Pharmacology at UWIST said in an October 1976 address to 'A' level teachers in Cardiff that he spends the first year of the undergraduate course raising students to a common

standard and the final year in giving them the necessary (and constantly revised) skills demanded by the Pharmacology Profession. They thus have one year to learn all of the basic material. However, with a more skill-based set of objectives in mind (such as those involved in medicine, dentistry, electronics, teaching, etc.) it is possible to approach the problem by asking of experienced practitioners, the skills which they feel should be incorporated into a programme of instruction. A paper by McCarthy, Donaldson and Hollows (What should we teach? A consensus method to determine curriculum content - J. Med. Educ. 11(4) 249-256 1977) outlines this procedure in detail for a course in Ophthamology and a similar study conducted by myself for this present course (Moss, A technique for the evaluation and redesign of courses in the context of professional requirements. Assessment in Higher Edcation 3(1) p2-20) is also useful. The idea is that a group of teachers, deciding the conent in isolation from 'the real world' may in fact omit essential areas (unlikely) or give the wrong emphasis in some areas (probable). Such an analysis is designed to avoid this.

AIMS AND OBJECTIVES

AIM

In this section of the course we will review those factors which must be considered when designing instruction material and learning experiences. We intend to concentrate on the so-called 'systems approach' to design which features the use of educational objectives.

OBJECTIVES.

After completing this section you will be able to:-

1. Define or recognise correct definitions of the following terms:-

Aim

Goal

Objective

Behavioural objective

Condition

Criterion

Objective taxonomy

2. Distinguish between cognitive, affective and psychomotor skills and between repetitive and creative skills.

3. Write behavioural objectives for specified subject

areas.

4. List the advantages of using objectives.

5 List the problems involved in using objectives.

6. List the problems involved in specifying objectives.

7. Distinguish between overall (or terminal) and enabling objectives.

8. Be prepared to use behavioural objectives in your own teaching.

9. Discuss the value of specifying objectives in educational systems.

INDIVIDUALISED LEARNING

The following notes outline

(i) the chief merits of individualised learning as an alternative to conventional lecture courses;

(ii) the principal features of Keller Plan, Audio Tutorial/Multi-Media systems, and self-teaching Modules;

(iii) the principles of Programmed Learning;

(iv) the structure and format of Linear and Branching programmes.

A suggested reading list is attached

Objectives

After completing this part of the course you should be able to

1. describe the principal features of the three systems of individualised learning listed in (ii) above,

2. distinguish between intrinsic and extrinsic programmes,

3. state the basic principles upon which programmed learning is based,

4. outline a method for evaluating a programmed text.

COMPUTERS IN EDUCATION

GENERAL AIM

This unit is the second dealing with Individualised Instruction, its aim is to introduce the terminology used in computer studies and to familiarise you with some of the applications of computers in the field of education.

OBJECTIVES

You will be able to:-

1. Discriminate between Computer Aided Instruction and Computer Managed Learning.

2. List the way that computer technology can be used in Education.

3. Discuss the merits and problems of the use of computers.

SIMULATION AND GAMING

In recent years there have been considerable developments in the use of educational games and simulations for courses at all levels of education. In considering this area in some detail we will be trying to achieve the following objectives:-

OBJECTIVES

After studying this section of the course you will be able to:-

1. Define and distinguish between the following terms:-

   Game

   Simulation

   Role Play

   Case Study

   'Rummy' Game

   In tray/Decision making

2. Distinguish between a game or simulation model

and the practical elements of the game or simulation.

3. Given a game or simulation, analyse the educational objectives (as opposed to the game objectives) involved.

4. List the common features of games and sumulations.

5. Evaluate games and simulations in terms of faults or short comings in the basic model.

6. List the potential advantages and disadvantages of different types of games/simulations.

In addition it is hoped to include an opportunity for you to develop and test your own ideas in these areas, particularly if you elect to use this area as a basis for project work.

INSTRUCTIONAL_STRATEGIES

We now return from a somewhat theoretical consideration of Learning_Processes to the practical skills of selecting instructional strategies which are most appropriate for the attainment of the

instructional objectives. However, before proceeding let us just review some of the important points so far.

Q.1 How did Bloom classify objectives into 3 domains?

Q.2 How did Rowntree (in chapter 3, entitled Developing Objectives) classify objectives?

Q.3 In developing objective hierarchies, what did you discover about the process when carried out in a group?

Q.4 What are Gagne's categories of learning skill?

When you have answered these questions, consider the following objectives. These are objectives presented in generalised form which are applicable to a large section of the remainder of the course - that section concerned with teaching strategies and techniques.

OBJECTIVES

After completing this major section of the course you will be able to:-

1) Distinguish between teacher-centred and learner-centred teaching strategies, and also between self-paced and pace-determined learning.

2) Distinguish between self-instructional, group instructional and discovery learning.

3) Select teaching strategies which are most suited to the nature of the specified objective.

4) Discuss the fact that in selecting a particular teaching strategy then due consideration must be given to each of the following:-

1. The objectives

2. The nature of the target audience

3. Resources of material, space, finance and time.

MICROTEACHING_AND_CLASS_ANALYSIS

OBJECTIVES :

After completing this work unit you will be able to:-

1. Describe the process and value of microteaching as a self-evaluating system for trainee and in-service teachers.

2. Distinguish between unstructured (phenomenological) and structured (analytic) evaluation methods.

3. Discuss the relative merits of structured and unstructured methods.

4. List the seven basic evaluation categories for unstructured (7) and for structured methods (7) (using B.I.A.S. categories for the latter).

5. With the aid of suitable check-tests, evaluate lesson transcripts and audiotaped lesson sequences.

6. Given appropriate data from check-lists, analyse the nature of the lesson and (also given the general aim of the lesson)

comment on the way in which the lesson was conducted.

RESOURCE_CENTRES_AND_RESOURCE_MANAGEMENT

AIMS

1. To describe the possible roles of resource Centres and discuss the economics and educational implications.

2. To examine the use of resources at different educational levels.

OBJECTIVES

After completing this area of study you should be able to:-

1. List the functions of a resource centre which is study based and one which is production based.

2. List the educational advantages and disadvantages of resource centres in primary, secondary and tertiary levels.

3. Discuss the economics of resource-based learning in terms of materials costs, design costs and production costs.

4. Describe in outline the organisation and operation of a production resource centre.

5. Evaluate the cost-effectiveness and learning effectiveness of open teaching systems.

REFERENCES

Holder M.L. & Mitson, R. Resource Centres Methuen 1974.

N.C.E.T. Manual 2. Criteria for selection of media and resources.

W.J.K. Davies. Learning Resources (CET Guidelines 1)

R.F.J. Ireland. Producing guides to local resources (CET Guidelines 6).

U.N.E.S.C.O. Guide for the conversion of school libraries into media centres : Educational studies & documents, 22.

QUESTIONS FOR DISCUSSION

1. What are the requirements of a loan-based resource centre?

2. What are the requirements of a production-based resource centre?

3. What are the requirements of a self-study resource centre?

4. What are the educational merits of the three systems?

EVALUATION AND ASSESSMENT

1. General aims and objectives
2. Norm and criterion referenced tests
3. Types of tests
4. Test design
5. Item analysis
6. Purposes of tests
7. Evaluation techniques

M.ED. - PRACTICAL EXERCISES

There are five set practical exercises for you

to do over the next five weeks. These are:-

1. Using the videorover
2. Using film
3. Tape-slide
4. Editing audiotape *
5. Graphics and the OHP *

* with associated videotapes.

You will be required to do one exercise per week. If you miss a session then there may be opportunity for you to do it next term. However, we cannot guarantee this so please try and ensure that you complete the five sessions.

The practical work included here reflects the views of students on past courses. This means that there are no practical sessions in photography, scripting, 16mm film or the C.C.T.V studio. However, if any of you are interested in these areas then your project work may be carried out in such areas.

As regards project work it would be helpful to us if during the next few weeks you could

contact Terry or myself with a view to determining your project. If you do this we can then direct you to other support staff prepared to help you.

One point is worth emphasising throughout the course and including the practical sessions and projects.

It is not our aim to develop technical skills in the areas of Educational Technology. This can only come from prolonged use of techniques and equipment in a teaching context. Our aim is to show you what is possible and emphasise the important criteria in each case. You will then be encouraged to explore one area more fully with your project work.

APPENDIX XIII

STAFF_QUESTIONNAIRE_AND_THE_INFORMATION_SHEETS

QUESTIONNAIRE

INTRODUCTION

Dear Colleague,

This questionnaire has been designed to help promote the introduction of suitable Educational Technology and Communication System for University education in Bahrain, which if applied will hopefully and gradually help education technology to be introduced in other sectors of education and training in the country. Your co-operation in answering the questionnaire is greatly needed and appreciated.

There are two brief information sheets attached to the questionnaire. The first (Sheet A) is a short description of educational technology, whilst the other (Sheet B) concerns communication courses. These are provided to help you recall what the field (Educational Technology) is all about and to have an idea about the situation of communication courses in UCB. It is worth reading them before answering the questionnaire. There will also be two-one-hour sessions (for those who think they need it) to explain terms which might be unfamiliar or to clear up any points on which you are vague and which may be met in answering the questionnaire. This is to ensure high standards of accuracy in the replies.

INFORMATION_SHEET_(A) EDUCATIONAL_TECHNOLOGY

In the past, (and in many countries up till now) educational technology has been understood to be about visual aids and technical devices, this was rather technology in the service of education. Today it is said educational technology is the technology of education. The field covers a wide area. It involves a shift from a predominantly intuitive approach to teaching and learning toward a more systematic and analytical approach. Provides a structured approach to teaching designed to help the teacher create a situation which leads to optimum learning and teacher effectiveness. Rowntree (1974, p.1) stated:

> ".... educational technology is as wide as education itself: it is concerned with the design and evaluation of curricula and learning experiences and with the problems of implementing and renovating them. Essentially, it is a rational problem-solving approach to education, a way of thinking sceptically and systematically about learning and teaching."

Such descriptions of the term educational technology may well have helped us to realise that the effectiveness of the full range of audio-visual media depends on its complete integration within the educational programme, within the total thinking about curriculum whether at school or in higher education - and that this involves asking and answering questions about objectives, content, strategies, evaluation and course improvement and to realise that the various aids, devices, machines, media (i.e. learning resources) will be brought into the process as they are judged to contribute to the achievement of the stated objectives.

INFORMATION SHEET (B) COMMUNICATION

In the last few years there were certain courses (as some of you probably know) such as Film-Making, TV Production and the like, provided by the Centre for Communication in the University College of Bahrain. They were offered under the title of Communication Field. Much doubt and suspect have arised since the date of their offerings about their suitability and importance for the current situation in Bahrain, bearing in mind other priority fields which the country at the moment is actually in crucial need for. Due to this the authorities in the University College of Bahrain concluded that such courses may not be provided at the moment, and the Centre for Communication was therefore abolished.

It is requested from you to give your views about the importance of ten of these communication courses for the current and future societal needs of our country.

Please answer the following by ticking (✓) the appropriate square and by filling in the appropriate spaces left for a written answer.

1. Name .....

2. Profession :
   - Lecturer
   - Advisor
   - Teacher

3. Sex :
   - Male
   - Female

4. Age :
   - Less than 30 years
   - 30 - 40 years
   - Over 40 years

5. Years of Teaching Experience :
   - Less than 10 years
   - 10 years and over

6. Qualifications :
   - Ph.D.
   - Masters Degree
   - Bachelors Degree
   - Below Bachelors

Components of the Tentative Model for Educational Technology for University Education in Bahrain.

1. Rationale

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The rapid expansion of knowledge and the new technological discoveries along with their effects on educational curricula have made the provision of educational technology necessary for all teachers at all levels.	☐	☐	☐	☐	☐
2	The use of audiovisual materials to complement regular classroom instructions has become a common instructional technique from pre-school activities through to graduate school and also into service training and development programmes	☐	☐	☐	☐	☐
3	Educational Changes occurring in Bahrain require many of the skills and tools which educational technology can provide	☐	☐	☐	☐	☐
4	If teachers are to avoid becoming mere technicians applying other people's curriculum innovations, they will need sufficient educational technology skills to play an active and critical role in the development of innovation	☐	☐	☐	☐	☐

2. REASONS FOR NOT USING AVA's

Please indicate how far you agree with each of the following reasons to be an obstacle in using audiovisual aids, by ticking in the appropriate space:

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Because they are not available in your college or school	☐	☐	☐	☐	☐
2	Because you do not know how to use them	☐	☐	☐	☐	☐
3	Because they are not applicable in your field	☐	☐	☐	☐	☐
4	Because the authorities do not demand their use	☐	☐	☐	☐	☐
5	Because you consider them to be a waste of time	☐	☐	☐	☐	☐

3. PRE-DETERMINED OBJECTIVE :

Providers of educational technology programmes should be quite certain of their aims and objectives.

After participating in educational technology programmes the teachers should be, or (be able to):

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Aware of and value the importance of educational technology in the educational processes	☐	☐	☐	☐	☐
2	Value the principle of a technology of education and training	☐	☐	☐	☐	☐
3	Formulate Objectives	☐	☐	☐	☐	☐
4	Select content	☐	☐	☐	☐	☐
5	Select appropriate learning experiences	☐	☐	☐	☐	☐
6	Choose appropriate material and equipment	☐	☐	☐	☐	☐
7	Evaluate the effectiveness of the overall course in achieving the objectives	☐	☐	☐	☐	☐
8	Recommend future improvement, in the light of evaluation so as to better achieve the objectives	☐	☐	☐	☐	☐

CURRICULUM

The curriculum recommended for the provision of educational technology for university education in Bahrain consists of seven main areas, theoretical aspects of educational technology, educational objectives, learning experiences, media and methods, audiovisual aids and machines evaluation and improvement.

4. SOME THEORETICAL ASPECTS :

The following are topics to be covered in the first area. Please indicate how far you agree on each topic by placing tick (✓) in the appropriate place.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The Concept of Educational Technology	☐	☐	☐	☐	☐
2	Educational Technology in a Changing World	☐	☐	☐	☐	☐
3	Educational Technology and Developing Countries	☐	☐	☐	☐	☐
4	Media Technology and Educational System	☐	☐	☐	☐	☐
5	Potentials and Limitations of Visual-ized Instruction	☐	☐	☐	☐	☐
6	The Process of Communication	☐	☐	☐	☐	☐
7	The Computer and Educational Technology	☐	☐	☐	☐	☐
8	Resource Centres and Rescource Management	☐	☐	☐	☐	☐
9	The Impact of Research on the Philosophy of Education	☐	☐	☐	☐	☐

5. EDUCATIONAL OBJECTIVES :

The following are topics to be covered in the second area. Please indicate how far you agree on each topic by ticking (✓) in the appropriate space.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Aims and Objectives	☐	☐	☐	☐	☐
2	General Instructional Objectives	☐	☐	☐	☐	☐
3	Behavioural Objectives	☐	☐	☐	☐	☐
4	Terminal and Enabling Objectives	☐	☐	☐	☐	☐
5	Taxonomy of Educational Objectives	☐	☐	☐	☐	☐
6	Relating Objectives to Classroom Instruction	☐	☐	☐	☐	☐
7	Using Instructional Objectives in Test Preparation	☐	☐	☐	☐	☐
8	Using Instructional Objectives in Marking and Reporting	☐	☐	☐	☐	☐
9	Advantages and Problems Involved in Using Objectives	☐	☐	☐	☐	☐

6. LEARNING EXPERIENCES :

The following are topics to be covered in the third area. Please indicate how far you agree on each topic, by ticking (✓) in the appropriate space.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Analyzing Objectives	☐	☐	☐	☐	☐
2	Considering Subject Matter	☐	☐	☐	☐	☐
3	Learning Sequences	☐	☐	☐	☐	☐
4	Teaching Strategies	☐	☐	☐	☐	☐

7. MEDIA AND METHODS :

The following are topics to be covered in the fourth area. Please indicate how far you agree on each topic by ticking (✓) in the appropriate space.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The Terminology of Media	☐	☐	☐	☐	☐
2	Principles of Media Utilization	☐	☐	☐	☐	☐
3	Criteria for Media Selection	☐	☐	☐	☐	☐
4	Graphic Materials	☐	☐	☐	☐	☐
5	Charts	☐	☐	☐	☐	☐
6	Types of Teaching Boards	☐	☐	☐	☐	☐
7	Displaying	☐	☐	☐	☐	☐
8	Transparencies for Overhead Projection	☐	☐	☐	☐	☐
9	Still Pictures	☐	☐	☐	☐	☐
10	Teaching with Films	☐	☐	☐	☐	☐
11	Teaching with Audio Materials	☐	☐	☐	☐	☐

MEDIA AND METHODS (Continued)

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
12	Teaching on Television	☐	☐	☐	☐	☐
13	Educational Radio	☐	☐	☐	☐	☐
14	Uses of Photography in Teaching	☐	☐	☐	☐	☐
15	Real Things and their Models	☐	☐	☐	☐	☐
16	Games and Simulation	☐	☐	☐	☐	☐
17	Dramatization	☐	☐	☐	☐	☐
18	Community Resources	☐	☐	☐	☐	☐
19	Free and Inexpensive Supplementary Materials	☐	☐	☐	☐	☐
20	Printed Text and Reference Materials	☐	☐	☐	☐	☐
21	Development of Programmed Instruction	☐	☐	☐	☐	☐
22	Physical facilities	☐	☐	☐	☐	☐
23	Improving the Room Environment	☐	☐	☐	☐	☐
24	Field Trips	☐	☐	☐	☐	☐

8. AUDIOVISUAL AIDS AND MACHINES :

All teachers should be able to use the following Aids :

(To be covered in area 5)

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Overhead Projector	☐	☐	☐	☐	☐
2	Opaque Projector	☐	☐	☐	☐	☐
3	Slide Projector	☐	☐	☐	☐	☐
4	Filmstrip Projector	☐	☐	☐	☐	☐
5	8mm Sound Projector	☐	☐	☐	☐	☐
6	16mm Sound Projector	☐	☐	☐	☐	☐
7	Tape or Cassette Recorder	☐	☐	☐	☐	☐
8	Record Player	☐	☐	☐	☐	☐
9	Synchroniser	☐	☐	☐	☐	☐
10	Micro Projector	☐	☐	☐	☐	☐
11	Television Set	☐	☐	☐	☐	☐
12	Video-tape Recorder	☐	☐	☐	☐	☐
13	TV Camera	☐	☐	☐	☐	☐
14	Language Lab	☐	☐	☐	☐	☐

AUDIOVISUAL AIDS AND MACHINES (Continued)

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
15	Computer	☐	☐	☐	☐	☐
16	Still Camera	☐	☐	☐	☐	☐
17	16mm Camera	☐	☐	☐	☐	☐
18	8mm Camera	☐	☐	☐	☐	☐
19	Close-Up Attachments	☐	☐	☐	☐	☐
20	Tape Splicer	☐	☐	☐	☐	☐
21	Lettering Devices	☐	☐	☐	☐	☐
22	Spirit Duplicator	☐	☐	☐	☐	☐
23	Ink Duplicator	☐	☐	☐	☐	☐
24	Photocopier	☐	☐	☐	☐	☐
25	Transparency Maker	☐	☐	☐	☐	☐
26	Automatic Stencil	☐	☐	☐	☐	☐

9. EVALUATION :

The following are topics to be covered in the fifth area. Please indicate how far you agree on each topic by ticking (✓) in the appropriate space.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Assessment and Evaluation	☐	☐	☐	☐	☐
2	Summative Evaluation	☐	☐	☐	☐	☐
3	Formative Evaluation	☐	☐	☐	☐	☐
4	Evaluation Techniques for Cognitive and Affective Objectives	☐	☐	☐	☐	☐

10. IMPROVEMENT :

The following are topics to be covered in the sixth area. Please indicate how far you agree on each topic by placing a tick (✓) in the appropriate space.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Finding Strength and Weaknesses	☐	☐	☐	☐	☐
2	Identifying Course Difficulties	☐	☐	☐	☐	☐
3	Remedying Weaknesses	☐	☐	☐	☐	☐
4	Reviewing and Updating Courses	☐	☐	☐	☐	☐

COMMENTS AND SUGGESTIONS REGARDING CURRICULUM :

11. MEDIUM OF INSTRUCTION FOR EDUCATIONAL TECHNOLOGY :

Medium of instruction for all educational technology programmes for University education in Bahrain should be (put tick ✓) in appropriate space):

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Only Arabic	☐	☐	☐	☐	☐
2	Only English	☐	☐	☐	☐	☐
3	Both (English and Arabic)	☐	☐	☐	☐	☐

12. EVALUATION OF PROGRAMMES :

In planning programmes techniques for assessing the stated objectives must be considered beforehand.

The following evaluative techniques are recommended for use in evaluating programmes.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Observations by tutors in charge and course organisers	☐	☐	☐	☐	☐
2	Student achievement tests	☐	☐	☐	☐	☐
3	Teachers' reactions written or oral	☐	☐	☐	☐	☐
4	Questionnaires	☐	☐	☐	☐	☐
5	Interviews	☐	☐	☐	☐	☐
6	Follow-up to discover whether the ideas disseminated in a course being successfully implemented in the classroom	☐	☐	☐	☐	☐
7	Comparison should be made between the sessions to show the progress towards a set of goals	☐	☐	☐	☐	☐
8	All personnel should participate in follow-up procedure	☐	☐	☐	☐	☐

COMMUNICATION COURSES

Please indicate how important is each of the following courses for a rapidly developing society such as Bahrain, now and for ten years in the future. Rank them in order of their importance, (a) is Extremely Important (b) is next and so on :

(a) Extremely Important
(b) Fairly Important
(c) Neutral
(d) Fairly Unimportant
(e) Extremely Unimportant
(f) This is outside the scope of my experience and I would rather not commit myself.

Courses	Order of Importance		Further Comments
	Now	Ten years Later	
1 Theories of Communications			
2 Film-making			
3 Television Production			
4 Photography			
5 Broadcasting			
6 Advertising			
7 Journalism			
8 Public Relations			
9 Tourism			

Medium of Instructions for Communication Courses should be:

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Only Arabic	☐	☐	☐	☐	☐
2	Only English	☐	☐	☐	☐	☐
3	Both (Arabic and English)	☐	☐	☐	☐	☐

APPENDIX XIV

STUDENTS QUESTIONNAIRE

Dear Student,

You are kindly asked to answer the statements of this questionnaire which is basically designed to test students attitudes towards the use of audiovisual teaching aids.

Your co-operation is greatly appreciated.

Please answer the following either by filling in the blanks or ticking ( ) in the box :

Name (optional) : .....

Area of Study : .....

Age : .....

Sex : Male ☐ Female ☐

This questionnaire concerns your attitudes towards audiovisual aids. Each statement graded into four possible answers dealing with the extent of your agreement or disagreement with each item. Please tick ( ) in the appropriate space provided, according to your own judgement.

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Audiovisual aids are necessary for effective teaching.	☐	☐	☐	☐	☐
2	Audiovisual aids improve teaching to a great extent.	☐	☐	☐	☐	☐
3	Teaching with audiovisual aids is preferable to teaching without them.	☐	☐	☐	☐	☐
4	The use of audiovisual aids relieves pupils from boring lecturing	☐	☐	☐	☐	☐
5	The use of audiovisual aids improve the pupils' attendance	☐	☐	☐	☐	☐
6	Audiovisual aids increase the number of the pupils' questions on the subject matter	☐	☐	☐	☐	☐

Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7	Audiovisual aids make teaching more pleasurable	☐	☐	☐	☐	☐
8	Pupils really like audiovisual aids	☐	☐	☐	☐	☐
9	Audiovisual aids should occupy a more important place than they have done in the past	☐	☐	☐	☐	☐
10	The new generation will not forgive its teachers if they do not use the new tools now at their disposal	☐	☐	☐	☐	☐
11	The use of audio-visual aids results in pupils being more occupied with them than the actual lesson	☐	☐	☐	☐	☐
12	The use of audio-visual aids cause disciplinary difficulties for the teacher	☐	☐	☐	☐	☐
13	Audiovisual aids are gimmicks	☐	☐	☐	☐	☐
14	Audiovisual aids are not useful	☐	☐	☐	☐	☐
15	Audiovisual aids are waste of time	☐	☐	☐	☐	☐

APPENDIX XV

QUESTIONS INCLUDED IN THE INTERVIEW

1. Please give your views on the importance of the following fields and courses for the current and future societal needs of our country.

   a. Education Technology Courses. .....

   b. Communication Theories. .....

   c. Film-making. .....

   d. Television production. .....

   e. Photography. .....

   f. Broadcasting. .....

   g. Advertisements. .....

   h. Journalism. .....

   i. Public Relations. .....

   j. Tourism. .....

2. Is it worthwhile establishing an Educational Technology and Communication Centre in the University College of Bahrain? .....

   Please give reasons for your answer.

   _____

   _____

   _____

   _____

3. What would be the main problems and difficulties to be faced in establishing such a Centre?

4. Is it possible to establish a Council for Educational Technology in Bahrain as a central organisation for promoting the application and development of educational technology and media services in all sectors of education? .....

   Please give reasons for your answer.

   ---

5. Would you support the idea of:

   (a) Offering a diploma and Masters Degree in Educational Technology.

   (b) Establishing CCTV in University College of Bahrain.

   (c) Establishing School Television receiver in secondary schools.

   (d) Provide at least two hours a day of educational programmes by Bahrain TV.

6. What are the problems involved in training teachers to use audio-visual aids?

   ---

7. What language should be used as a medium for teaching educational technology and communication courses? .....

Please give reasons for your answer.

APPENDIX XVI

INTERVIEWEES' NAMES AND POSTS

1. FROM UNIVERSITY COLLEGE OF ARTS, SCIENCE AND EDUCATION, BAHRAIN :

Professor Mohammed Naguib,
Chairman of the Department of Biology.

Professor David Daniels,
Professor in Chemistry Department and Adviser to the Rector.

Professor Rafica Hammoud,
Chairperson of the Department of Education.

Assistant Professor Kamal Iskander,
Head of Educational Technology section.

Professor Paul Scanlon,
Chairman of the Department of English.

Assistant Professor Abdulla Sabt,
Chairman of the Department of General Studies.

Associate Professor Bruce Manzer,
Head Librarian.

Professor Manmohan Arora,
Chairman of the Department of Mathematics.

Professor M. Ashraf Hussain,
Acting Chairman of the Department of Physics

Mrs. Fatima Al-Arrayed,
Director of Student Affairs.

Mr. Isa Seyadi,
Supervisor, Accounting and Budgeting,
Acting Director of Administration and Finance.

Mr. Rashid Najim Abdulla,
Librarian.

2. FROM MINISTRY OF EDUCATION :

Dr. Hamad Al-Sulayti,
Undersecretary, Ministry of Education.

Mr. Hassan Al-Mehri,
Assistant Undersecretary for General Education.

Mr. Ali Bubsheit,
Assistant Undersecretary for Curriculum and Books.

Mr. Hamad Al-Rumaihi,
Assistant Undersecretary for Information and Planning.

Dr. Ebrahim Yousuf,
Director for Curriculum.

Mr. Ali Abdul Hag,
Director for Training.

Mr. Rashid Sulaybikh,
Secretary General to UNESCO and ALECSO,
Director for Cultural Affairs.

Mr. Abdulla Bu Khalaf,
Superintendent for Audio-Visual Aids.

3. FROM MINISTRY OF INFORMATION :

Dr. Mohamed Al-Khozai,
Director of Cultural and Arts.

Mr. Khalil Al-Thawdi,
Director of Bahrain Television Affairs.

Mr. Hassan Kamal,
Director of Bahrain Radio Affairs.

Mr. Fathi El-Saba,
Superintendent Production Department (TV Section).