EDUCATIONAL TECHNOLOGY, ITS PRESENT AND FUTURE ROLE IN THE SCHOOLS OF BAHRAIN

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BY

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GIFT هدية

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Statement of originality

The research, organization and writing of this thesis is entirely that of the candidate, M.J. Al-Moosawi, and it has been carried out at the University College of Wales - Aberystwyth under the supervison of Dr. G.D.O.Evans.

All quotation are distinguished and identified by references.

Declaration

This work has not already been accepted in substance for any degree, nor is it currently submitted in candidature for any degree other than the degree of Doctor of Philosphy in the University of Wales.

Candidate.....

Supervisor.....

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Summary

This study has taken an in-depth look at Educational Technology and its impact on the primary, intermediate and secondary schools of Bahrain.

Evidence is presented that, despite the increasing interest in Educational Technology since the Educational Technology Centre was founded in 1973, Educational Technology has not advanced as much as might have been hoped.

The study is based on the premise that the quality and quantity of Educational Technology usage in the classroom is conditioned by the quality and training of teachers.

A semi-structured interview with senior administrators and educationalists established that there is a keen desire at this level to support and expand the role of Educational Technology in the classroom.

The conclusions, suggestions and recommendations for modifications are based on a survey conducted with a sample of 490 teachers, selected from 44 different schools at all levels in Bahrain. The questionnaire sought information on teachers' background, opinions and views on Educational Technology and its relevance for classroom teaching.

Results showed that the functional role of Educational Technology, as a tool for the design of instruction is not yet fully appreciated by teachers in Bahrain. Major factors here are the need for more relevant in-service training courses and an increase in school level support.

A proposed model for teacher support is developed and additionally it is shown how this support system could be used to implement a new dimension in Bahrain schools,- the use of computers.

DEDICATION

This work is dedicated to my sons, wife, family and friends.

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CHAPTER ONE

Introduction

1. The Structure of the formal Education in Bahrain

Introduction

This study moots the assumption that, despite the increasing interest in Educational Technology in the last seventeen years since the Educational Technology Centre was founded, educational technology has not advanced as much as might be hoped.

The study is based on the premise that the quality and quantity of educational technology usage in the classroom is conditioned by the qualities, views and attitudes held by the teachers, most of which are acquired during their initial training in the Universities and Colleges of Education which hopefully is "topped up" through in-service training.

The history of educational technology in the past years of expansion and adaptation demonstrates how much has already been achieved. Nevertheless, there is evidence that the present status of Educational Technology in Bahraini education is low in both quantity and quality and that most teachers are on its periphery. This inadequacy arises from a variety of different factors. Whilst teachers showed a good grasp of lesson planning and the use of instructional objectives (topics well taught in teacher training) they clearly are defective in knowledge of criteria for media selection and evaluation. In part this may be due to lack of classroom conditions favourable to the use of media.

Interviews with senior administrators and educationalists established that there is a keen desire at this level to support and expand the role of educational technology in the classroom.

The conclusions, suggestions and recommendations for

modifications are based on a survey conducted in 42 of the state schools plus 2 private schools aimed at 490 teachers from all levels primary, intermediate and secondary schools of both sexes. The questionnaire sought information on teachers' backgrounds, attitude and views about Educational Technology, the media they use and the delineation of their attitudes towards the development of educational technology in schools.

However, Educational technology's functional role in a comprehensive approach to the design of instruction is not yet appreciated by teachers in Bahrain. Major factors here are the need for more relevant in-service training and an increase in the school-level support.

A model for teacher support is developed and additionally it is shown how this support system could be used to implement a new dimension in Bahraini schools - the use of computers.

1. The Structure of Formal Education in Bahrain

By the 20th century, formal education had started in the State of Bahrain. Mention must first be made of the individuals who have given of their time and effort to raise money for financing the early development of education in Bahrain.

In 1929 the government took responsibility for the existing schools and began the formal state educational system.

The development of education was slow in the early days; the first major law on public education was not passed before 1975. Another law was passed in 1985. However, since 1950, rapid changes have taken place in schooling and educational services for the whole country. For example, the total number of students in 1954-55 was only 9,184 this rose to 90,734 in 1987-88.

The total number of schools was only 2 when education formally started in early 1920, then in 1969-70 it was 107, and lastly in 1987-88 it was 147 schools.

The following (table 1) shows the growth in the number of students, schools and classrooms, in three varied academic years.

TABLE 1. The growth in the number of students, schools and classrooms in three different years.

Year	M.students	F.students	Total	Schools	Classes
1967-68	26951	17968	44919	94	-
1977-78	34294	28631	62925	116	1737
1987-88	46158	44549	90734	147	2695

1.1. The Education Law

The education law issued in 1985 lay emphasis on two main points as was indicated in a report by the educational documentation section of the Ministry of Education 1986. They are:

(I) - The provision of education for all children of school age throughout the country.

(II)- The improvement of the quality of education to meet the needs of both the student and that of the country's social and economic development.

Accordingly, the Ministry in fostering the system of education, perceives a number of priorities such as:-

(A) - Developing the quality of the teachers and the schools' administration.

(B) - Developing and updating the school curricula.

(C) - Increasing and renewing the school buildings to meet the ever-increasing number of students every year.

(D) - Promoting and strenthening technical and vocational education.

1.2. Administration and Management of Education

Bahrain has a centralized system of education in which the Ministry of Education is in full control of administering the state education policy; planning, decision-making, supervising, controlling and administering the total educational provision.

In the light of the latest organisational chart of 1988 (Figure 1), the Ministry of Education comprises four main strata directed by the under-secretary to the Minister of Education. Each stratum falls under the responsibility of an assistant under-secretary who, in turn, runs a number of different departments. These strata are as follows:

- Educational Planning and Information
- Curricula and Training
- General and Technical Education
- Administrative and Financial Affairs

In addition, the Under-Secretary is also directly responsible for three other directorates which are not included in the sectors mentioned above, they are:

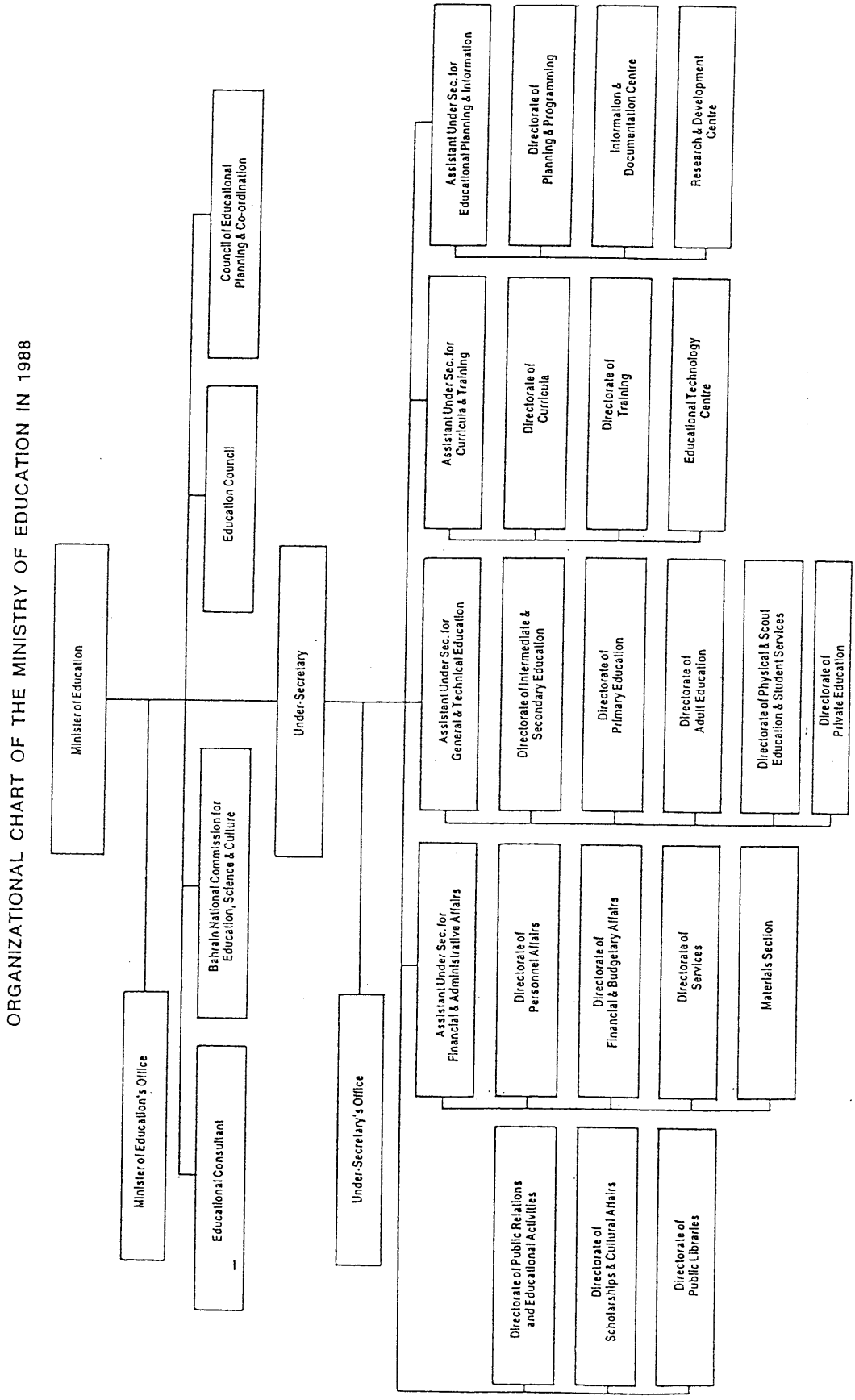
- Directorate of Public Relations and Educational Activities.
- Directorate of Scholarships and Cultural Affairs.
- Directorate of Public Libraries.

The Ministry of Education is responsible for all the three stages of education, primary, intermediate and secondary.

Its various divisions and streams are administered by the school principals and their deputies.

Furthermore, adult and private education are also under direct supervision of the Ministry of Education. The Ministry has the highest authority over two higher education institutions, namely the University of Bahrain and the Gulf University, although they are actually administered by their own board of trustees.

The organisational chart



1.3. Financing Education

According to the education law of 1985 and the previous laws, the education and training of teachers are financed by the state budget; it is free at all stages. The state of Bahrain also provides educational services, establishes schools, appoints teachers, prepares curricula, provides and distributes textbooks and arranges the transport of students.

The following (TABLE 2) shows the Ministry of Education's current expenditure compared to the state budget for the fiscal years 1984-1988.

TABLE 2. Public educational current expenditure as a percentage of the total state budget 1984-1988.

(in Bahrain Dinars. 1 Dinar = 1.6 Sterling Pound)

Fiscal year	Public Budget	Ministry of Ed.Budget	%
1984	545,000,000	45,977,961	8.4
1985	575,000,000	48,680,940	8.5
1986	550,000,000	58,809,086	10.2
1987	560,000,000	57,187,000	10.2
1988	490,000,000	55,631,000	11.2
Source: Ministry of Education (1)			

From the above table, one can notice that, despite the variation in the public budget from the year 1984 to 1988, the percentage of the Ministry of Education's budget has increased from 8.4 % in 1984 to 11.2 % in 1988.

The net percentage of the expenditure on various levels of education has increased from 47% in 1984 to 74% in 1988 in relation to Ministry of Education budget.

The following table distributes the education budget among various levels of education and their percentages in relation to the Ministry budget for the fiscal year 1984-1988.

TABLE 3. Trends in educational expenditure by level of education for the fiscal year 1984-1988 (in Bahrain Dinars)

Year	M.E.Budg.	P.E.Budg.	I.E.Budg.	S.E.Budg.	Total	%
1984	45,977,961	13,487,689	9,317,650	1,144,01	34,246,355	47
1985	48,680,940	12,848,476	9,622,085	12,542341	36,012,992	47
1986	58,809,086	15,293,389	23,351,784 *		38,645,173	66
1987	57,181,000	16,338,090	24,068,857		40,406,947	71
1988	55,631,000	16,538,323	24,351,229		40,889,552	74

* As from 1986 the intermediate and secondary education budgets have been integrated. (source: Ministry of Education (1))

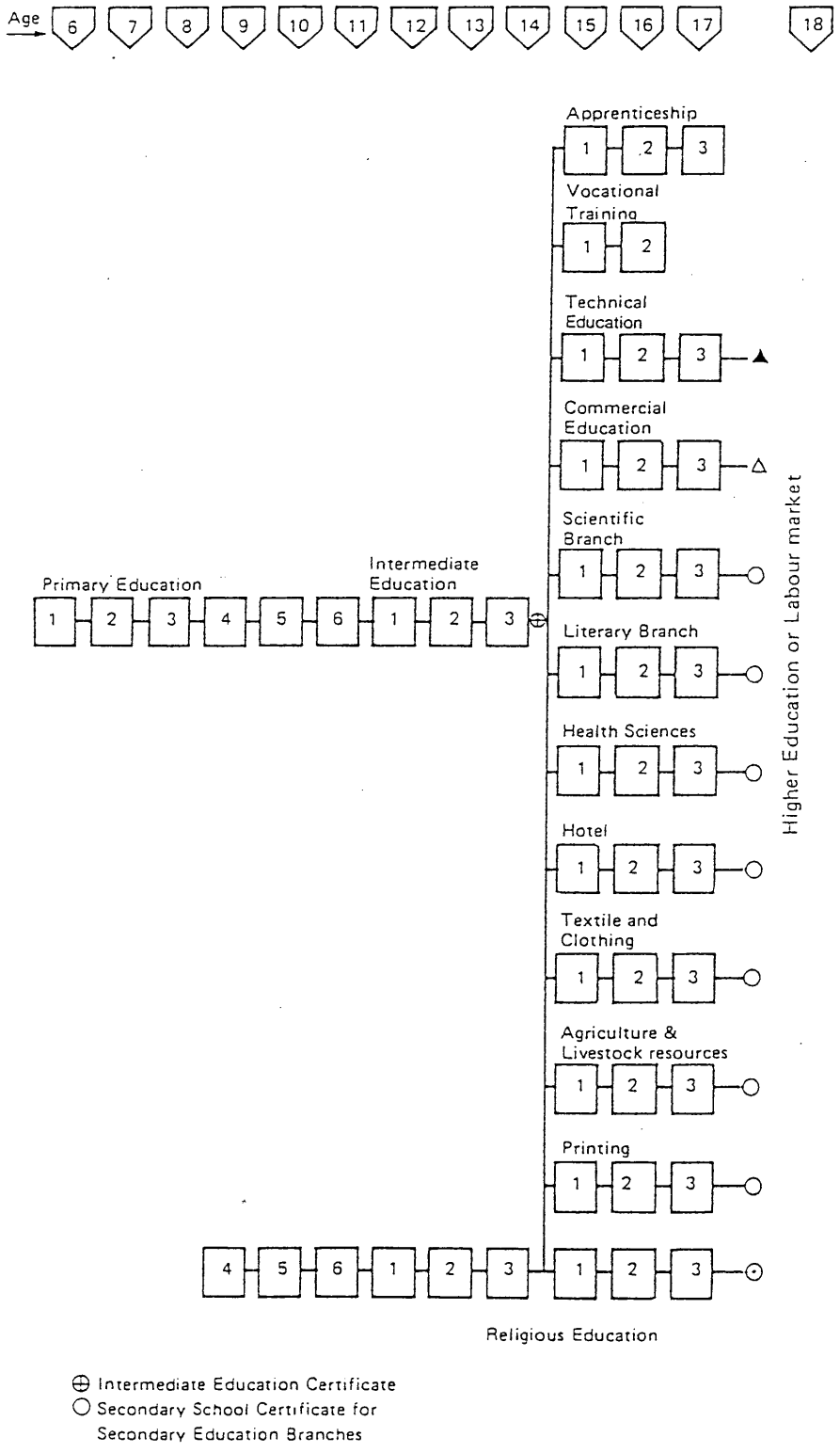
M.E. = Ministry of Education
P.E. = Primary Education
I.E. = Intermediate Education
S.E. = Secondary Education

1.4. The School System

The structure of the educational ladder in Bahrain, as in all neighbouring gulf states, begins with six years of primary education, followed by three years at intermediate and three years at secondary level (see figure 2).

(Figure 2)

Structure of the Education System



⊕ Intermediate Education Certificate
○ Secondary School Certificate for Secondary Education Branches

Usually the majority of primary stage children (83 %) enter the intermediate phase between the age of 12 and 15 years, although the range is from 10-21 years and about 50% of all children enrolling in grade 1 intermediate are 14 years or above.

In the Primary/Intermediate (combined) schools, the age range can be from 5 to 21 years (exceptionally).

The total number of school students in 1987-88 was 90,734 distributed in 2,695 different classrooms in all levels and types of education (see annexe 1).

There is almost the same number of male and female students in the schools; female students represent nearly 50% of school population. This percentage has been almost stationary for a number of years. The following (table 4) shows that female teachers represented nearly half the teaching population throughout five different years.

TABLE(4) Number of students by level and sex in 1983-88

year	Sex	Prim.	Inter.	Sec.	Relig.	Total	%
1983/84	M	24,945	9,948	6,491	93	41,477	52.6
	F	22,847	8,278	6,195	-	37,320	47.4
	T	47,792	18,226	12,686	93	78,797	100
1984/85	M	25,291	10,099	7,236	126	42,752	51.7
	F	24,355	8,777	6,815	-	39,947	48.3
	T	49,646	18,876	14,051	126	82,699	100
1985/86	M	25,756	10,529	7,588	114	43,987	51.2
	F	25,180	9,309	7,391	-	41,880	48.8
	T	50,936	30,367	14,979	114	85,867	100
1986/87	M	26,213	10,773	7,784	118	44,888	51.0
	F	25,953	9,740	7,551	-	43,244	49.0
	T	52,166	20,513	15,335	118	88,132	100
1987/88	M	27,016	10,945	8,040	184	46,185	51.0
	F	26,573	10,201	7,775	-	44,549	49.0
	T	53,589	21,146	15,815	184	90,734	100

Source Ministry of Education (1), (4), (10)

According to the 1984-85 educational statistics of the Ministry of Education in Bahrain, the total school population (6-17) was 99,098, of which 76,194 (76.9%) were enrolled in state schools, and 8,698 (8.7%) registered in private schools. This means that the total gross enrollment ratio was 85.6.

The gross enrollment ratio for Bahraini nationality students at primary level in 1984-85, as showed in the Ministry of Education statistics report, was very high 114.4% compared to that of other levels (see annexe 2a, 2b).

The high enrolment ratio at primary level is associated with the fact that primary schools accommodate students of a higher age group than expected (6-11). The primary level in 1984-85 contained students from 5 years up to 21 years of age. There were 6,178 students over the legal age, and 219 students under the age of six. This over-population at primary level mostly occurs because of failure in the leaving examination.

To solve this problem the Ministry of Education has developed the examination and evaluation system by introducing articles within the system to prevent educational wastage. For example, if the student fails in one subject only he can be promoted to the next grade, by attending remedial class in that particular subject. Another solution introduced was vocational intermediate classes for those who failed at the end of two successive years at the sixth stage of primary level, or at any intermediate stage.

1.5. The Educational Ladder in Bahrain

The structure of statutory public education in Bahrain has been changed many times. Until 1960, it was organised into three levels: Infant (tahdiriyyah), Primary and Secondary. In 1960 the pattern altered from 2-4-4 (total of ten years, from the age of 6+, namely 2 years Infants, 4 years Primary and 4 years Secondary) to 6-2-3 (a total of 11 years pattern which includes a unified 6 years primary stage, 2 years intermediate and 3 years secondary schooling). As from 1979-80, the intermediate stage was extended to three years, accordingly the pattern has evolved into a 6-3-3 system. This system is being

adopted in many countries as they are developing their education system. (see figure 2. P. 18)

The education law of 1985 clearly indicated that "education is a human right, the state should provide equal opportunity of education for all, and make it compulsory in the first stage as determined by the law " (Ministry of Education 1988) .

In fact, no legal action has been taken against any family for preventing their children from attending school during the history of education in Bahrain.

According to the 1981 population census, the Bahraini illiterate population was relatively high. The total number of Bahraini illiterate population in the age category 10-50+ was 53,239 (31.3 %) of a total population in the same age category of 170,323. The illiterate population among females was 35,114, 41.4% of the total female population of 84,732 and amongst males 21.2 % of the total male population of 85,591 (see table 5).

TABLE. 5 Population, 10 years old and over, by qualification and sex 1981.

Qualification	Male	Female	Total
Illiterate	18,125	35,114	53,239
Read and write	24,466	20,155	44,621
Primary	16,651	11,363	28,014
Intermediate	10,688	6,995	17,684
Secondary	10,881	7,995	18,876
Diploma	2,647	1,902	4,549
B.A. or B.Sc.	1,812	1,109	2,921
Master's Degree	264	56	320
Ph.D. or equivalent	38	4	42
Not Stated	19	38	57
Source: Bahrain Census of Population & Housing - 1981. (2)			

1.5.1. Pre-school Education

This type of education is divided into two categories:-

(A) - Nursery Education: from birth to 3 years old.

(B) - Kindergarten Education: from 3 years to 6 years old.

Although this kind of education is not under the Ministry of Education, it supervises the kindergarten, whilst the Ministry of Labour and Social affairs is responsible for nursery education.

As was documented in the educational statistics of the Ministry of Education 1984-85, there were 32 independent kindergarten and 16 schools which contained kindergarten classes and 7 nursery schools in Bahrain.

1.5.2. - Primary Education

The primary stage of education starts at grade one for children aged 6 years, it proceeds to grade 6 when children, ideally, move to the intermediate level at the age of 12+.

The largest number of children in public schools are at primary level (i.e. 59% of all school population in 1986-87).

Promotion from one grade to another in the first three years is determined according to the regular attendance, class work, the assessment of the teachers and the school principal; whilst in the next three years it is determined according to the mid and end of year examinations, as well as daily class-work and regular tests.

Primary, intermediate and secondary state schools are all single sex. There are schools for boys and others for girls, male teachers teach at the boys' schools and female teachers teach at the girls' schools. There are a number of boys' school (11 schools in 1988) where the teaching and administrative staff are females. These schools have the first four grades only. This is in accordance with the Ministry's intention to shift to female teaching staff at the primary grades. Most teachers at this level of education are subject teachers, except for twenty two boys' and girls' schools where, by 1987/1988, a class teaching approach was applied to the first three grades. The class teaching approach was first introduced in 1983-84 in two schools, one for girls and one for boys. Basic elementary subjects are introduced for the first three grades, then more subjects are introduced in the next three grades (annexe 3).

The legal age of admittance to the primary stage is six plus and this level extends for a study period of six years. The first three years are spent learning elementary subjects, and promotion from one class to the next is determined by a minimum attendance of 75% for the first three years and, in the remaining three years, promotion or repeating is determined according to the results of the final examination for that year.

1.5.3. Intermediate Education

A - General Intermediate

The students are admitted to the intermediate level after successful completion of the sixth primary grade, or its equivalent.

Primary education lasts three years and the curriculum is divided into separate subjects which are inter-related where necessary. For example, social subjects are divided into History, Geography and Civics. Languages (Arabic and English), each divided into reading, writing, composition, grammar, dictation, writing and poetry. Religious education consists of memorisation and explanation of the meaning of the Quran and Muslim traditions. Mathematics is divided into Arithmetic, Algebra and Trigonometry. The study plan consists of nine subjects at every level of Intermediate Stage Education. They are distributed as shown in (annexe 3).

The assesment system is the same as that of the last three years of the primary stage, except that the student can resit the examination if he failed in only one or two subjects. Those who fail in the resit examination are allowed to repeat the complete year and, if he again fails, he will be offered a place on the Vocational Education Programme. Those who gain the Intermediate Certificate may proceed to the Secondary phase or attend the Vocational Centre to enrol on a three years apprenticeship, but only if they are between the ages of 14 and 18.

B - Vocational Intermediate Education

As was explained earlier, the main purpose of this type of education is to offer an opportunity for those students who fail more than once at the primary or at any of the intermediate stages.

This kind of education began in 1985-86. The programme started with construction works training. Students are supposed to spend three years on this training, after which successful students are awarded a Vocational Certificate which enables them easily to find a job. Technical personnel of all kinds are scarce in Bahrain; such jobs are at present held by non-Bahrainis.

> " The problem is a shortage of critical skills and scientific, professional and technical personnel of all kinds. At the intermediate level there is even a greater shortage of nearly all technical sub-professional, technicians " .
>
> (Alhashemi 1982)

However, the total number of repeaters at the final examinations at intermediate level in 1984/85 was relatively high, 1,767 students, of which 1,317 (74.5 %) were males and 450 (25.5%) were females; together they represent 20.3% of the total number of students registered in this stage.

1.5.4. Secondary Education

After obtaining the intermediate stage certificate, students can apply to enter one of the different branches of secondary education. As from 1984 there were nine branches of secondary education available .

Admission into any branch is determined by a coordination committee, who take into consideration the preference of the students as well as their total marks.

The Secondary Education branches are as follows:

A - General Secondary

B - Commercial Secondary.

C - Technical Secondary .

D - Health Secondary .

E - Hotel Secondary .

F - Textile and Clothing Secondary.

G - Agricultural and Livestock-Resource Secondary.

H - Printing Secondary.

A - General Secondary Education

This type of education is divided into two main sub-branches: literary and scientific. In the first year of literary education all students study the same subjects; then, in the following two years, students choose among four different streams: languages, economics & office practice, home economics or fine arts, all starting from the second year (annexe 4a).

Scientific students, would choose among two streams, starting from the second year, they are : physics & mathematics or chemistry & biology ; but all would study the same subjects in their first year (annexe 4b).

All students are required to sit a general examination at the end of their third year, supervised by the Ministry of

Education. A "General Secondary Certificate" (literary or scientific) according to their branche would be awarded to the graduates.

The total number of students in both branches in 1986-87 was 7,720 (9%) of total school population, of which 4,441 (57%) were scientific students and 3,279 (43%) were literary students.

B - Commercial Secondary Education

This type of education was originally designed to fulfill the needs of the local market for the manpower required for financial, commercial and clerical posts in the state, public or government sectors.

In this branch, general subjects are taught in the first two years, then students make their choice among three different streams: accounting, secretarial or general subjects. (annexe 5a, 5b). As in General Secondary Education, students of this branch are awarded the General Secondary School Certificate (commercial branch) at the end of their three year study.

The total number of students in this type of education was 4,343 : 5.3 % of the total school population in 1986-87.

C - Technical Secondary Education

This type of education is designed for male students only, especially those who are good at mathematics, science and English language. Students major in one of the following nine fields of specialisation : Machines ; Blacksmithing & Welding ;

Auto-Mechanics; Auto-Electrics; Diesel Engines; Refrigeration & Air Conditioning; Electricity; Radio & Television; Industrial Electronics.

All students are expected to spend 17 weeks studying in one of the following three divisions:

- Mechanical (machines, blacksmithing & welding; auto mechanics & diesel engines)
- Electrical (electricity, refrigeration & air conditioning)
- Electronics (refrigeration, radio & television, industrial electronics)

Then they select one specialisation according to their marks and the availability of courses. The General Secondary School Certificate (Technical Branch) is awarded to the graduates of this branch. The more advanced students are given the opportunity to sit for certain British external examinations such as those organaised by the City and Guilds of London Institute, in addition to their local certificate.

In addition a two years special programme called "Formal Vocational Training" in the following specialisations is available: Carpentry, Body-work Repairs & Paint Spraying and Plumbing. (see annexe 6). The total number of students in technical education in 1986-87 was 2816 : 3.4 % of the total school population.

D - Health Science Secondary Education

This is a study programme carried out in cooperation between the Ministry of Education and the Ministry of Health. It aims at

graduating practical nurses of both sexes to the level of the secondary school certificate. This programme started in 1980-81 as part of secondary education development plan. Students get their training in hospitals and health centres. The nursing branch of the General Secondary School Certificate is the target of this branch. The study plan for this branch of education can be seen in annexe 7.

E - Hotel Secondary Education

Once again, because of the local need for manpower in this area, the Ministry of Education, with the cooperation of Ministry of Information (Hotel and Catering training Centre), provides this branch of secondary education which started in 1982-83.

After ending their secondary education in this branch, students are awarded the "General Secondary School Certificate" (Hotel branch) enabling them to work in any department of hotels in Bahrain, or to continue their further education in the Hotel and Catering Training Centre, run by the Ministry of Information. A variety of subjects concerning hotel and catering, beside general subjects are offered in this branch (see annexe 7).

In 1986-87 a total of 91 students were registered in this type of education from both sexes.

F - Textile and Clothing Secondary Education

This study programme was established for female students only. It started in 1982-83, aiming to prepare female tailors for the local market including fashion designers and dressmakers.

They can also join one of the several social centres, which are administered by the Ministry of Labour and Social Affairs, as trainees in this field.

As in the other branches of secondary education, graduates are awarded the "General Secondary School Certificate" (Textile and Clothing branch). The total number of students recorded in this branch in 1986-87 was 184. The detailed study plan for Textile and Clothing Secondary Education is in annexe 8.

G - Agricultural and Livestock-Resources Secondary Education

This type of programme is administered by two Ministries: Education and Commerce & Agriculture. This education is for males only, and started in 1982-83. The curriculum includes, in addition to the general subjects, principles of irrigation, soil and animal production along with fish farming, navigation and fishing (see annexe 9).

Students of this branch would be awarded the GSSC (Agriculture and Livestock-Resources branch). Only a small number of students (95) registered in this branch in 1984-85.

H - Printing Secondary Education

Again this type of education was aimed at men only, and started in 1982-83. The programme is carried out by the Ministry of Education and the Ministry of Information. The aim of this programme is to train students to fulfill the local need for workers in the field of printing and publication.

In the first two years, students are given a general

background in technology and practical skills; then in the third year they specialise in one of the following three choices:

(1) - Type Setting and Designing.

(2) - Camera Operation and Plate Making.

(3) - Painting and Finishing.

Graduates are awarded the GSSC (printing branch), and they are free to work in any printing press or to continue their further education in any branch of this field abroad. For subjects taught in this branch see annexe 10.

1.5.5. Religious Education

Religious education predates all other types of education in Bahrain, be they national, private or governmental.

In the late 1960's this type of education came part of the educational ladder in Bahrain. It is a special type of education for males only. This type of education was available at the fourth primary stage and throughout the intermediate and secondary stages (see annexe 11); but, as from 1988, students have been accepted from the age of 6+ as in the general primary stage and continue in this type of education until secondary stage. The " GSSC " (Religious branch) is the final target.

1.5.6. Higher Education in Bahrain

Higher education in Bahrain is a relatively new field of education, having started in the late 1960s. Nevertheless it offers many kinds and standards of education through its

different establishments (universities, colleges and postgraduate institutes) which provide various study programmes to train specialists and manpower for different areas. Some of them specialise in training for Business and Administration, Engineering, Sciences, Literature and Education as for example, at the University of Bahrain. Some specialise in Health Sciences at, for example, the college of Health Sciences, whilst others have a Hotel, Catering and Tourism programme, as at the Hotel and Catering Training Centre.

1.5.6.1. The University of Bahrain

The long-established Gulf Polytechnic and the former University College of Art, Sciences and Education were by the Decree-Law No 12 of 1986 merged and upgraded to the "University of Bahrain", Thus acquiring a new image.

The University of Bahrain comprises four colleges:-

A - The College of Engineering

This College, contains Environmental & Civil Engineering, Mechanical & Chemical Engineering, Electrical Engineering and Computer Sciences. The study duration in this college is governed by the type of study required, i.e. a four years programme for a Bachelor degree, a two years programme for a Diploma or eighteen months for the Certificate. All students require a one-year orientation programme of study before commencing any programme.

Students who obtain the General Secondary School Certificate (Scientific branch or Technical branch) can apply to study in this college.

B - The College of Business and Administration

In this college students take a four year programme for the B.A. degree or a two year duration programme for the Certificate and the Diploma in addition to the orientation year.

The College provides a number of specialisms in the disciplines of Business and Administration, Accounting, Secretarial and Continuous Administration.

The College also offers a post-graduate programme, including a Post-Graduate Diploma in Business Administration and a Master of Public Administration and Business Administration. Both programmes were approved by the Board of Trustees of the University of Bahrain and were initiated in the academic year 1987/88. In addition to this, both colleges (the College of Engineering and the College of Business Administration) offer in-service training programmes, specialised seminars and short part-time training courses for special purposes. These courses are described by Ministry of Education as being :

> " .... a part of the Continuing Education Programme which gives the opportunity to the labours of both the public and private sectors to utilize these programmes in order to enrich their knowledge and develop their specialised skills." (1)

The duration of these Continuing Education Programmes is between eighteen months and three academic years .

C - The College of Sciences and Literature

This college prepares for scientific and literary studies. It comprises the following sections: Arabic Language, Islamic Studies, English Language, Mathematics, Biology, Physics and Chemistry. The College of Sciences and Literature offers different undergraduate programmes leading to a Bachelor's degree in two broad areas: Sciences and Literature.

Students require to obtain a General Secondary Certificate (Scientific or Literary branches), in order to join this college.

D - College of Education

The College of Education in the University of Bahrain includes three departments; they are: Education, Psychology and Physical Education. All these departments supply, train and re-train the school teachers required by the Ministry of Education, through the following education programmes:

- A specially designed programme leading to the B.Ed. recognized as the "Class Teacher Programme".
  This programme aims at providing teachers for the lower grades of the primary stage.

- Another initial programme offered by the College of Education is the B.A. programme in Physical Education, to prepare Physical Education teachers for Primary, Intermediate and

Secondary schools. It is important to realise, however, that all the above programmes are sponsored by the Ministry of Education. The Ministry has seconded teachers on full salary and hired extra expatriate teachers to fill their places until they end their studies.

- The College of Education also provides special education courses for those post-graduates who have undergone B.A or the B.Sc. programmes in areas other than education but who now intend to apply for a teaching post.
- The college has also provides programmes such as the "Post Graduate Diploma in Education" for one year full-time or two years part-time. This programme is aimed at those Intermediate or Secondary school teachers who hold a B.A. or B.Sc. but have no academic background in one of the specialisations required by the schools. Again this programme is sponsored by the Ministry of Education.
- Another post graduate course available in this college is the M.Ed. programme for Ministry of Education curriculum specialists and educational advisors who are offered a scholarship by the Ministry of Education to study in a programme leading to a Master's degree in Education.
- Those students who are studying a particular subject can also choose to study Psychology as a sub-specialism in the Department of Psychology.

1.5.6.2. The Gulf University

The Gulf University, is a regional university for the Arab

Gulf countries, but is located in Bahrain. It was built by co-operation between audi Arabia, Kuwait, Qatar, Oman, the United Arab Emirates, Iraq and Bahrain.

The Gulf University comprises three colleges: Medicine and Medical Sciences; College of Applied Sciences and the College of Education.

An impressive number of scientific and practical programmes are offered by the university to those students who are assigned by their countries and who fulfill the conditions and terms of admission for any particular college they intend to apply for. Some students from Bahrain also enroll in this University .

A - College of Medicine and Medical Sciences

In 1982 /83 the Medical college started its pre-Medical Courses. The study duration in this college is seven years.

Although the Medical College is fully functional at present, according to a news review in the Middle East Education and Training No.2, dated March/April 1988, the institute still has only limited opportunities for those wishing to pursue postgraduate studies in Medicine.

B - College of Applied Sciences

The College of Applied Sciences started in the academic year 1986/87, offering specialised post-graduate study programmes leading to Diploma, M.A. and the PhD. in the field of Desert Sciences and Dry Lands.

Another M.A. programme in the area of Biological Technology

is offered by this college. The duration of study in this programme is between one and half and three years and the entry qualification is a B.Sc..

C - College of Education

Lastly, the College of Education in the Gulf University presents a post-graduate diploma programme in special education for the mentally handicapped.

The duration of this programme is one year, and a B.A. degree is the entry requirement.

1.5.6.3. College of Health Sciences

Since it was established by the Ministry of Health in 1976, Bahrain's College of Health Sciences has turned out a substantial number of graduates in nursing, pharmacy, laboratory work, radiography and other allied health professions, to join the government and private hospitals, clinics and health centres all over the country.

The College of Health Sciences trains technicians in many health sciences such as: Nursing, Pharmacology, Public Health Inspection, Diagnostic Radiography, Dental and Mouth Care, Laboratories, Physiotherapy, Medical Secretarial, Medical Equipment Maintenance and other related vocational courses. The aim of this college, as was generally mentioned by Miss Fadwa Affara who was in charge of the nursing department , as:

" our aim is to turn out nurses who will be able to cope with and use their abilities fully, and apply their knowledge in different areas. We also aim to produce nurses who are able to admit their own limitations and find their way round problems"
(MEET, January/February 1982 P.19)

The duration of study in the above listed subjects is between one and a half and three years, after which graduates are awarded the "Participant in Health Sciences" certificate in one of the specialisations they have studied and practised.

Students in the College of Health Sciences can also study a programme leading to a "B.A. in General Nursing".

Moreover, the College has a fully equipped Teacher Training Centre, offering regional training programmes in health medical occupations. Students from the Gulf Co-operation Council (GCC) and students from other Arab countries, who have a B.A. in Nursing along with good standard of English, are welcome to join any of these training programmes, which last for one year.

1.5.6.4. Hotel and Catering Training Centre

This is another institution of higher education run by the Ministry of Information. The Centre offers a two year programme in Hotel and Catering and Tourism Science, for those who wish to serve in this area, in order to Bahrainise occupations in this vital sector. Students, both males and females from Bahrain as well as from other Gulf states, can enrol on this programme.

Successful students are awarded a Diploma in Hotel & Catering after two academic years.

1.5.6.5. Higher Education Abroad

In addition to the preceding higher education opportunities available in Bahrain itself, the government of Bahrain offers various scholarships for students to study abroad in areas which are not locally available. Bahrain started sending students abroad as early as 1928 when six students left for the American University of Beirut. According to the educational statistics of the Ministry of Education in 1984-85, the total number of Bahraini students in higher education was 1423 (see annexe 12a, 12b). However, there are around two thousand Bahraini students studying in colleges and universities abroad at the present time. This number includes self sponsored students.

1.5.6.6. Literacy and Adult Education

For those who missed the opportunity of formal education, the Ministry of Education, through the Directorate of Adult Education, organises two types of education programme for both sexes:

(1) The programme for illiterates, and

(2) The Adult Continuing Education Programme.

However, adult education consists of the following stages :

A- Literacy Stage :

The students, regardless of age group, spend two school years astudying basic subjects such as Reading, Writing, Arabic Language, Religious Education and Mathematics.

These two years are equivalent to the first four grades of the regular primary stage.

B- Adult Education Stage:

Those students who successfully complete the literacy stage, can be accepted for this stage, in which they study for an additional two academic years to obtain an equivalent certificate to the regular sixth primary grade, which qualifies him/her to enter, either the regular Intermediate Education programme or to carry on to the next stage of the Adult Education programme.

C - Consolidation Stage

This stage is equivalent to the level of the regular intermediate stage. The study duration is two school years (15 periods a week).

The curriculum at this stage is the same as that of the regular intermediate stage. Successful students are awarded the "(Equivalent) Intermediate Stage Certificate" which allows them to enter the first secondary stage either as regular students or as "external" students. (students studying at their own pace at home).

The total number of students in this type of education has decreased from 9,504 in 1984-85 to 6,375 in 1987-88. The following (table 6) shows the number of students in four consecutive years.

TABLE 6. Number of students in literacy education by level and sex (1984-85/1987-88)

Level	Sex	Academic Year			
		1984-85	1985-86	1986-87	1987-88
Literacy	Male	1,048	771	913	838
	Female	3,871	2,957	2,092	1,908
	Total	4,919	3,728	3,005	2,746
Adult Ed.	Male	794	577	575	526
	Female	1,791	1,786	1,677	1,510
	Total	2,585	2,363	2,252	2,036
Consolidation	Male	774	713	639	564
	Female	1,226	1,212	1,026	1,029
	Total	2,000	1,925	1,665	1,593
TOTAL	Male	2,616	2,061	2,127	1,928
	Female	6,888	5,955	4,795	4,447
	Total	9,504	8,016	6,922	6,375

Source Ministry of Education (1), (9)

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CHAPTER TWO

2. The Concept of Educational Technology

2. The Concept of Educational Technology

2.1. What is meant by Educational Technology?

Educational technology is a relatively new term and commonly there are conflicting views as to its attributes. Some see it as no more than the supply and use of audio visual media in the process of teaching. So a common accusation levelled against educational technologists by many people, and even by some educators, is that such people are "projector operators", or media suppliers.

This is manifestly the view of the term educational technology held by most Bahraini teachers. At best it may be equated with a soldier's weapons. For example, a top government official of the Ministry of Education, during his interview defined Educational Technology as:

> "....It is (Educational Technology) much as a weapon for a soldier .... of course he (the soldier) can not survive in a battle field without arms, can he ? "

This misunderstanding arises from unresolved challenges within educational technology itself.

Some educators claim that the term "Educational Technology" does not suitably describe the exact nature of the concept. The general reason for this confusion is that educational technology, like many new disciplines, has problems in defining its role. I.K.Davies (1972) stated that:

> " In the space of a very few years, educational technology has come to mean many thing to different people..."

H. T. Conway (1975) adduced this confusion in understanding educational technology to two main reasons:-

(A) The novelty of the area.

> "Educational Technology is a relatively new and developing field and thus it is difficult to define its expanding limits with any true precision."

(B) The difficulty in interpreting the word "Technology".

> "Another source of confusion about educational technology is the word "technology" itself.... This word tends to arouse misgivings or even hostility amongst educators who rightly value the importance of personal relationships in education. Thus many think that educational technology is a 'takeover bid' by enthusiasts who are interested in electrical gadgets."

Others, such as J.K.Galbraith (1967) in Arrasjid (1981), I.K.Davies (1972), Knirk, and Gustafson (1986), Heinich, et al. (1982) and D.Rowntree (1978), see educational technology as a systematic approach to the whole process of education and training which includes both human and non-human means in achieving educational goals.

For example I.K Davies (1972) stated that:

> "Whatever meaning is attached to it, however, it can best be viewed as a well disciplined and systematic approach to education and training, characterized by explicitness (particularly in regard to objectives), by sophisticated analysis and by synthesis, by the utilization of optimal decision-making procedures and by rigourous empirical evaluation."

Knirk, F. and Gustafson, K. (1986) supported the definition published by the Association for Educational Communication and Technology, that is:

> " Educational Technology, is a complex, integrated process involving, people, procedure, ideas, devices, and organisation for analyzing problems, and devising, implementing, evaluating and managing solutions to those problems, involved in all aspects of human learning. In educational technology, the solutions to problems take the form of all the " Learning Resources " that are designed and/ or selected as messages, people, materials, devices, techniques, and settings. The processes for analyzing problems and devising implementing and evaluating solutions are identified by the " Educational Development Function " of research theory, design, production, evaluation, selection, logistics, and utilization. The processes of directing or coordinating one or more of these functions are identified by the " Educational Management Functions " of organization Management and personnel management.

Up to this moment, there is still no universally agreed definition for the term Educational Technology. Each proponent tends to chose a definition which will best serve his purpose.

Percival and Ellington (1986) stated in the introduction to their handbook that:

> "To most people, the term educational technology is at best, confusing, and at worst downright off-putting."

This is rather confusing and therefore a closer examination of the nature and development of educational technology is necessary in order to understand its application in the present study.

The development of educational technology is based primarily on the disciplines of education, communication sciences, and psychology. This can be traced historically to the work of educationalists such as Pestalozzi, Frobel, Herbert and the Elder Sophists.

However, it was John Dewey who made the first most positive contribution to the educational aspect of Educational Technology. It was his ideas which set the stage for later developments in the use of audio-visual media in instruction.

Dewey's main assumption emphasised the importance of experience when clarifying meaning for effective learning. In his writings Dewey gives central place to the interrelated concepts of experience, reconstruction of the experience, interest, and growth.

Skilbeck, M. (1970) says of Dewey :-

> "Dewey set the teacher with four general principles in relation to children's growth conceived as the systematic reconstruction of experience.... So the teacher's first positive task is to find ways of enriching, balancing and clarifying experience."

In another place Skilbeck (1970) reflected that :

> " The great task which Dewey believed faced his generation was to find ways of harnessing for shared, social purposes the potentially destructive force of technology and industrialization". He remained confident that a mature, intelligent, cohesive democracy could be achieved through the widespread, systematic cultivation of scientific procedures in schools and other social institutions."

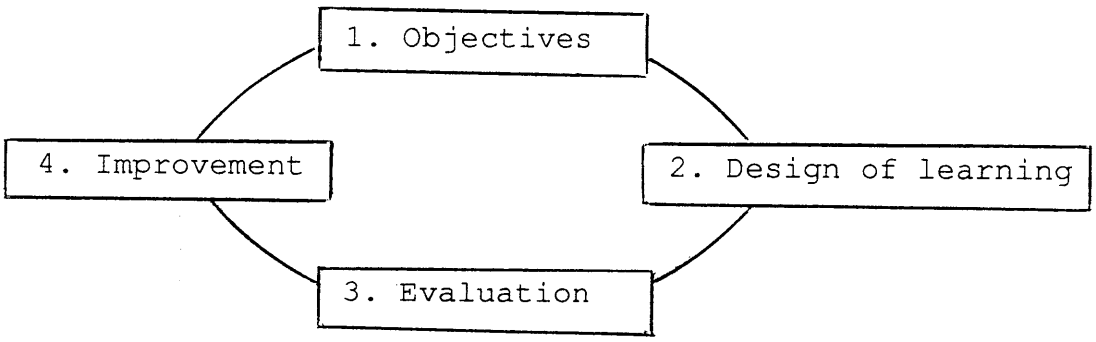
The implication of the statement above for the development of the use of audio-visual aids is further illustrated by Dewey's own writing. In his explanation of the importance of sensory experience in learning he says.

> " If all meaning could be adequately expressed by words, the arts of painting and music would not exist.This goes to prove that there are values and meanings that can be expressed only by immediately visible and audible qualities and to ask what they mean in the sense of something that can be put into words is to deny (their) distinctive existence."
>
> (Dewey 1958)

Dewey's ideas still offer a challenge to the philosophers of Educational Technology, especially in relation to the management of learning. For example, many writers on Educational Technology such as Charters (1945), Hoban in Henich (1982), Hoban in Knirk et al. (1986), Finn (1958) and Edgar Dale(1969), are all promoters of Dewey's philosophy. Their various contributions gave motivation to the growth of Educational Technology from its beginning stage of audio-visual aids to its present identity as a total system-based approach. For instance Charters (1945) identified the basic system approach concept to educational technology by applying Dewey's problem solving theory to an analysis of the process of educational engineering. Finn, (in Knirk et al. 1986) was credited with first definition of "Instructional Technology". Finn was also behind the move away from the audio-visual "aids" concept, towards a more systematic and integrated image.

Rowntree (1978) described his approach to Educational Technology as the " Four phase problem-solving approach" (fig.3)

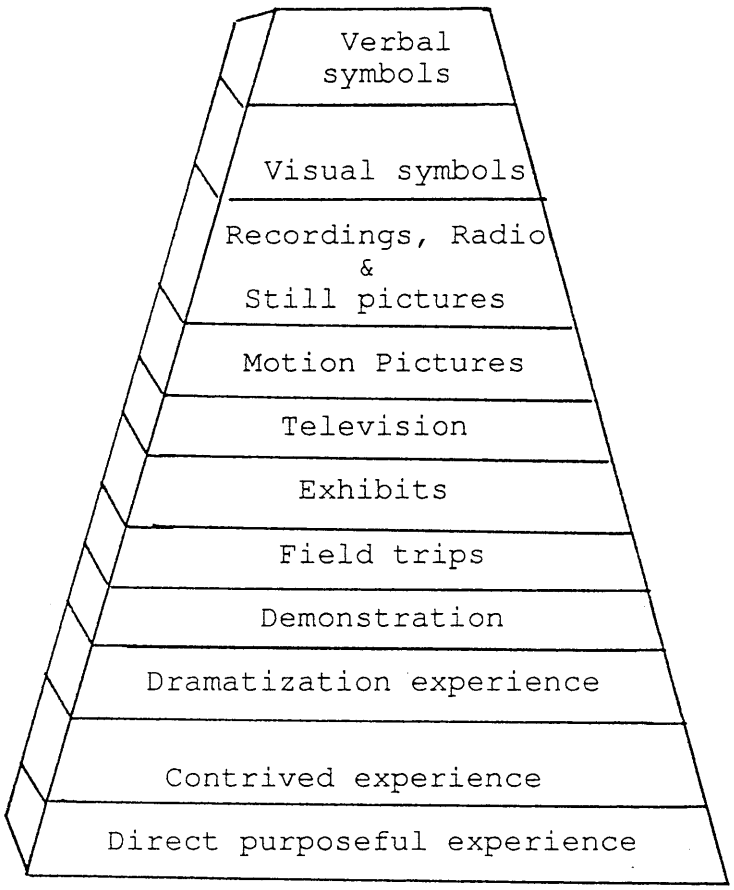
Figure 3. The Four Phase Problem-Solving Approach



Source: Derek Rowntree (1978),p.12

Edgar Dale espoused a different approach based on the degree of realism of the audio-visual media, he referred to this as the "Cone of experience" (Dale 1969). He made clear that participation in the actual experience (Direct purposeful experience) is the starting point for the learner. Then if this participation is not possible we should move with the learner to the event presented through some medium "mediated event" and finally to the abstract part of the cone. (see illustration Figure 4)

Figure. 4 Cone of Experience



Source: Heinich et al. (1982) P.12

Heinich et al. (1982) stated that " Dale contended that learners could make profitable use of more abstract instructional activities to the extent that they had built up a stock of more concrete experiences to give meaning to the more abstract representation of reality." In short, Dale, tended to keep learning firmly rooted in experience.

Bruner, (1966 in Heinich 1982) devised a descriptive scheme for instructional activities, that is quite parallel to Dale's.

Bruner postulates three major forms for the experiences require for communication, they are:

I- direct enactive experiences

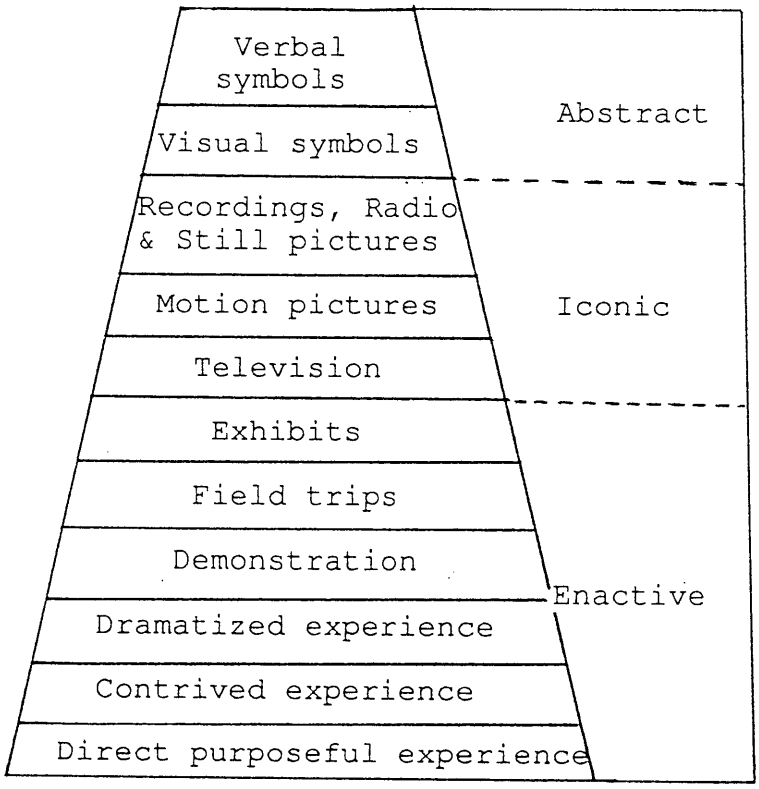
II- Pictorial experiences (iconic)

III- Abstract experiences (symbolic)

In his scheme Bruner intended to stress the nature of the mental operations of the learner.

Heinich (1982) suggested that Bruner's concepts may be superimposed on Dales cone of experience. (see figure. 5)

Figure. 5 Bruner's concepts superimposed on Dale's cone

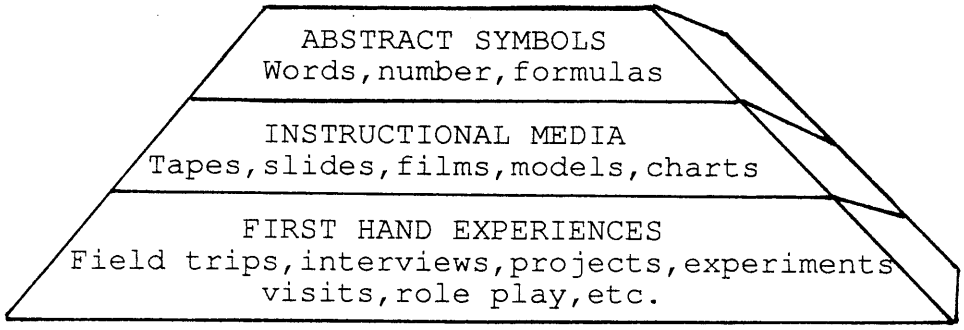


source:Heinich et al.(p 12)

Thus, Dale's cone of experience provides the basic theoretical model on which other learning theories are built. For example Gagne (1977) developed a hierarchy including eight various forms of learning, varying from signal learning (simple involuntary) to problem solving which he referred to as "Higher-order rule". The problem solving type of learning will of course be in the upper strata of Dale's 'cone of experiences'.

Smith H.R and Nagal T S (1972) in Manwaring (1978) constructed a similar scheme to that of Dale, in which they divided the learning activities into three broad categories (figure 6)

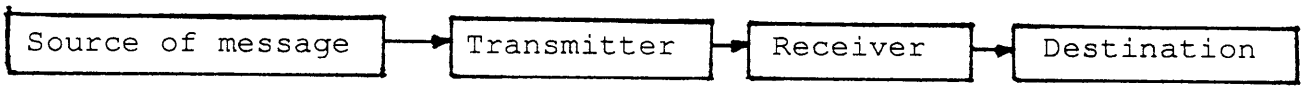
Figure 6. Pyramid of experience



Source: Gaye Manwaring (1978)

Hoban for his part linked communication and the learning process. He developed a parallel scheme to the communication model of Shannon and Weaver, that could be applied to audio visual methods (figure 7).

Figure 7. Communication models



(Source: Shannon and Weaver in Heinich et al. 1982)

In the above model, a message originated by a source or sender is transmitted through a suitable channel to the receiver who is supposed to be active if the communication is to be effective.

Applying Shannon's model to the classroom situation, Hoban presented a systematic treatment of the relationship between the concrete materials of teaching and the process of learning.

Hoban (in Arrasjid 1981) followed by, Marshall Mcluhan (1964) in Kemp (1980) and Gerlach et al.(1980), found it easy to transfer the concern for the role of audio-visual media in education, to an emphasis on the communication of ideas. In this context, Marshall Mcluhan (in Kemp 1980, P.17) expressed some concern, that the medium itself (film, radio, television) was more than a transmission belt.

Furthermore, the exposure to each medium is a direct experience itself, according to Mcluhan.

The primary concern of educational technology is thus to improve communication so that learning can be effective. Thus in order to improve communication, attention has to be directed away from the absolute availability of audio-visual material and machines to the process of teaching and learning in which these media are used.

Thus, up to the early 1960s most audio-visual equipment was used as a teacher aid, under the audio-visual aids heading, but instruction is more than the simple communication of ideas through some aids.

Knirk and Gustafson (1986) clarified that it was Robert Kilbourn at Wayne State University who was the first to move away from the "aids" concept of these media. However it was Finn, in the early 1960s who first used the term "Instructional technology" and who is usually honoured with first definition of "Instructional Technology" as was mentioned earlier.

Finn (1956) explained that, in considering the effect of technology on the process of instruction, it must be remembered that technology, includes process, systems, management and control mechanisms for both human and non-human instructional resources. He said that, above all, technology is a way of looking at problems as to their nature, and difficulty, the feasibility of technical solutions to those problems and the economic values of these solutions. This emphasises clearly the context in which the educators must apply technology to education. From the basis of Finn's definition, Educational Technology is considered today, as a 'systems approach' whereby knowledge is applied in a systematic and scientific way to achieve a particular purpose. A rationale which brings together the three important strands of Educational Technology , namely :-

a) The physical science concept

This approach which is also known as "Media concept of Educational Technology", or "Hardware approach" as was defined by Davies, 1971 who considered Educational Technology as a direct application of technical devices (Audio-Visual apparatus) to

support the processes of teaching and learning. The characteristic of this concept is that it views the various media as aids to instruction.

Percival and Ellington (1986), referred to this approach as "Technology in Education" which embraces every possible means by which information can be delivered.

> "It is concerned with the 'gadgetry' of education and training, such as television, language laboratories and the various projected media".
>
> (Percival and Ellington,1986)

b) The Behavioural Science Concept

This concept regarded "Technology" as the application of an underlying science, to practical educational situations. It is also called the "software approach" which is concerned with the design and production of learning materials, based on behavioural science theories.

This concept is focussed on the total context of the interaction between teacher and learner within the learning situation. This process is embodied in programmed learning which is based upon principles of human learning developed by contemporary behavioural psychologists, especially B.F.Skinner, in the 1950s.

Skinner's contribution in programmed learning was to give emphasis to the theory that learning with a given goal in view could be very effectively achieved through the mastery of information presented in a hierarchical form in small steps. He further emphasised that it was necessary in this process that the

success of the student learning at each step should be confirmed, or "reinforced" to use his own term.

The original theory that programmed learning was based upon, was that it is unnecessary to use teaching machines devised to present information as long as printed materials could equally well be designed to perform the same duty. Skinner (1968) however, advocated the greater use of resources in the development of his programmed learning.

In the late 1960s and throughout the 1970s the principles of programmed learning became the basis for educational technology.

The Skinnerian theory believes that complex behaviours are learned by building up a series of simple stimulus - responses (S-R). Central to this is Skinner's theory of "Operant Conditioning" which he developed as a system of shaping correct responses in small steps in which reinforcement, stimulus and reward are vital to the learning progress.

Modern technology now allows for the more rational development of this, namely Crowder's branched programmes "intrinsic programming" to be successfully implemented. (Knirk, et al. 1986, P.2, Heinich, et al. 1982, P. 270).

c) The systems approach

Gerlach et al. (1980) defined the systems approach as:

> " A systems approach is nothing more nor less than a sophisticated process for identifying and solving problems."

According to Gerlach, the system approach is based on the

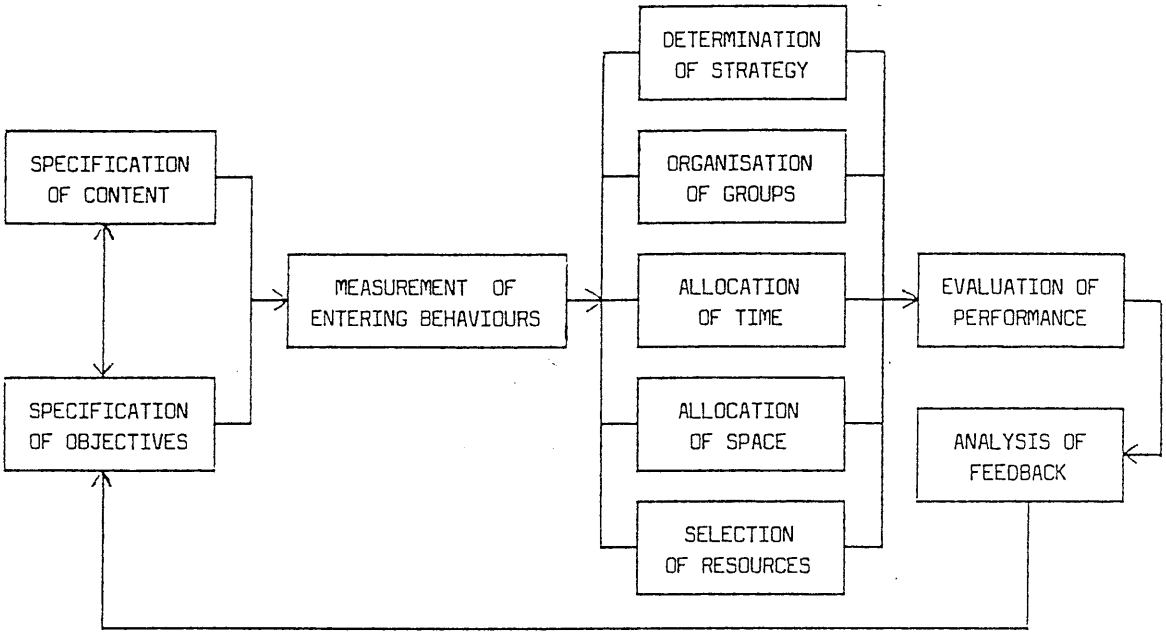
premise that any organisation of people, things, or people and things, is a system made up of elements. Each element has its own functions and goals. The defining and planning of the goals is essential in this concept. The goals of the total system are attained only when all the elements are integrated in an effective and efficient pattern.

> "Both the goal defining and planning are absolutely essential to good teaching. The entire concept of systematic approach to instruction is based on this assumption, and it is necessary to keep this in mind as we examine the elements in systematic planning".
>
> (Gerlach, et al.1980)

Gerlach, et al, suggested ten elements for a total systematic approach (figure 8). However, he pointed out that this model (A Systematic Approach to Instruction), is an attempt to " portray graphically a method of systematically planning instructions."

As Gerlach, et al. (1980) observed, the application of the systems approach directly affected decisions made about some specific processes of instruction. It has a significant impact on the specification of content taught, the specification of objectives; the determination of prerequisite for learning; the determination of instructional strategy; the organisation of learners; the allocation of time and the allocation of space needed.

Figure 8. A Systematic approach to Instruction



(Source : Gerlach et al. 1980)

However, Percival and Ellington (1986) stated that :

> " the term system and systems approach are jargon terms, and they can have a variety of interpretation."

Tucker, N. in (MEET VOl 10 No 5/6 1988) confirmed Phillips Hill's explanation of Educational Technology as : " ..... a concern for the educational process". He added, that it is first of all about how we learn. An added concern for what we must learn, he believes, leads to a consideration of the most effective methods for that combination of learner, content and context, which defines the problem. He further emphasised that it is only at that stage that we should consider with what we are going to learn.

However, Tucker laid stress on the idea that, if we accept the allegation that learners might be able to learn from any suitable media, be that traditional print, audio-visual media or communications technologies or, even other human beings, then we should also accept the demand to realise what resources are at hand. He added that "Your decisions are only as good as your information..... What you don't know, you can't manage". Furthermore, Tucker designed a decision- making chart in Educational Technology (figure 9) to assist in the management of resources in any educational institution. The chart also exhibits the principle that the purpose of good resource organisation is to assist curriculum development.

In fact, the systematic procedure for solving teaching problems is often named "an instructional development model".

Generally, a systems approach is the basis for current educational technology related developments.

The systems approach depends upon the analysis of the educational process in the light of general systems theory which

evolved originally to solve the difficulties confronted by scientists in viewing and articulating complex organisms.

> " A system is an organized or complex whole: an assemblage or combination of things or parts forming a complex or unitary whole"
> [Kast and Rosenzweig, (in Stenhouse 1978)]

Another, described the systems approach as:

> " A system might be described as an array of things in which we are concerned particularly with the way they relate to, and interact with, each other...systems analysis is a method of understanding the way a system works preparatory to influencing or controlling it." (Birley 1972, in Stenhouse 1978)

Beswick (1980) summarised four basic activities or stages of the systems approach to educational technology, they are:

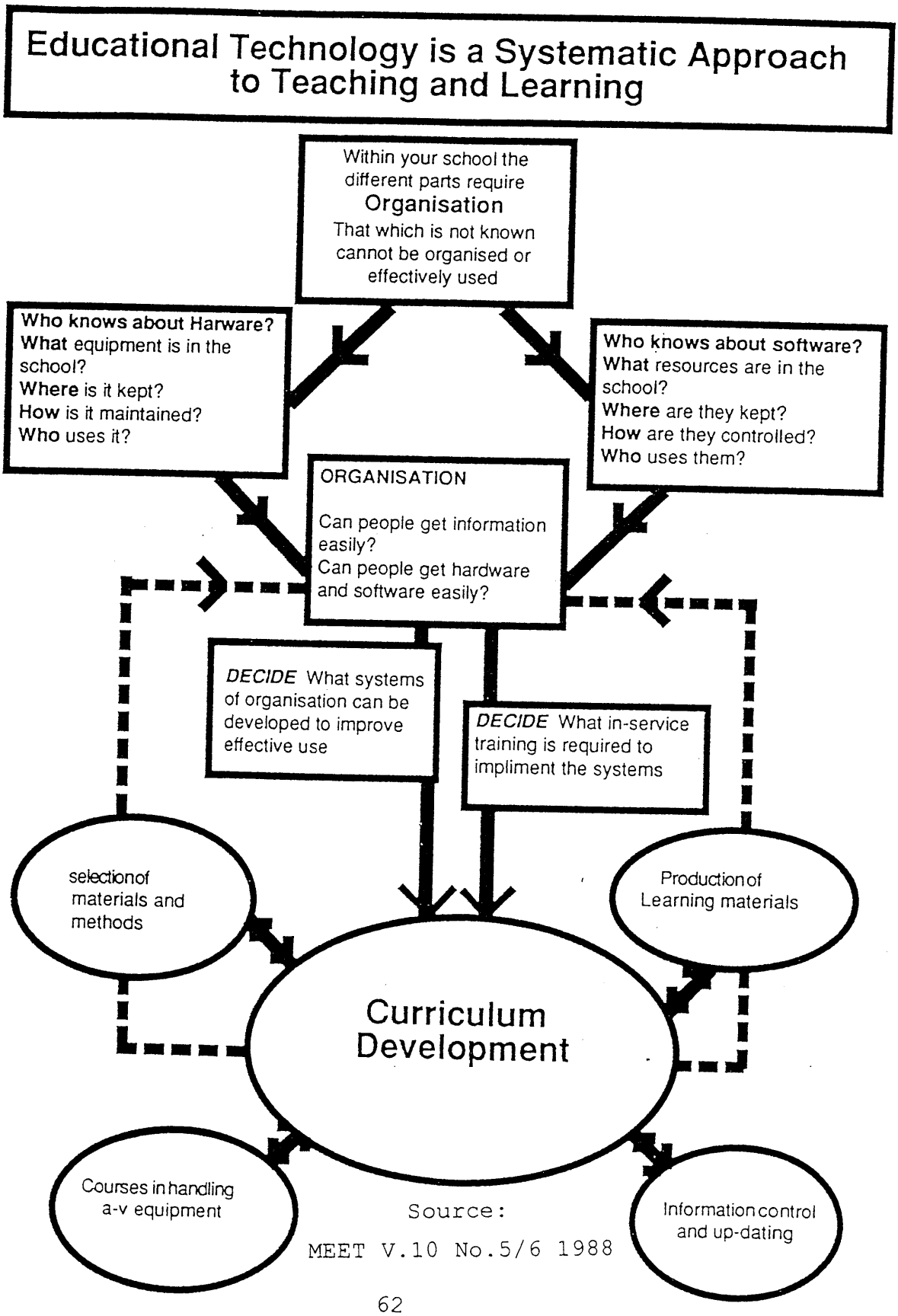
(1) The identification of operational objectives : what must the student learn?

(2) Designing of appropriate learning experience : how will the student learn it?

(3) The evaluation of effectiveness in practice : how well did the student learn it (Also: how can teacher know whether they have learnt it or not?)

(4) The improvement of the design for the next occasion.

Figure 9. Tucker's Management of Resources Chart



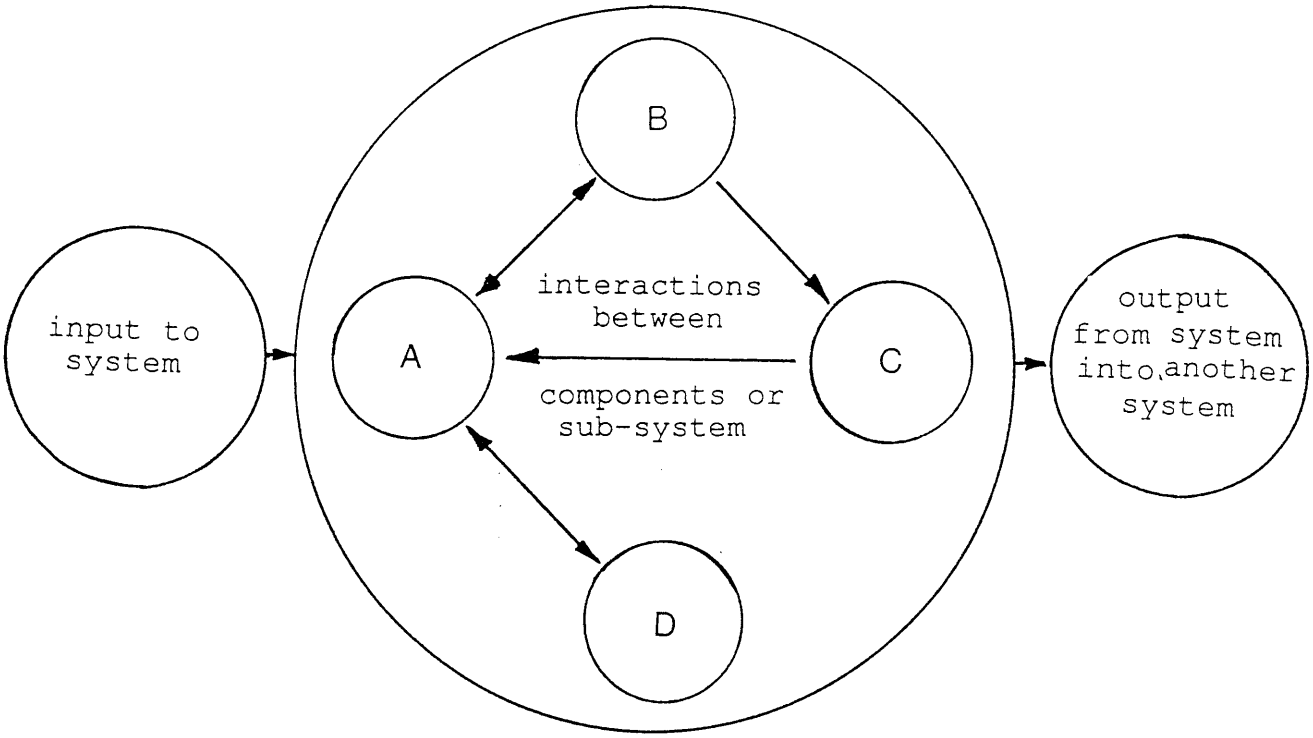
Beswick thinks that the above analytical structure can be widely applied to think systematically and rationally about an educational system that has grown up in a wholly irrational and unplanned manner.

Percival, et al. further specifically defined a system in an educational technology framework as :

> ".....Any collection of interrelated parts that together constitutes a larger whole. These component parts , or elements, of the system are intimately linked with one another, either directly or indirectly, and any change in one or more elements may effect the overall performance of the system, either beneficially or adversely."
>
> (Percival and Ellington 1986)

Percival, et al. schematically illustrated their view to a simple system as in figure 10 in which a system comprises of four clear foundations A, B, C, D which are connected to or dependent upon each other. It is clear from the diagram that some interrelationship may be two-way, while others may be one-way.

Figure 10. A typical system



(Source: Percival & Ellington 1986 p.16)

2.2. Definition of Educational technology

However, as a result, there is an increasingly wider view of Educational Technology's scope and role within the educational context. For instance Rowntree (1982) believes that Educational Technology is :

> "....as wide as education itself". Therefore it is "...concerned with the design and evaluation of curricula and learning experiences and with problems of implementing and renovating them".

Crucially this definition goes beyond the interrelation between materials and machine, and the psychology of learning.

As a matter of fact he viewed it as :

" ...it is a rational problem solving approach to education, and a way of thinking skeptically and systematically about learning and teaching."

Snider in Tickton (1970) distinguished between two main concepts of Educational Technology, Firstly :

" Instructional Technology can be defined in two ways. In its more familiar sense, it means the media born of the communications revolution which can be used for instructional purposes alongside the teacher, textbook, and blackboard ".

Secondly, and less familiarly, it is :

"... A systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and non-human resources to bring about more effective instruction ".

(Snider, R.C. in Ticton 1970)

I.K.Davies(1972) stated that, Educational Technology

"...can best be viewed as a well disciplined and systematic approach to education and training, characterized by explicitness (particularly in egard to objectives), by sophisticated analysis, by synthesis, by utilization of optimal decision-making procedures and by rigourous empirical evaluation".

Heinich (1982) defined Educational Technology in a similar way to Davies, emphasising the systematic arrangement of teaching and learning events and the specification of learning objectives.

Leedham (1973) defined educational technology as:

> " Educational Technology concerns the systematic use of modern methods and technologies in teaching and learning. It involves teachers in a variety of roles, some of which are traditional, some still emerging."

In Leedham's definition special consideration is given to the adaptive role of teachers, he argued that:

> " Earlier attempts to use teaching machines effectively, failed because they were employed as alternatives to the presence of a teacher rather than extensions of his capability " .
>
> (Leedham, 1973)

Another useful definition for Educational Technology was given by the National Council for Educational Technology (NCET) in Britain, in October 1967 as:

> " The development, application and evaluation of systems, techniques and aids to improve the process of human learning ".
>
> (Beswick 1980)

The above definition of Educational Technology by NCET seems to be one of the most suitable definition as it is essentially problem-centered, rather than centered upon particular methodology or mechanisms. It is clear that it's not concerned with the development of tools and machines. The mechanical apparatus of instruction, e.g. projectors, films, etc. are merely means of implementing educational technology, and do not of themselves constitute Educational Technology. The emphasis is on the improvement of learning and the evaluation of the process of learning in terms of specific objectives, system theory and on

the effective use of non-human resources to improve learning.

Thus it can be concluded that Educational Technology covers the process of applying available knowledge in a systematic manner to problems, in human learning. At its basic level, Educational Technology attempts to identify how problems in human learning arise and suggests strategies by which they can be overcome.

Educational Technology, accordingly, is an organised and methodical approach to education. It is not disordered, unplanned or random. Instead it is a systematic procedure of designing, performing and assessing the overall process of learning and teaching in terms of specific behavioural objectives, employing both human and non-human resources to improve teaching and learning.

2.3. The Development of Educational Technology in Bahrain

During the history of initial education and training of teachers in Bahrain many aspects of educational technology have been disregarded. Educational Technology as a systematic approach has not been introduced to teacher training in theory and practice until very recently.

2.3.1. Educational Technology in The Teacher Training Colleges

Looking back to earlier practice in teacher training both in-service and pre-service, one notices the absence of 'Educational Technology' or even its past beginning as 'Audio-Visual Aids' in almost all the courses offered from 1948 right up

to the establishment of the Teacher Training College (for males in 1966 and for females in 1967). The first appearance of the term 'Educational Aids' as a subject was in the syllabuses " Curriculum plan " of Teacher Training Colleges, established in 1966 and 1967 subsequently. (see tables 7 & 8)

"Educational Aids" were introduced under the educational theory field of study in two places; one hour a week in the second session of the first year and another hour a week in the third session of the second year. (Al-Moosawi, M.J. 1985)

In other words, teachers spent not more than 24 hours studying Audio-Visual Aids over the two year course of training.

The present writer was a student in this college and recalls how those 24 hours over the two years of training made it impossible for any student to become sufficiently acquainted with audio - visual media, the operation of the equipment (hardware) and familiarity with the range of media (software) available. At that time there was very little equipment available for students to use: only one or two slide projectors, a few audio tape recorders and a single 16mm sound film projector. In spite of this, the "Educational Aids" subject in the teacher training college 1966-1979 was to form the foundation for the development of Educational Technology in Bahrain.

TABLE 7. 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	
	1	Islamic Culture	2	2	-	-	4
General	2	Arabic Language	3	3	2	-	8
Education	3	English Language	3	3	2	-	10
	4	The Arab World	2	2	-	-	4
	5	Fine Art	1	1	1	1	4
Obligatory	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
	1	Developmental Psychology	2	-	-	-	2
Educational	2	Educational Psychology	-	2	-	-	2
Theory	3	Introduction to Education	2	-	-	-	2
	4	General Strategies	-	2	-	-	2
Obligatory	5	Educational Aids	-	1	1	-	2
	6	Primary Strategies	-	-	3	-	3
	7	Evaluation & Assessment	-	-	2	-	2
	8	Curriculum	-	-	-	2	2
	9	Practical Education	-	1	1	4	6
	10	Strategies for Specialisation	-	-	1	-	1
	10		4	6	8	6	24
	1	Religion and	-	3	3	3	9
Specialisation		Arabic Language	-	3	4	4	11
	2	English Language	-	6	6	6	18
	3	Fine Art	-	6	6	6	18
	4	Mathematics	-	6	6	6	18
	5	Social Sciences					18
		a. Ancient History	-	3	2	-	5
		b. History of Europe	-	2	2	-	4
		c. Islamic History	-	-	-	3	3
		d. Geography	-	-	3	3	6

Source: Ministry of Education, Curriculum Plan for Teacher Training Colleges, 1977/78 'C' (p.1)

TABLE 8. Curriculum Plan for Teacher Training Colleges - Scientific 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	-	-	6
	3	English language	3	3	-	-	6
	4	The Arab World	2	2	-	-	4
	5	Fine Art	1	1	-	-	2
	6	Physical Education	½	½	½	½	2
	7	Societal Growth & Development	-	-	-	2	2
	7		11½	11½	½	2½	26
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 & 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
Specialisation	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' (p.2)

2.3.2. Educational Technology in the In-Service Teacher Training.

The next development in the Educational Technology cycle occurred when 'Audio-visual media' were introduced into the syllabuses of the In-service Teacher Training Project of the Ministry of Education in 1973. This Project adopted the so-called Multi-Media approach to training teachers.

Rowntree (1982) defined the Multi-Media approach as:

> "The integrated use of a variety of educational media within a teaching situation in order to take advantage of the special contributions each can make to the student's learning".

Another useful definition of a Multi-Media approach is the one stated by Manwaring (1979) which is:

> "A variety of different media often incorporated into the learning units. These include slides or filmstrips, audio tapes, models and experiments, video tapes, and study guide. The characteristics of the different media can be used to help in communicating with the students".
>
> (Manwaring, 1979)

Nashif, A (1977) defined multi-Media technique as:

> "It is so called because it combines both direct and indirect forms of training in one integrated whole. The former include methods where instruction takes place through direct confrontation between teacher and learner. The latter include those methods where instruction takes place by means of in direct contact between teacher and learner through printed assignments, working papers and resource materials".

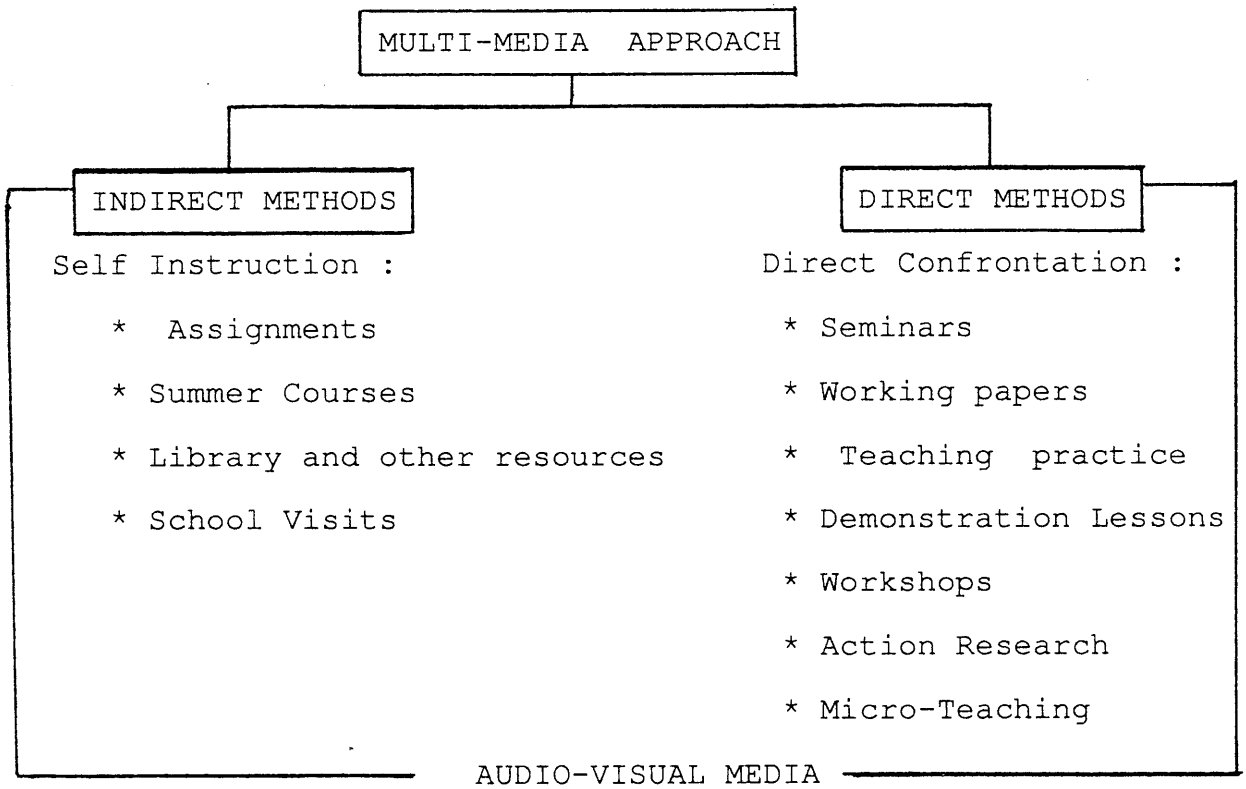
In this approach Audio-Visual media are used by education tutors in the training centre and by the trainee on their teaching practice. Also the use of Closed Circuit Television

played a vital role, especially in the running of seminars and in evaluating teaching practice performed in the schools.

The following diagram shows the interrelation of different methods and elements in the multi-media approach applied by this training scheme; both direct and indirect methods were to be considered by both the trainee and the tutor.

It is clear from the diagrammatic representation of this approach, that media are playing a substantial role in both the direct and the indirect methods. (see Figure 11)

Figure 11. Multi-Media Approach to In-service Teacher Training.



(Source: Al-Mosawi, N.H. 1981)

The audio-visual aids used in this project helped to facilitate, supplement and extend the study of topics and increase the communication abilities of the seminar leaders. Moreover, as three former tutors in the centre pointed out in individual interviews with the researcher, audio-visual media and the use of the video tapes played a specific and positive role in the implementation of the objectives of the seminars.

However, following this instruction in the use of audio visual media from 1973 until 1979, a basic change in the techniques of instruction in school has taken place. Audio - visual media have become available to most of the primary and intermediate schools.

It is interesting to note that video-tape recordings and close circuit television were used for the first time in Bahrain for training purposes in 1973, by the in-service teacher training project. In addition to the use of hardware such as video-tape recorders, overhead projectors, slide and filmstrip projectors, there was also software such as video-tapes, overhead transparencies, wall charts and audio-tapes. The above materials, first used by the tutors associated with the in-service teacher training project, have gradually penetrated to other Bahraini schools.

The adoption of audio-visual media has, therefore, been a turning point for education in Bahrain. The present writer, who was in charge of the audio-visual media section 1973-79, has witnessed how trainees, even those who were less qualified, would be able to teach more effectively by using these new techniques,

and how many trainees were keen on booking the workshop for practicing and producing their audio-visual materials. Audio-visual media thus helped the creative development of tutors and trainees, and their attitudes to teaching and learning became more favourable as a consequence.

By 1974-75, a good collection of audio visual materials had been produced by trainees and tutors with the co-operation of the audio visual section in the project centre. In this context, there were 30 different locally made video-tape programmes, and in addition a good collection of overhead projector transparencies and various other software materials which had been produced for the purposes of training and classroom teaching. The reasons for this were:

(a) A sufficient supply of "hardware" equipment was available to the centre. This had been supplied by UNRWA/UNESCO Institute of Education according to an agreement with the Ministry of Education in Bahrain.

(b) The trainees, having become more confident in the use of the "Multi-Media" approach, were able to supplement the use of textbooks with a variety of media. At the same time, the textbooks had to recognize both the use and the role of the media. This was reflected in the subsequent revision and new editions of textual material.

(c) Very importantly, many teachers and tutors were inspired to seek special courses from the audio-visual tutor in preparing and using audio-visual materials.

In this respect, the writer, who was the audio-visual tutor

of the In-service Teacher Training Project at its establishment in 1973, recalls how some of the tutors were full of enthusiasm for training in the production and use of audio-visual materials.

The fruits of this growing interest was an updating of the knowledge of audio-visual methods and techniques. It has also created a healthy atmosphere which made further development of the multi-media approach possible.

In 1977, the five year agreement between the Ministry of Education and UNRWA/UNESCO-Institute of Education was ended. However, further developments in the schools' curriculum then took place. The Ministry of Education decided to extend the function of the In-service Teacher Training Centre, and a Ministerial decision (No 231/168-1/77 dated 6 /10 / 1977) was circulated accordingly. The terms of this are outlined below.

(1) Providing and conducting long-term courses leading to a training certificate in the various fields of Education for school administrators, teachers, counselors and librarians.

(2) Providing and conducting short-term and refresher courses to satisfy the needs of the Ministry of Education, with the cooperation of other concerned departments.

(3) Co-ordinating with other ministries and the Civil Service Bureau in conducting in-service activities.

(4) Planning, providing and conducting special programmes of study for the in-service re-training of classroom subject-teachers of upper primary, intermediate and lower secondary schools. (see annexe 13).

These teachers were holders of a Bachelor's degrees in a

particular subject area but were at that time, teaching different subjects. However, this type of training after a short while was transferred to the University College of Art Sciences and Education-Bahrain (Hebail, 1985).

Accordingly, the reformed in-service teacher training centre conducted a large number of training courses for different categories of teacher.

This centre only survived for four years, until 1980 when the Ministry of Education decided to transfer all types of teacher training responsibilities to the University College. All teaching staff of the in-service teacher training centre were given the option of either going to the University College or to remain working in any Ministry of Education department. The writer was amongst those who choose to go to the University College.

Accordingly, the University college replaced the discontinued in-service training centre totally in 1981-82. However, the Ministry soon realised that an overall coordinating body for this training was needed and accordingly a new sector under the heading of "Curricula and Training" appears in the organisational chart of the Ministry of Education in 1883, falling under the responsibility of an assistant under-secretary. Following this the Directorate of Training of the Ministry of Education was established in March 1983.

Reading through its operational system, one can notice that the Directorate of training mainly plays the role of organiser or co-ordinator for all of the training courses,

especially those long term (one or two years) courses, leaving the actual running of these courses to other specialised organisations such as the University college, the American University of Beirut (AUB), Gulf Polytechnic (University of Bahrain now) or the college of Health Sciences.

The Directorate of Training whilst organising courses has not taken over the full functions of the former In-service Teacher Training Centre. Thus the impetus which had been given to Educational Technology was lost. Those teachers who are sent to the university college for their training programmes are the lucky ones (ie.class teachers and those studying for their post-graduate diploma training) as their study includes a well organised courses in Educational Technology ED311 and ED511. The rest of teachers and other trainees may or may not come across their tutors using some teaching media during their instruction.

Also the materials production facilities which were used with such enthusiasm by teachers and trainees are no longer readily available to them.

The present writer visited the training centre during 1986 summer vacation and noticed the absence of personnel responsible for educational technology. Moreover, the organisational structure of the centre does not include any post for an educational technology specialist.

2.3.3.- Centre for Educational Technology

In exploring the history of the development of Educational

Technology in Bahrain, mention must also made of the "Centre for Educational Technology" to the Ministry of Education which was established in the same year as the In-service Teacher Training Project (1973) and which worked in parallel with the In-service project in conducting many training courses. In this context, the Centre for Educational Technology's contribution towards Educational Technology was most certainly a substantial one, and it has been an active and influential body with regard to the development of Educational Technology in Bahrain. The Centre for Educational Technology was originally established under the title of "Audio-Visual Centre", then later renamed as "Centre for Educational Technology" as a result of the changes that have taken place in the field.

The organisation chart of this centre was last approved in 1986.

The main objectives of the centre as published in the Ministry of Education annual report for 1983-84 was to :-

- Supply the schools with the necessary audio-visual materials and equipment.
- Conduct general or specific training courses for those beneficiary teachers on how to use the audio-visual media in the classroom.
- Train a number of teachers and librarians to be in charge of audio-visual media in their schools.
- Offer teachers advisory services regarding the audio- visual media.

The Centre for Educational Technology has provided, since

it came into being in 1973, a great number of contributions to the schools and to the development of Educational Technology which truly deserve to be mentioned and listed. For example, before 1973 there was no knowledge of the equipment schools possessed, if there was any, and to what extent teachers were familiar with use of audio-visual media. From 1973 onward the centre continued to supply schools with various hardware, for example in 1882-83 there were 1529 items, this total has increased in 1983-84 to 1,827 items, then to 2,249 items in 1984-85.

The following table 9 shows the numbers of audio visual items in three successive years.

TABLE 9. Equipment in schools for three selected years

Hardware	No.of Item in		
	1982/83	1983/84	1984/85
- 16 mm Motion Picture Projectors	98	104	104
- Slide Projectors	77	90	140
- Film strip Projectors	84	84	84
- O.H.P	154	200	356
- Opaque (episcopes) Projector	70	89	89
- Audio cassette	939	1,148	1,248
- Audio broadcasting equipment	107	130	130
- Video recorder	---	40	49
- T.V.Sets	---	40	49
Total	1,529	1,827	2,249

In other words, each school was equipped with an average 12 items of equipment in 1982/83, 14 items in 1983-84 and with 16 items in 1984-85.

Looking at the above table, one can notice that quantitatively the total number of items added in the three years were 720 items i.e an increase of 50% .

At the same time, the centre continued to supply schools with software produced by its members such as charts, maps, flash cards, textbooks, audio cassette programmes and video cassette programmes. The 1984-85 annual report of Ministry of Education mentioned that the centre produced 30,200 different items of display material and 22,000 copies of textbooks, in addition to 35 tape slide programmes and 9,800 audio cassettes.

In the same report it was mentioned that the centre distributed 50 slide projectors, 150 overhead projectors, 100 cassette tape recorders, 40 video recorders and 40 television sets.

It is recorded that the centre for Educational Technology organised, from 1973 onward, a number of training courses for teachers who would use audio-visual equipment and materials in their schools. Some of these training courses were held with the cooperation of its neighbouring In-service Teacher Training Project, which was sharing the same campus.

It has always been understood that the centre would organise training courses whenever there were plans for the distribution of new equipment to the schools. Their sole purpose was to train those teachers nominated by their schools to become the

teachers who would train their colleague back at school.

In 1979 Educational Technology geared itself up with the cooperation of the "Directorate of Curriculum, Books and Audio Visual Aids" for a new development plan which was to establish School Resource Centres SRC inside the schools.

The objectives, as listed in a report of Educational Technology Centre (1988), can be summarised under the following four points :

(1) - Increasing the teachers capabilities in producing and utilising instructional media in the schools.

(2) - Exploiting the instructional resources inside and outside the school to the maximum level.

(3) - Organising the instructional media in school in such a way as to allow easy access by the teachers and students.

(4) - Promoting instructional media in schools.

It was suggested that successfully trained teachers would take on the responsibility for the proposed resource centre in the school and would act as a liaison between the school and the Centre for Educational Technology in supplying the school with materials and equipment, bringing advice and new ideas to school and training their colleagues in producing and using media. Accordingly, this plan started in 1979-80, and a training programme was organised for the teachers concerned, as well as some librarians, and the plan immediately started in action in 1979-80, with 14 schools, another 15 schools joined in 1980-81, followed by another 20 more schools in 1981-82 making a total of 49 SRC in schools.

The annual report of Ministry of Education for 1984-85 issued in 1986, mentioned that the centre continued to train more teachers and librarians for the same purpose and supply the schools with more materials and equipment.

A recent working paper, dated 1988, for training more librarians in five different schools, in the period from 13\11\1988 to 1\12\1988, indicated that the Centre is still fulfilling this purpose.

Thus the centre for Educational Technology had an important part to play in the provision of Educational Technology in Bahrain. It would be useful at this point to look at its organisation.

The Centre for Educational Technology at present consists of the follows five sections:-

A - Administration:

Responsibility for the overall policy of the centre, which includes:-

- Executing the Ministry of Education's educational policy in the field of Educational Technology which derives from the state policy for education in Bahrain; to draw up and suggest plans to improve the media usage in schools and, in addition, to supervise its entre activities.
- Increase the efficiency of media services in the centre.
- Encourage the schools to establish their own media resource facilities.
- Continue the provision of materials and equipment to schools.
- Develop educational media production and utilisation.

B - Media Production Section:

The main function of this section is to design and produce software materials on a mass scale to be distributed to schools, such as display materials, photography, slide films, audio tape materials, textbooks and other printed materials.

The section is equipped with all fundamental equipment and tools to enable it attain its objectives, such as reprographic equipment, including a printing press, photography and various facilities for producing non-projected media.

C - Television section:

The centre is equipped with a complete T.V.studio and staff to produce video films, according to the needs of the school curriculum. These films are to be distributed to various schools, and at the same time to encourage the schools to use them in their instruction. For practical reasons it has been found better to use video-tape, rather than 16mm film.

D - Media Rrsources:

A section of the Centre has been given the task of monotoring the provision of media resources in Bahraini schools. To enable it to do this,it not only depends on data provided by the Ministry of Education but conducts its own surveys of hard and software available in the schools and the use made of it.

E - Maintenance Section:

The centre also offers a maintenance service for the instructional equipment in the schools on a regular basis through its maintenance section. This section has well-qualified technicians for this purpose. In this respect, it is relevant to mention that maintenance has always been a problem facing schools.

2.3.4. Educational Technology in the University College of Art, Sciences and Education.

Another organisation which has hastened the development of educational technology in Bahrain was the University College of Art Sciences and Education - Bahrain (UCB) (recently converted to University of Bahrain (UB)). The University of Bahrain is an institution of higher education established in 1978.

Although the contribution of the UB to the development of Educational Technology looks as if it has been limited to the number of courses offered; ED311 and ED511, in fact the University contributed significantly to the development of Educational Technology at both university level and, through its graduates, in the schools.

ED311 was a required course for the undergraduate class for future teachers and for physical education student/teachers sponsored by Ministry of Education. ED511 is offered as one of the requirements for the postgraduate diploma in education.

These courses are significant as they are the only courses

offered in Bahrain which present Educational Technology in a disciplined way to teachers.

Before the establishment of UCB in 1978, no theoretical materials were written locally in Arabic or English in this field, but the picture changed quiet soon afterwards. A number of handouts and other literature was written on different aspects of the subject, to support the Educational Technology courses in the college. The following list illustrates some of the locally-written materials in educational technology by the staff of the Department of Education at the University College of Bahrain.

01- The definition of Educational Technology.
02- Individualized instruction....why ?
03- Behavioural objectives.
04- Glossary of audio-visual terms.
05- Reduction process.
06- Lists of journals in communication program.
07- Use of materials (Frames) in instruction.
08- Package assessment scale (PSA).
09- Mini-Media Package.
10- Compressed Speech - listening economy through listening.
11- Objectives - Graphics.
12- Objectives - Overhead projection.
13- Objectives - Slide and Filmstrip.
14- Objectives - Camera
15- Objectives - Models, Realia and Specimen.
16- Objectives - Television.
17- Objectives - Audio learning.
18- Objectives - Displays.
19- Objectives - Chalkboard
20- Evaluation.
21- Instructional Strategy
22- Educational Technology course guide
23- Program Evaluation
24- Television.
25- Tentative finding for communication.
26- Basic television production.
27- Sample: Cognitive, rule using.
28- Field trips.
29- Instructional communication media.

All the above materials, except the last two, were written by Dr. Al-rasjed, the former head of Educational Technology

section. In addition to these materials, research studies were conducted to solve some problems facing Educational Technology in Bahraini schools. Thus in 1983, two of teaching staff, namely Dr. Iskander from the Department of Education and Dr. Mostafa from the Department of Mathematics, conducted a comparative study of the effectiveness of teaching machines accompanied by linearly programmed learning texts produced in Bahrain, and traditional techniques used in teaching "Sets" in mathematics for the 5th elementary class (Iskander, K.Y. Mustafa, M.M., 1983).

Moreover, in the same year 1983, Dr Iskander studied those obstacles which hinder the utilisation of teaching media in the intermediate and secondary schools in Bahrain (Iskander, K.Y.1983).

Further, Dr. Iskander and Dr. Adiby from the Department of Education in the college studied in 1986 the effectiveness of video programmes on the educational and social life of the students in higher education in Bahrain (Iskander, K. Adiby, A., 1986).

Educational Technology cannot be considered only by the number of materials written or the number of studies carried out, but it also requires the "hardware" or the equipment for its utilization. The Educational Technology section in the University College was provided with a vast amount of equipment to serve its objectives, such as :

- Audio and video recording equipment.
- Motion and still picture projectors.
- Reprographics equipment.

- Photography cameras and processing equipment.

There were six different courses suggested in the very early days of the college such as:

- ED 211 The Production of inexpensive teaching materials.
- ED 202 Film making.
- ED 311 Introduction to Educational Technology.
- ED 351 Programmed Instruction.
- ED 511 Educational Technology.
- ED 512 Systematic Approach to Instruction.

Most of the above listed courses were discontinued from 1981-82, due to lack of staff, the cost and the small student demand. The only courses currently offered are the ED311 for undergraduate students and the ED511 for the post-graduate diploma students.

ED311, Introduction to Educational Technology, was described in the university college bulletin as:

> " A predominantly laboratory-based course stressing the application of Educational Technology to instruction and learning. A systematic approach towards the selection, design, production, use and evaluation of instructional materials for use in the stage for which the student is prepared."
>
> (Ref. No. 37)

ED511, for the better qualified students was described in the same Bulletin as being exactly the same as ED311, but with the addition of field testing of an instructional

media package designed by the student. Each course gave the student 3 credits.

It was mentioned earlier that the University is the only institution which at the present time offers a defined course in Educational Technology as a systematic approach to teaching and learning.This course is run by a highly qualified Bahraini member of staff with the cooperation of a number of his colleagues.

2.4. Educational Technology in neighbouring Arab States

Educational cooperation with other Arab States, the gulf states in particular, is also being stepped up in the field of Educational Technology. A co-operative scheme in this field was launched by the members of Arab League Educational Cultural and Scientific Organisation (ELECSO), through the Arab States Educational Technology Centre (ASETC) Kuwait in 1973.

2.4.1. Arab States Educational Technology Centre (ASETC) Kuwait

The dissatisfaction with traditional methods of teaching and learning, following the advent of Educational Technology's concepts of individualised learning, programmed learning etc., has stimulated the establishment of a regional centre for Educational Technology (ALECSO), to serve the entire Arab nation. The stimulus was to overcome weaknesses in previous practices and to meet the ever increasing and varying needs of Arab countries.

Acting on the recommendation of several conferences (ref.29) and studies of the Arab league members in the last twenty

years in general and a recommendation of the fourth General conference of ALECSO in 1975 in particular, the Arab States Audio-Visual Centre was established in Kuwait in the 1976/77 financial year. The General Conference held in Sudan (3-8-1978) altered the name of the Centre to Arab States Educational Technology Centre, to express the modern concept of educational media as an integral part of instruction.

2.4.1.1. Aims and objectives of the ASETC

The broad aim of the Arab States Educational Technology Centre, as mentioned in a report by ASETC, (1) is the development of modern Educational Technology in the Arab states in the area of media production and usage.

> " The centre helps Arab countries to establish educational technology centres and departments, and provides them with the necessary support, through consultancy and visiting experts for the acquisition of equipment and materials ".
>
> (MEET V.5 N.4 1983 P.12)

According to the organisational chart of 1980-81, ASETC consists of three main sectors supervised by the director of the centre (see Fig. 12)

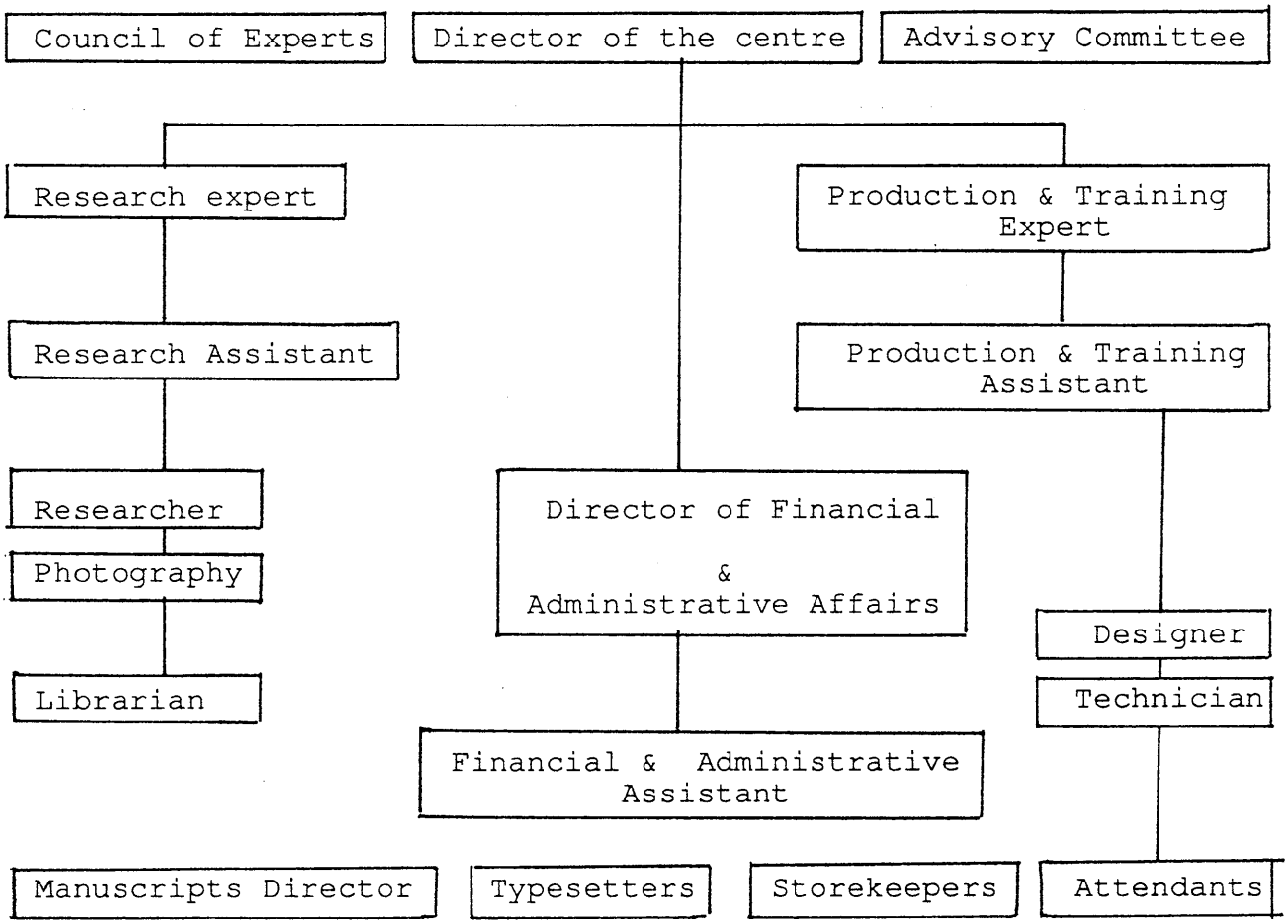
2.4.1.2. Main achievements of ASETC

After the formation of ASETC in 1976, efforts were directed firstly towards developing the organisational and

administrative affairs of the centre, including the supply of the necessary equipment. Simultaneously, the centre was able to organise several activities and projects in different fields of Educational Technology.

An analysis of events over the last 13 years reveals that the centre has considerable achievements. For example, the centre was able to organise and run the following activities throughout the first seven years of its existence.

Figure 12. Organisational Chart for the AAETC



Source: ALECSO, ASETC, (1979) (ref.39)

A. Training courses and seminars

ASETC activities took place in 11 different Arab countries, excluding Bahrain where a solid grounding in Educational Technology was already established to the self sufficient stage. Bahrain was consequently involved in organising and running several workshops and training courses at the Gulf States Adults Education Training Centre-Bahrain, an affiliate of ALECSO. The present writer participated in some of those courses as a trainer between 1978 and 1983. A Bahraini represntative was always present in any course or seminar organised by ASETC-Kuwait, outside Bahrain; the researcher participated in two such ASETC seminars, one was in Damascus, 1978 and the other was in Riyadh (Saudi Arabia) in 1979.

B. Publications

Another important contribution of ASETC, is the bi-annual publication of the specialised journal in educational technology INSTRUCTIONAL TECHNOLOGY which started in 1978. The journal at first only had Arabic articles, but some abstracts of the Arabic articles were also printed in English. Now the journal contains articles in both Arabic and English. For the benefit of its readers, the centre started in 1979, through the Instructional Technology Journal, publishing English technical terms and their Arabic equivalents as a way of encouraging the uniform use of Educational Technology terms throughout the Arab world.

Writing, translating and reviewing books in Educational Technology represented the other key activity of the centre in the area of publication. These books help to develop the dissemination of information first started through the Bulletin. The centre also produces bulletins, leaflets, research papers and technical translations relating to the educational technology field.

C. The Annual Educational Technology Week

Starting in 1978, the centre in its Kuwait premises set up an annual week in Educational Technology. The main activities of this week were:-

(1) Seminar sessions.

(2) An exhibition.

The objective of this annual week is to give an opportunity to leaders of Educational Technology, in both governmental and private sectors, to be exposed to the latest educational materials and equipment produced by international organisations specialising in this area, to exchange views and develop their knowledge through seminars and presentations, and to discuss the latest systems used in teaching, learning and training. (Ref. NO:29).

The Educational Technology exhibition is the other key activity of the annual week. It generally aims at identifying the recent educational technology equipment, machines and materials, as well as their characteristics, limitations and methods of employing them in the instructional process.

The exhibition also aims to provide opportunities for the participants to examine the equipment carefully and choose what suits their needs.

The aim of the seminar programmes is to discuss the main problems arising from insufficient knowledge and data on specialised personnel, equipment and materials, and the problems arising from insufficient communication and exchange of information amongst local and international specialised organisations.

Moreover, the seminars aim to provide a mechanism to facilitate the rapid flow of information and data and assist the transfer of materials and ideas amongst Arab States.

The seminars also aim to provide the participants with the opportunity to agree on basic specification and criteria for the selection and use of materials and equipment as well as ensuring their suitability for the educational situation and human resources in the Arab world.

D. Arab Instructional Film Production

Educational technology experts from the Arab States, in their seminar on "educational films" held in November 1978 in Kuwait decided that there was a need for joint Arab Instructional Film Production, with specific objectives to meet the educational requirements of their countries. The ASETC immediately took on board this objective and in 1980-81 carried out the project, with financial support from the Arab Fund for Economic and Social Development (AFESD). Following six months of study, the

centre in 1980 produced three experimental films, for primary, intermediate, and secondary stages respectively. The three films were evaluated, pre-tested and approved to be used in schools.

Clearly, ASTEC has proved that the Arab countries can cooperate effectively in the fields of educational innovation. Indeed, as Educational Technology has developed, various institutions in different Arab countries have contributed their own share to this development process in Educational Technology. By today most Arab countries have their own centres for educational technology, for instance, Saudi Arabia, Jordan, etc.

We will now look at several such centres:-

2.4.2. Educational Technology in Saudi Arabia

Like a number of other Arab States, Saudi Arabia was in the forefront of the development of Educational Technology, which started as early as 1974. It has, nevertheless, been subject to many changes in both outlook and objectives since it was established.

An official report(40), indicated that the Educational Technology movement started inauspiciously, without enough preparation and planning. In 1974, the Ministry of Planning in Saudi Arabia agreed on the establishment of two major projects, they were:

(1) The Educational Television project.

(2) The crration of an audio visual centre (Educational Technology Centre).

Accordingly, the Ministry of Education started executing the Ministry of Planning's decision to translate words into action.

At the same time the Government of Saudi Arabia signed an agreement with the Government of France to establish the Saudi national colour television service. This agreement was extended to cover the establishment of educational television. At that time four Saudis, who had returned from Indiana with a Master's degree in Educational Technology, opposed the idea of separating the Educational Television Project from the Audio-Visual Centre, being in favour of integrating both projects under the umbrella of "The National Centre for Educational Technology". They also suggested that the University of Indiana would be the most suitable body to take over this national centre. However, they managed to convince the Ministry of Education to ask Indiana to forward proposals.

This agreement with the University of Indiana overlapped with the previous agreement with the Government of France, but this situation was finally resolved. In December 1976, the Saudi Government received the project draft from Indiana University. 1,000 Million Saudi Riyals, (approx.143 million pounds sterling), was proposed for purchasing the hardware. It is worthwhile mentioning that the total budget proposed for all educational projects in 1978/79 was 5,092 million Saudi Riyals (approx. 727 million pounds sterling) However, this budget was raised in 1982/ 83 to 10,069,2 Million Saudi Riyals.

However, a four year agreement was signed between the Ministry of Education and an American Institution to produce some educational hardware. The plan also included building some temporary stores to accommodate the imported equipment in the transition period, whilst they were building the National Centre, which was expected to be in action in two years time (1979). The same agreement also implicitly included the training of Saudi personnel in Indiana University, and directing the Centre until the Saudi personnel returned.

The problems started when most of the equipment arrived, long before the completion of the centre, and also earlier than the return of the trainees. This forced the Ministry of Education to hasten the distribution of this equipment amongst the different local educational areas. Most of the directors in these areas were unhappy at the rapid flow of the equipment they were not ready to receive. One of the directors sent a telegram to the authorities that he would sell whatever equipment he received from the Ministry because he had no space to store it, and that he would not accept some equipment becouse of its unsuitability for educational purposes. Accordingly, the National Centre for Educational Technology project was postponed, and the local authorities authorised to be responsible for their own equipment purchases. Thus we see that sound approaches can unfortunately go very wrong without careful planning of the total project.

The "Directorate of Educational Media" in the Ministry of Education is responsible for Educational Technology in Saudi

Arabia. All those working in this field are postgraduate diploma holders in Educational Technology. The directorate of Educational Media is also in charge of training courses in Educational Technology. There are different types of training course available for different categories of people, they are:-

(1) General postgraduate diploma in Educational Technology, this aims at qualifying university graduates in this field to enable them to lead Educational Technology affairs in different departments. By 1979, a total of 60 trainees had graduated from the University of Riyadh.

(B) Librarian and Educational Technology combined courses, aimed at preparing non-graduate students to be qualified as resource persons; the duration of this course was nine months. These courses solved the problems of the shortage of qualified personnel in educational technology in the local Educational Technology Centre found in every area and these teachers, in turn, supply expertise to the schools.

2.4.3. Educational Technology Centre - Jordan

In 1984 permission was given to build an immense educational technology centre at the University of Jordan to serve the educational community of the Arab world in general and of Jordan in particular.

The director of consultation, technical service and studies in the University of Jordan, A.B. AL Abed was appointed director of this latest centre.

Al-Abed is well qualified for this post. He served for four years as director of school radio and television broadcasting in Jordan from 1973, then from 1973 to 1977 he was director of planning and training in the Ministry of Information in Jordan. More recently, from 1978-1982 he was director of the Arab states Educational Technology Centre (ASETC) in Kuwait.

Mr. Al-Abed explained in Middle East Education and Training (44) that the idea of this centre was conceived in 1977. The intention then was that the centre should be a part of the School of Education but in 1984, as teaching generally became more technology oriented, the centre was designed to be an independent unit serving all faculties of the university. It was estimated that the centre would need a staff of 34 to operate.

He further explained that overseas specialists would be called in at the outset but was convinced that the centre would eventually be fully operated by Jordanians. He clarified that training, production and maintenance staff were all available in Jordan and that they had unlike many other Arab countries no shortage of qualified personnel to run the centre.

The University of Jordan Educational Technology Centre comprises eight departments, they are :-

A) Department of Curriculum Development and Teaching Methods.

B) Training Department: This department is open to both Jordanians and to other Arab nationals who are interested in training in Educational Technology.

C) Production Department: For software media production.

E) Television and Video Department: For producing educational programmes via closed circuit television to all faculties upon request and to supply staff with programmes and recordings. In addition, the centre has a special mobile audio-visual unit to serve those in remote areas.

F) Department of Diploma and Higher Studies: Programmes in Educational Technology leading to a diploma and master's degree is offered in this department for Jordanians and overseas students.

The University of Jordan (according to Al Abed) is the first Arab university offering a master's degree in educational technology.

G) Research Department: The activities of this department include: (i) Collecting studies and research published worldwide in Educational Technology to keep abreast of the latest development in the field and (ii) Conducting its own research activities in the field and passing on its findings to those interested.

H) Administration Department: Finally, the administration department is responsible for controlling the overall activities of the Educational Technology Centre, which includes the planning and selection of equipment according the actual requirements of the local curricula.

This department is also responsible for drawing up

educational plans, producing software and co-ordinating and supervising the use of educational technology as a whole.

Japan and the National Planning Council in West Germany are assisting financially in equipping the centre.

Generally, the centre aims at making teaching more effective in the university and allowing the university to widen the scope and range of its courses, to cater for a greater number of students, including the overseas graduates. The centre, further, is offering services and technical advice and service to trainers and educationalists throughout the Middle East and Gulf areas.

2.4.4. Educational Technology in other Arab countries

In most, if not all, Arab countries, Educational Technology or Audio-Visual Media face some common shortcomings. A study on Educational Technology in science teaching in 24 different Arab universities in 15 different Arab States, by a group of specialists in educational technology and science education from Britain and Kuwait (Issa, M.H. & Gilbert, J.1983), revealed that most teaching staff in the 24 universities faced the following problems:-

- Shortages of both software and hardware.
- Teaching staff in general lack the understanding of the systematic approach in Educational Technology.
- Most of the teaching staff are not trained to use and produce Educational Technology media.
- Classrooms are unprepared for the utilization of

Educational Technology.

- lack of enthusiasm for local production of Educational Technology media.
- Lack of information leaflets on what media are available in the university for the teaching staff.

Adiby, (1984) in his unpublished theses stated that :

> " 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. "
>
> (Adiby, 1984)

It is possible to conclude that all Arab countries, despite their own individual economic status, share a lack of understanding amongst their educationists and teachers about the concept of Educational Technology. It is still widely believed that Educational Technology is exclusively devoted to tools technology, and thus many of its aspects have been disregarded.

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CHAPTER THREE

3. Literature Review

3. Literature Review

It is very tempting when reviewing literature on Educational Technology in Bahrain to begin by asking what has been actually written in this respect. There is very little literature in this area on Bahrain, apart from a few individual efforts in the form of annual reports by officials, university theses by post-graduate students from Bahrain and a number of simple researches and studies conducted by university lecturers from the University of Bahrain.

Until very recently the concept of Educational Technology was vague for many Bahraini teachers.

Adiby 1978, noted that Educational Technology was very much neglected in teacher education programmes. He further added that there was no such specialisation in teacher education in Bahrain at that time. He ascribed the reason for the lack of improvement in the curriculum in Bahrain to a general failure in the understanding of the field of "Educational Technology" and also to inadequate teaching methods.

> " ....., the identification of objectives (which is one of the most important aspects of Educational Technology is not given attention in teacher education in Bahrain.... without having these (objectives) both the teachers and the pupils do not know where they are going." (Adiby, 1978 P.62)

Moreover, he criticised Bahraini teachers in general in that they used a lecture method most of the time. Other methods of instruction, such as discussion and simulation and games, have never been tried. The cause of this negligence, in his view,

again is due to the inefficiency of teacher education.

Adiby 1984 again states that one of the major problems facing the application of Educational Technology in the developing countries is that it has been seen as a "hardware approach".

> "This is presumably because of a lack of understanding among educationalists and teachers about the concept of Educational Technology, for it is still widely held that Educational Technology is exclusively attached to tools technology."
>
> (Adiby 1984, p.10)

Adiby reported that changes and development in education in developing countries have hardly taken place despite the rapid change elsewhere.

He further pointed out that, if changes have taken place, sometimes these changes are only of an outward nature and little real change has taken place. The enthusiasm for any new approach is commonly at the initial stage of introducing the approach, but progressively this enthusiasm is likely to be reduced to nothing.

Usage Resistance :-

Adiby claimed that there is a "hidden resistance" to change in education. He further focused on some of the main aspects which are at times thought to be the mainspring of this resistance to the advancement of educational technology, they are :-

(1) Religion

Adiby does not agree with the belief, especially amongst many western observers, that religions usually resist the spread of educational technology or other technological advances in developing countries. Furthermore, he contended that these western observers tend to ignore the fact that education in developing countries should not be judged against western values, but by its performance within a given social context.

He also opposed the view that religion is a factor behind the resistance and defines religion as "an invalid resisting factor".

He argued that the use of novel equipment has been rejected many times, simply because of the unsuitability of the software available, not because of the device itself. He further clarified that there might not be enough written evidence to verify such a claim, but he gave an example from his personal experience in one of the schools in Bahrain that, in a video-tape on "spoken English", an "English pub" appeared in one of the situations, consequently most of the viewers left the viewing hall once they saw the sign of beer, as drinking alcohol is prohibited in Islam. He added that such situations usually provoke some to condemn television, or any other aid, and observe them as one of the main factors for conveying "odious habits" to the nation. He added that :-

> " 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 " (Adiby 1984. p. 100)

He regarded such situations as the main reason why some blame religion and view it as a resistive factor to technology. He concluded that Islam does not in fact resist devices used for disclosing knowledge, but when such devices fall into the hands of some inexperienced persons, then negative attitudes developed. He ends with some verses from the Holy Qur'an supporting his claim that religion is an invalid resistance factor to Educational Technology.

However, a number of realities must be noted regarding this point. They are :-

(a) The fact that religion underpins Bahraini education.

(b) That the software presents information. If it presents " non - Islamic " or anti-Islamic standpoints then the software may be rejected and, if this happens often enough, rejection goes also to the "seller" of this approach, the equipment.

(c) The resolution of this difficulty is thus to present very carefully chosen software and to use religious suitability as a key test in software selection.

(2) Academic resisting factors :

Adiby pointed out that teachers in Bahrain are willing to use teaching aids and to apply educational technology methods but are frustrated by the obstacles which discourage them, such as:-

(a) - Lack of specific times for development tasks.

(b) - Media specialists lack insight into the educational performance required.

(c) - University management lack of insight into the necessary organisational structures to support the adoption of Educational Technology.

(d) - Lack of understanding and appreciation by senior staff of any new media.

(e) - Lack of the required material at the right time.

(f) - Fear among some teachers of technology in general.

However, neglecting points such as the above create to an unfavourable image and consequently resistance to Educational Technology.

He further argued that one of the basic reasons for the teachers' resistance to Educational Technology lies in the fact that most education systems in developing countries are designed to accommodate a traditional instructional process, which relies heavily on Teacher-Centered Instruction, which in turn depends primarily on the use of printed materials. In this view any adoption of innovation within such a system can be regarded as "controversial, threatening and difficult to be accepted by individuals at each level of the system ". He further added:

> " 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 effected the overall inertia in the educational institutions " .
>
> (Adiby 1984, P.106)

He argued that authorities in many developing countries are not completely committed to the implementation of Educational Technology, although they usually plead the need for the modernisation of their system.

He continued that social and educational change in most of the developing world is slow compared to the rate of the development in the present rapidly changing world. He suggested that they (the developing countries) have to move faster in respect to their educational systems in order not to lag too far behind. He also recommended that those institutions in which educational technology is introduced must, not only accept Educational Technology in the initial stage , but this acceptance should continue throughout the diffusion of the educational system by all those involved.

He ended by noting that, without the continuing acceptance of such innovation, there is a strong probability of any new media being rejected or not being used to any meaningful degree.

> " 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 ".
>
> (Adiby 1984.p.9)

Adiby in the conclusion of his study recommended that the Educational Technology field should be comprehended and perceived by all those responsible for the dispersal of knowledge

especially teachers and curriculum planners.

He later criticised the courses and services offered by the University College of Bahrain in that they lack a good planning strategy. In examining the development of Educational Technology he said:

> " It seemed that authorities did not carry out the necessary initial planning before its introduction due to this an adequate framework for its organisation has never existed."

Also the misconception as to the nature of Educational Technology by most parties, has further worsened the development of Educational Technology.

In his conclusion, Adiby emphasised the following points which lead to a misconception of the Educational Technology :-

(A) Teaching in Bahrain has so far concentrated on the use of textbook, black-board and teachers' talk.

(B) Teachers in Bahrain in general are unaware of the new instructional techniques.

(C) Teachers in general are unable to use the new equipment.

(D) Teachers are incapable of producing good software.

(E) Teachers are incapable of making proper use of the library, laboratory facilities, community resources and the like.

However, Adiby found that educationalists, teachers, advisors and higher authorities (in the University of Bahrain, Ministry of Education and Ministry of Information) are all strongly in favour of Educational Technology.

A three phases model supported by an in-depth investigation in the field of Educational Technology for the university

education in Bahrain was proposed by Adiby, for the provision of courses and services in this field. He suggested that later development could include a full Educational Technology and Communication Centre, which must be covered by a number of requirements including the following :

a) In planning Educational Technology programmes an instructional design must be followed.

b) Both Arabic and English languages should be used as the medium of instruction for educational technology.

c) The non-use of audio-visual aids and overcoming resistance to the spread of Educational Technology should be given continuing attention.

d) A joint council for Educational Technology with other Gulf States would be worthwhile establishing.

e) The possibility of installing Closed-Circuit Television in the University College of Bahrain should be studied.

f) More time should be devoted to educational programmes by the local television and radio broadcasting stations.This could be planned with the Ministry of Education and the University of Bahrain.

g) Workshops and seminars in Educational Technology should be given considerable attention.

i) Visiting professors and specialists in Educational Technology should be invited to accelerate its expansion.

j) Equipment should be selected according to sound criteria.

k) The budgeting of Educational Technology should be the responsibility of those who administer the system.

l) The processes of Educational Technology programmes should be continuously evaluated.

m) Research in Educational Technology should be promoted.

n) Adequate finance should be allocated for the proper application of Educational Technology.

Finally, Adiby emphasized that educational technology programmes involve short and long range planning, taking into consideration the changing trends and development in educational technology. Such research, he claimed, should be partly based on the results of evaluation. These researches should also attempt to find explanations for identified weaknesses, apart from attempting to apply and integrate new methods, techniques and instructional equipment. Adiby suggested a number of topics and areas of study in Educational Technology which demanded further study, if such innovations were to be fully effective. They are :-

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- Identification of those techniques most suitable for the presentation of particular concepts.

4- The discovery of difficulties and problems involved in using media and material with regard to specific subjects such as Arabic and Religious studies.

5- Studies in learning behaviour. Although such research is an accepted part of psychology, its implication for media

makes it of interest to Educational Technology.

6- Studies of the causes of resistance to the use of media in education and in the means of overcoming them.

7- Studies to improve the organisational 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.

1985

Zubari, 1975, investigated the development and the role of Educational Technology at the University College of Bahrain. Her investigation was aimed to fulfill a number of objectives, they are to:

- Investigate the influence of Educational Technology in the College departments.
- Study the trends towards the application of Educational Technology in various college departments.
- Find out whether the training courses in educational technology are significantly beneficial in changing staff beliefs and attitudes towards learning methods.
- Discover the needs of the college departments in the Educational Technology field.
- Find the most popular media which can be used in teaching different subjects at the college.
- Find which are the least used types of media in the College.
- Discover how often the college staff use the various types of media in their teaching.

- Find out how far the college staff are involved in the selection and purchase of the educational equipment and materials.
- Trace the problems which confront the college staff in the production and utilisation of teaching aids.
- Invite the college staff to suggest the future development of Educational Technology at the UCB from their particular point of view.

Zubari designed a questionnaire for the University College staff and another for the University College students, in order to obtain as many different opinions and views as possible. One hundred and thirty nine copies of the questionnaire, in both Arabic and English, were distributed to the teaching staff in all the departments. Also seventy five questionnaires, different from those given to the teachers, were distributed to the students. The response rate was 50.4% for the staff and 76% for the students.

Zubari revealed that both staff and students had a positive outlook as far as Educational Technology development is concerned. The study showed that, in general, optimistic attitudes towards the evolution and improvement of Educational Technology in the college existed.

However, her study indicated that educational media were under-used in many departments of the College. She suggested that a reform of the courses in Educational Technology, teaching methods in general and other educational technology activities

was urgently required.

Some of her interesting findings from the students questionnaire are the following:-

a) Schools and University College lack equally educational equipment, materials and facilities

b) Some teaching staff in the college lack the qualification to use teaching media.

c) Some teaching staff in the College lack enthusiasm towards teaching media.

d) Some school buildings are unsuitably designed to accommodate teaching media.

e) Teachers lack space for preparing their instructional media.

f) Schools and the University College lack competent technicians.

She finally hoped that the following suggestions and recommendations, together with those suggested by various teaching staff and students during the study, will enable Educational Technology to take its place in every instructional situation and thus become an integral part of instruction in every subject.

1- A need for establishing a resource based learning centre in order to improve the use of Educational Technology at University College of Bahrain (University of Bahrain - at present) and to fulfill the total needs of all departments.

2- The production and the utilisation of specific learning packages for different subjects should be promoted by professional people locally.

3- Reference materials such as books, periodicals and other printed materials in the field of Educational Technology should be made available in good quantities.

4- Research activities in Educational Technology should be promoted in the college.

5- Educational Technology staff should be increased in number.

6- Adequate space for Educational Technology and its allied activities should be provided.

7- The amount of educational equipment (Hardware) needs to be increased in the college to meet the demand for its use, especially overhead projectors, slide projectors and 16 mm film projectors, as they are the most frequently used equipment at the college.

8- The micro computer as an innovative trend should be introduced in the Educational Technology courses.

9- In-service training courses in Educational Technology for UCB staff should be designed and introduced.

Although her results showed that many teaching staff in the University College were unable or unwilling to attend such courses.

Iskander, 1983, investigated the problems associated with the use of instructional media in the intermediate and secondary stages in Bahraini schools.

The objectives of the study were to :-

- Recognise the most general factors which hinder teachers in the intermediate and secondary schools of Bahrain in using

instructional media, regardless of their teaching subject.

- Recognize those factors which hinder teachers in the intermediate and secondary schools of Bahrain from using media according to their specific teaching subject area. A sample of two hundred teachers from both sexes was selected from sixteen state schools, of which a high response rate was ensured from nine intermediate schools (six male and three female schools) and seven secondary schools (two male and five female schools). The sample (200 teachers) further represent forty Arabic language teachers, forty English language teachers, forty Sciences teachers, forty Mathematics teachers and forty Social Subject teachers. The selected teachers were Bahraini teachers only non Bahraini teachers were excluded from this study.

Iskander has not explained on which principles he made his selection of the sample teachers.

An analytical study was approached in order to design the postal questionnaire to be used. Accordingly, Iskander established fifty different possible restraints which he thought may hinder the teachers in the state schools from using media in their instruction.

Using the criterion of self-reporting by 40+% of his respondents, the following 14 items were selected as the most important factors affecting the use of media, they are illustrated according to their rank order in Table 10.

TABLE 10. Most important factors effecting the use of media

Rank	Factor	%
1	Schools lack the basic equipment and tools to assist in media production.....	74.47
2	School curricula are overloaded.....	72.34
3	Teachers' schedules are overloaded.....	60.0
4	Lack of instructional media (do it yourself) manual for the production and use of media in the classroom..	58.70
5	Time allocated for teaching a particular syllabuses is very tight.....	53.19
6	Schools lack media laboratories.....	51.0
7	Lack of locally produced instructional materials, especially films and slides.....	48.0
7	Lack of suitable and up to date instructional films..	48.0
9	Lack of suitable physical facilities in the classrooms for effective use of media.....	46.94
10	Lack of hardware, especially projectors.....	45.85
11	Lack of specialised technicians.....	45.45
11	Lack of knowledge about the media service available to the teachers.....	45.45
13	Lack of more advanced instructional materials.....	43.48
14	Lack of resource centres.....	41.0

Teachers were also asked to add any additional factors which they believed might hamper them from using media in their instruction. The following factors were among those

mentioned by the teachers:-

1- There are no specially designed media for teaching Arabic.

2- Most of the media available for English language teaching are unsuitable to use because of lack of servicing.

3- Lack of funds for media servicing and maintenance.

4- Lack of language laboratories in the schools.

5- Lack of blackout facilities for film projection.

6- Lack of projection microscopes.

7- Teachers' internal resistance to using media.

8- Teachers' lack the knowledge and the understanding towards the concept of Educational Technology.

The third part of the questionnaire asked the participants to suggest possible solutions to overcome the problems referred to. The following suggestions were gathered:-

1- Increasing the amount of the most necessary equipment in schools.

2- Supporting audio-visual section in schools financially.

3- Training teachers and technicians to be of good standard in Educational Technology.

4- Training students in the college of education in the design and production of local audio-visual materials.

5- Fostering the design and production of locally produced hardware, i.e overhead projectors, opaque projectors, etc.

6- Training teachers in the production of media software such as slides, film strips, transparencies, models, posters and display boards.

7- Training teachers in operating and maintaining equipment,

such as projectors video-recorders and cameras.

8- Establishing a comprehensive resource library in schools with a variety of equipment and materials.

At the end of his study Iskander 1983, suggested a number of areas for further investigation, they are:-

- A similar study for the primary stage and another study for all the stages of industrial branch education. It is appropriate to mention that the present study meets most of this recommendation .
- Conducting studies on the use and the evaluation of locally produced audio-visual media.
- Conducting evaluative studies of the programmes of Educational Technology in the University College of Bahrain (University of Bahrain) and their role in the preparation of teachers for the secondary stage.
- Conducting a study to evaluate Educational Technology programmes for the class teaching scheme of the University College of Bahrain (University of Bahrain).
- Conducting an exploratory study to investigate teachers' attitudes to the use of instructional media in the primary, intermediate and secondary schools in Bahrain.

The obvious limitation of Iskander's study lay in the distribution of the questionnaires and also the method of selecting the sample.

As was mentioned, the researcher excluded the non- Bahraini teachers which represent the overwhelming majority of the teaching force in the industrial secondary branch; for example

the total number of general and industrial secondary stage teachers in 1987/88 was 433, of which 339 (78.3 %) were non-Bahraini. Also the non-Bahraini teachers, in the general secondary branch education in the same year, represented 46.9% of the total teaching force in this branch. This elimination of the non-Bahraini teachers could represent a possible source of bias as the non- Bahraini teachers may have been heavy users of media.

Another matter which may also affect the study's results, and which is also related to the sampling technique, is the selection of teachers who teach certain subjects only (Arabic, English, Sciences, Mathematics and Social Subjects). Teachers who teach other subjects were again excluded.

Bokhalaf (1985), investigated the development of school resource centres in Bahrain from 1973 to 1985. He used a three-part questionnaire, aimed at 170 teachers from all Bahraini schools and also 34 headmasters, chosen from primary, intermediate and secondary schools. All were questioned about different aspects of Educational Technology in their schools.

His main conclusion was that before 1973 Audio-Visual aids were not incorporated in the school curriculum. He moreover clarified that a survey in 1973 (presumably an official survey) showed that schools in Bahrain were very poor in the acquisition of audio-visual aids both in the quality and in number.

Additionally, the improvement in the production, provision and utilisation of audio-visual resources in Bahrain followed the establishment of an Audio-Visual Aids Centre in 1974 (now

the Educational Technology Centre). For example the total number of items of equipment in 131 schools was only 182 in 1973. This number increased to 2,851 in 1974 i.e. a 1.56% increase.

However, some specific points were gathered from analysing the teachers' questionnaire, they are:-

1- That 96 teachers (56.5%) pointed out that the size of the schools' library buildings and their spaces make them unsuitable for student activities (a revised school building design was suggested, to allow more flexibility).

2- Nearly half of the teachers (49%) suggested that a professional librarian and a full-time audio-visual co-ordinator are needed for every school to assist teachers in their media usage.

3- 112 teachers (65.8%) stated that schools lack both printed and non-printed materials. They further suggested the necessity for the Educational Technology Centre to obtain more than one copy of films for loan. Also 121 (71.2 %) of them asked for more projectors allowing more teachers in a given school to use them.

4- A number of teachers (20.6%) suggested that both school library and school audio visual units should increase their efforts in informing teachers of what is published or what is available for the teachers to use, via various means, such as newsletters and a periodical bibliography. Some also suggested that teachers should be given access to school library and audio-visual units after school hours.

Headmasters, in their turn, suggested that a larger budget should be allocated for resource purchase and other audio visual necessities.

A need for a better and comprehensive planning procedures for the implementation of a resource centre is also suggested by headmasters along with the need for a careful preparation of resource centre personnel and a good media selection formula.

Based on these findings, Bokhalaf recommended ways in which school resource centres in Bahrain could be developed in order to provide integrated and wide media services for the teachers.

A- The adoption of the "learner/user centre" concept and not the "book media-centere". The emphasis should not only be on how items are to be stored, processed and classifiied, but on how to make these media accessible and available for the users at the right time.

He also recommended that resources (book and non-book) should be integrated and treated evenly.

A resource, centre therefore, should incorporate all types of software and hardware. He further said :

> " The integration of resources of all formats in one area facilitates the task of users (teachers and students) as they can locate materials in one place.... It also allows all users to have access to a large amount of learning materials and increases the quality of the learning experience for all users ".
>
> (Bokhalaf, 1985 P.95)

However, his study indicated that only 12% of schools are already adopting this "Resource Centre" approach in response to

the Ministry of Educations' objective of spreading of the new approach to all schools. However, 26 (76.5%) of the headmasters surveyed and 127 (74.7%) of the teachers were in favour of the resource centre system.

He then strongly recommended that all schools should be encouraged and guided to espouse the "Resource Centre" approach and that a comprehensive plan to administer total media programmes be adopted.

B-The resource centre building should be designed in such a way as to fulfill the demand of the "Resource Based Learning" concept. Consideration should be given to different modes of instruction, such as independent, individualised as well as to a small group learning mode. Enough space has to be allocated in the new resource units in the schools and different arrangements made if resources are to be used effectively.

He further recommended the importance, in planning and designing new school buildings, for resource units to be in-corporated in the overall design and plan of the school from the outset.

He suggested that the size of a school resource unit should be based upon the following principles:-

- The aims and objectives of the resource centre.
- The number of students who are going to make use of the centre.
- The need for adequate personnel who have the time, expertise and interest in Educational Technology in order to allow effective organisation and management of resources in the schools. In this regard he suggested that the Ministry of

Education should draw up a clear plan for the professional and academic preparation of resource personnel, either inside Bahrain with the co-operation of the University College of Bahrain (University of Bahrain) or in colleges and universities abroad.

- The selection of material for schools should be based on their needs and according to the specific standards required.
- Specification and the amount of equipment to be distributed to schools, have to be based on school size, type of subjects offered and the range of software available.
- That an information network between schools, the educational technology centre and other local agencies should be established. The catalogue of the school resource unit should be uniform in arrangement. It should contain a complete reference to the resources available within the school, so that they can be easily assessed by the teachers (This, of course, could be readily done with the aid of a suitable computer network).

He emphasised that there is a need for resource centre advisors. They would help to ensure the updating of information and the exchange of ideas in the field of media organisation and management.

Al-Abed (1978), the former media production expert in the Arab States Educational Technology Centre in Kuwait, following his visit to Bahrain in late 1970s in an educational technology related tour, revealed in a lengthy article, " Educational Technology in a Changing Society " (Alabed 1978)

that most developing countries, and some developed countries as well, face severe educational problems, such as the expansion in the number of students which increases the demands on education. This expansion in the number of pupils is not matched by the number of schools available.

Another problem is the lack of educational funding and expenditure to meet the needs of the ever-increasing number of pupils.

The third problem revealed by Al-abed was the lack of qualified and trained teachers in developing countries in general and in Arab countries in particular. This delayed any the expansion of education.

He also stated that the present structures of educational administration in these countries are outdated, and unable to face the problems associated with the rapid change in science and technology in the advanced world.

Lastly, Al-Abed criticised the school curriculum in the developing countries as outdated, invalid and not fulfilling present requirements.

The Solutions:

In an attempt to overcome these problems, a large number of educationists in many countries had tried different approaches. They might attempt to improve the training of teachers or they might try to overcome the over-crowding of schools by using a dual school system or they might seek to use equipment more efficiently in an attempt to develop their curriculum. But in his

view, all these possible solutions are temporary and never solve the problems utterly.

He reported that a number of authorities and educationists in both developing and developed countries suggested the application of an Educational Technology approach, specifically a systems approach, to improve their education. He further pin-pointed the most common confusion in the definition of this approach. Thus, Educational Technology using a "Systematic approach", (as is explained in Chapter Two) necessitates the involvement of teachers, pupils, administrators, concerned with budgeting and cost accounting, educationalists and others who are able to offer any educational service in this field. In this way, he suggested, Educational Technology is a sub-system of the total educational system.

Educational Technology as a systematic approach can have very beneficial results when used by countries who wish to reorganise their educational system through changing methods of teaching, curricula, teachers roles and student learning outcomes.

Lastly, he explained in more detail the required steps for planning and implementing an educational technology system under the following headings:-

1- Specification of objectives and priorities.
2- Gathering information: students, teachers, school building, training and equipment.
3- Resources: funds, manpower, equipment and building, and programme materials.

4-Methods and alternatives available.

5- Formulating curricula.

6- Arrangement and utilization.

7- Feedback and evaluation.

Zaher, in his article (1979), wrote that there is still a common accusation that our educational systems are run by unsystematic methods. This complaint is also valid in developed countries to a certain degree. He emphasised that all the development efforts made in the last thirty years (now more than forty years) failed to accomplish all their intended objectives. They only had some superficial effects on the structure of the educational system, or on some educational practices.

Zaher argued that, although the reasons for this failure are not easy to specify, it is quite possible to trace some common principles which led to this failure. These are:-

1- Most educational innovations are associated with a huge exaggeration for what they may possibly offer or solve, but that the real practice proved that the educational outcomes where far behind our expectations.

This creates a mistrust both inside and outside the educational community. Zaher revealed that, for example, Skinner in his article "The art of teaching and the science of learning" in 1953, offered programmed learning as being a magic formula for overcoming all our educational problems, but the truth is that the remit of programmed learning is still very limited.

2- Most educational innovations started from an insecure base which permit many unqualified persons to become involved in educational technology and consequently create what is known as "Technological pollution" i.e the production of weak programmes, thus increasing the mistrust in the effectiveness of these innovations.

3- The innovation and the development circulated most of the time around the conventional educational system, under the sovereignty of its philosophy, thus it remains unable to overcome its many problems. This led in most cases to the use of the innovation to support the old system rather than to bring about productive change.

4- Most educational innovative efforts have been partial in their nature. In other words, efforts have been focussed on developing each element of the education system separately. For example, designing a training course in methods of teaching, the use of modern media, the development of content, evaluation and so on, rather than total educational systems.

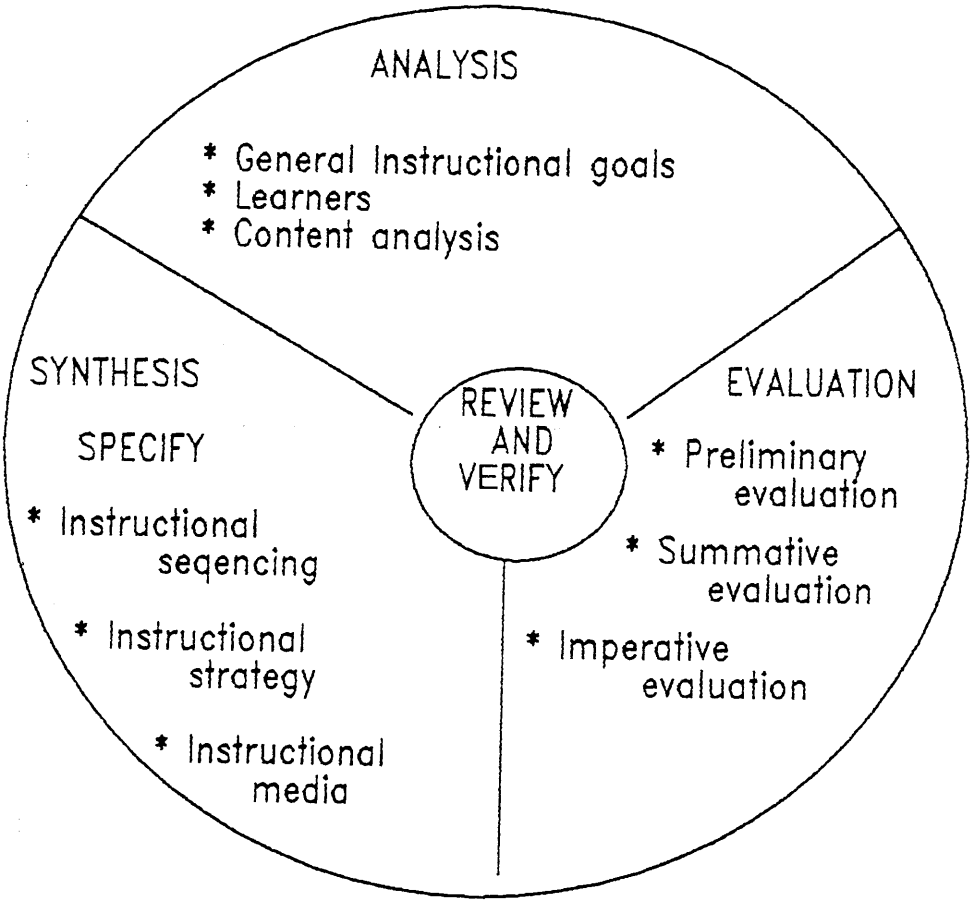
Using the systematic approach Zaher concluded by suggesting the application of the well-known "Instructional Development" model in which many important components are integrated and interrelated with each other. Knirk, F. and Gustafson, K. (1986) note that this model is "a systematic procedure for solving instructional problems" and:

> "is frequently called an instructional development model....Similarly, instructional problems often involve defining the problem, deciding on a course of action, obtaining personnel needed to develop objectives, writing scripts, taking photographs, developing graphics, and testing the solution to see if it (works)" .

However, there are many different types of Instructional development models designed by different individuals, some for educational purposes, such as Jerrold E. Kemp's model and the Unesco ISD model, whilst others are designed for industrial purposes, such as " Criterion Referenced Instruction " (CRI), or for military use such as the "Interservice Procedures for Instructional System Development Model" (IPISD) developed by U.S. Army.

Nevertheless, Zaher offered his own version of the instructional development model which consists of three main stages, each including a number of elements and activities.(see figure 13)

Figure 13. Instructional System Development



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CHAPTER FOUR

4. The dilemma of Educational Technology in Bahrain

4. The dilemma of Educational Technology in Bahrain

During the past fifteen years or so, the Ministry of Education has granted millions of Dinars to finance educational reforms of different types. e.g. Curriculum development, teacher training, school buildings and improvements of all kind in schools. Also there has been much expenditure on the new technologies aimed at improving the teaching/learning process (Hebail, A. 1985).

However, there is a fundamental problem, in that the developments have not taken place as an evolution of the existing system and thus have not "taken" effectively.

A major obstacle to the introduction of Educational Technology into education in the researcher's opinion is the shortcoming of the educational system itself, particularly its curriculum planning practices, which result in a lack of incentives for teachers to modify their teaching methods. At present the educational process takes on the superficial image of Educational Technology - but not its essence.

The central aim of the introduction of Educational Technology into education is to change existing educational procedures for more effective ones.

For Educational Technology to be successful it should be regarded as a combination of good resources and systematic improvement of methods of teaching.

This vital combination is usually disrupted by animosity to Educational Technology, both from teachers inside schools and

dministrators in the Ministry of Education.

It is relevant to question how far a school in Bahrain is ready to change, given the context in which it is placed.

There is internal resistance to educational technology by some teachers who see technology, of whatever type, as a threat. For example, seeing a micro-teaching video tape as threat not only to their status but ultimately to their existence.

> " The educational system is a labour-intensive industry built around the live teacher. The power of many universities resides with the faculty as opposed to central administration. This power alignment is threatened by the introduction of capital-intensive technology.....Technology is resisted in education because it builds up new power centers and weakens traditional ones."
> (Hooper 1971 P.412)

Utilizing Educational Technology as an integrated and systematic discipline, necessitates changing the conventional role of teacher. The cherished image and autonomy of some teachers may be lost in pooling resources and queuing for mediated resources.

Consequently Educational Technology has been implemented with the limited use of some audio-visual media, as a means of enrichment only, rather than being integrated into the structure of the instructional process. If the methods and materials of Educational Technology are to be developed their role must be considered at the curriculum planning stage.

A logical consequence of this is that Educational Technologists should be part of a planning committee, and, indeed, might have to become a planning/development agency.

A second element in the problem is that the procedure of curriculum development and decision making is responsible, in one way or another, for the weakness of media implementation in school. Decisions about curriculum content in all types of schools are the responsibility of the directorate of curricula. Subject matter specialist, representatives of school principals and teachers usually participate in the process through the High Curricula Committee and the Specialized Advisory Committee. An analysis of curriculum development procedures in Bahrain, reveals that not enough thought is being given to ways of organizing curriculum content in practice and to the possible methods of teaching available to the teachers. Curriculum planners, unfortunately turned the curriculum debate towards issues of control and decision making, with relatively little attention being given to what should be taught and ways of teaching it. Curriculum development procedures do not give an equal role to different categories of partners in the educational enterprise. It is very important to create a balanced partnership, that will include parents in collaborative structured decision-making. Educational technologists are seldom asked to participate in curriculum planning meetings. Audio-Visual media are always regarded as a supplementary matter and remain afterthoughts. The poor image of the media coordinator is apparent, not only in curriculum decision-making meetings of the Ministry of Education, but in most educational and training institutions as well. Thus the present researcher was the audio-visual coordinator in one of the only in-service

teacher training institutions for almost ten years (1973-82) and recalls, how most educational tutors tended to make their own teaching decisions in the absence of the audio-visual coordinator. His involvement was based on the assumption that he was a good craftsman, helping in drawing charts, preparing and setting up overhead projector and transparencies, supplying 16 mm films and fixing plugs but was not to be involved in any real decision-making related to the implementation of audio-visual media.

Audio-Visual specialists are inevitably associated in the minds of tutors at all levels with machines, tools and electrical instalation and not with educational decision making.
The content of the curriculum is decided first and then the role of films, audio tapes, video tapes, overhead projector and so forth is considered. Most subject specialists often misunderstand the meaning of the word 'media'. The most important media, - teacher, chalk board, charts and textbook - are hardly recognised as media. Thus when curriculum planners debate the availability of media to resolve a certain teaching problem, they seldom recognise that conventional media, teacher, chalk board, charts and textbook can be supplemented by newer media. For example the chalk board and overhead projector are often used for the same task; but the overhead projector being pre-prepared is quicker and more effective in accomplishing the task. As a result, educational technology ends up doing little to improve the instruction and upgrade the quality of education.

Another factor in the slow advance of Educational Technology in the writers' opinion is the quality of software used in schools. From an educational point of view, the local production and organisation of instructional materials has a number of advantages for the teaching/learning process. Locally produced video programmes will meet the needs of the community which uses them. Although most software used in schools is made locally, the majority of these materials are poorly designed overhead transparencies, unclear maps and unprofessionally produced video programmes and this despite the existence of the reasonably equipped central " Centre For Educational Technology ", with its television studio where expert advice and assistance is available to help the teachers achieve their objectives. Most commercial software materials are unsuitable for the Bahraini educational environment, especially the 16 mm and video films. Teachers are thus driven to use either unsuitable ready-made materials or poor locally produced materials.

Many 16 mm films remain unsused simply because they are not specifically produced for Bahraini schools and do not suit their needs.

Much of the schools' initial enthusiasm for some hardware is lost, because they obtained equipment long before suitable software was made available; for example computers appeared in schools without specifically-made programmes being made. Language laboratories some years ago had a similar fate.

Another important cause of the sluggish progress of educational technology in Bahraini education is the absence of a viable scheme of in-service training for teachers. Growth of educational technology is closely associated with growth in the understanding of the basic process of education, especially those researches and studies in teaching methods and learning theories. Lacking knowledge of these processes, many teachers resorted to trial and error theory, which is dangerous, or leads to frustration. Even when an in-service training scheme for teachers has been provided, teachers seldom employed their experiences in the classroom. The majority of teachers complain about the accessibility of software, and films are not always available at the times when they want them. Teachers also complain about the lack of projectors and other hardware in their schools and this has given them yet another appropriate excuse not to use media.

The rigidity of teachers' timetable and their heavy class load have also hardened their resistance to the use of media. School administrators should realise that a teacher with a class load of 20-26 periods per week plus some extra curricula activities, finds it difficult to allocate time to borrow films from the relatively remote central " Centre For Educational Technology ".

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CHAPTER FIVE

5. The Method

5. The method

5.1. Introduction:

The aim of this chapter is to show and explain the methods by which the hypotheses put forward for the survey were investigated. Descriptions of the instruments used to collect the data are presented. The general aim is to put the data collection techniques for the study in context by describing the method used in the investigations.

5.2. Nature of the study

The study was necessarily exploratory, but also it tested a number of hypotheses about Educational Technology, the availability of software and hardware, needs, use and utilization of teaching media among teachers, media selection, etc. The data will be used to provide a detailed description of the state of Educational Technology in Bahrain and to test the validity of the hypotheses.

5.3. The major objectives of the study

1. To investigate the usage of Educational Technology in schools of Bahrain.
2. To investigate the reasons for teachers' refusal to use media.
3. To determine the academic background of the teachers in Educational Technology.
4. To measure teachers' abilities and professional background in selecting, preparing and using media in the classroom.

5. To asses teachers' views towards Educational Technology.

6. To determine the problems and barriers associated with the implementation of Educational Technology in teaching.

7. To establish suitable criteria and instruments for the assessment and judgment of the implementation of Educational Technology in Bahrain.

8. To outline some possible ways to improve the usage of Educational Technology in the schools.

9. To clarify the background of teachers who successfully implement Educational Technology.

5.4. The major hypotheses of the study

1. Educational Technology is not adequately implemented in the educational system of Bahrain.

2. Schools lack the specialised personnel, equipment (hardware) and materials (software)

3. Many teachers are not acquainted with the latest development in Educational Technology, and have not access to concepts, values and trends in media production and use.

4. There is a lack of agreement on basic specification and criteria for the selection and use of Educational Technology.

5. Some teachers lack the understanding and the ability to apply innovation in Educational Technology.

6. Teachers lack the knowledge of self evaluation and feedback in their own use of media in the classroom situation.

7. Educational Technology is often used infrequently because most teachers do not plan lessons systematically.

8. Pre-service and in-service training in Educational Technology are both insufficient and not as effective as they might be.

9. Better arrangements for the use of resources by teachers are necessary.

10. The central "Educational Technology Centre", requires further development, in both its policy and practices.

11. Schools have insufficient services and lack financial and technical support from the Educational Technology Centre.

12. Recent educational equipment such as video recorders and cameras are not fully exploited in education.

13. The computer is not yet used in education to assist learning.

14. Resources are not systematically classified and indexed in the schools and in the Educational Technology Centre.

15. The disparity in the implementation of Educational Technology between individual teachers may be attributed to :

    a) Personal characteristics such as, sex, age, academic background, experience and training.
    b) Subject taught.
    c) Type of school: primary, intermediate or secondary.
    d) Lack of resources.

5.5. Instruments:

In order to collect data for the present study a combination of data collection methods were used, thus allowing some cross-checking of results. The methods which were used were: a questionnaire, Interviews, Syllabuses, Data collected from school administrators and various printed materials. The opportunity was taken to visit the schools when administering the questionnaire.

5.5.1. The interviews:

Interviews were used as the first method of data collection, as a supplement to the questionnaire and to help determin the quality of the questionnaire items. Three interview schedules were designed. They were aimed at :

a)- Subject Specialists.

b)- Teaching and non-teaching staff in Educational Technology.

c)- Senior administrators in the Ministry of Education.

Since the views of those personnel involved in decision making and those personnel working in the field of Educational Technology are important to the purpose of the present study, it was decided to carry out exploratory research in the form of semi-structured interviews with them in an attempt to make available data about prevailing problems of Educational Technology in schools. These interviews also provided evidence for the framing of questions for the teachers' questionnaire.

A total of twenty three interviews were carried out with senior administrators, academic and non-academic staff in Educational Technology and Subject specialists. Each interviewee was interviewed in private for about one hour and was encouraged to answer a number of questions about many aspects of Educational Technology in schools. A semi-structured interview schedule had been prepared beforehand and was used as a starting point. The interviewer adopted a permissive and non critical role but, at the same time, developed opportunities to probe the various areas.

The twenty three interviews included three categories of interviewees: two senior administrators, eleven subject specialists and ten educational technology staff, both teaching and non-teaching members. (Table 11)

Different interview questions were designed for each group. A copy of questions for each category is included in annexe 14a, 14b, 14c, 14d, 14e, 14f.

Because of the wishes of those interviewed, the interviewer

was able to audio-tape only one interviewee which was later transcribed.

TABLE 11. Distribution of the interviewees

Classification of the interviewee	Institute
A- Senior administrators	
- Assistant Under Secretary for Educational Planning and Information.	(M.E.)
- Director of Curriculum.	(M.E.)
B- Educational Technologists	
- Chief Advisor for Educational Technology Centre	(M.E.)
- Head of Centre for Educational Technology Centre	(M.E.)
- Incharge of media production	(M.E.)
- Assistant Professor in Educational Technology	(U.B.)
- Assistant co-ordinator for classroom teaching scheme	(U.B.)
- Graduate Assistant in Educational Technology	(U.B.)
- Graduate Assistant in Educational Technology	(U.B.)
- Educational Tutor in Educational Technology	(U.B.)
- Technician in Educational Technology	(U.B.)
- Librarian "Media Resource section"	(U.B.)
C - Subject Specialists	
- Arabic Language specialist	(D.C.)
- General Sciences specialist	(D.C.)
- English Language specialist	(D.C.)
- Social Subjects specialist	(D.C.)
- Class Teaching specialist	(D.C.)
- Mathematics specialist.	(D.C.)
- Mathematics specialist	(D.C.)
- Physical Education	(D.C.)
- Practical Subjects	(D.C.)
- Home Economics	(D.C.)
- Art Education	(D.C.)

M.E. = Ministry of Education
U.B. = University of Bahrain
D.C. = Directorate of Curriculum

5.5.2. Questionnaire:

> "Research is a method of study by which, through the careful and exhaustive investigation of the ascertainable evidence bearing upon a definable problem, we reach a solution to the problem."
>
> (Hillway, 1964)

To collect data on the characteristics of those interviewed, their qualifications, initial and in-service training background, their present status, training requirements and their problems in the utilization of instructional media, a postal questionnaire was designed and distributed to a sample of teachers. The study was not laboratory based; it collected data from the "real world" of the population under investigation. As far as possible, those methods which depend on complex statistics for their interpretation were avoided.

The questionnaire was pre-tested with a small sample of 30 teachers who were on an In-service course in the University of Bahrain. The pre-test resulted in the revision of some of the questionnaire items. It was noted that the majority of the teachers taking part in the pre-test were not fully aware of some of the terminology used, such as "Educational Technology", "Software", and "Hardware". It was also noted that there were too many items in the questionnaire, and it took too long to complete. Accordingly, the questionnaire was further revised to deal with these problems; a number of questions were altered and deeper understanding of the way teachers reacted was gained. The pre-test was also useful for the resercher as a training period

in the art of asking the questions.

The questionnaire was used as the principal means of investigating what is happening in the schools and how teachers respond to Educational Technology. The purpose was to explore teachers' views on Educational Technology: what they know of it, the extent they had participated in it, what they thought its function ought to be and what value they attached to it.

Bader, (1979) has identified 14 common difficulties, which must be avoided in making full use of a questionnaire. They include:

- Error from the investigator (interviewer effects).
- Un-systematic design of the questionnaire.
- Bad selection of the questionnaire items.
- Long questionnaire (time consumption).
- Investigator bias.
- Sampling errors.
- Low number of respondents.
- Bad management in distribution and the collection procedures.

Knirk and Gustafson (1986) stated that "questionnaires are self-administered surveys consisting of sets of questions. They are inexpensive to construct, but the type of information they provide is often limited, biased, and incomplete".

As far as possible, the researcher tried to eliminate these sources of weakness in the three prime stages of the study; the in design stage, by making it as simple, comprehensive,

understandable, diverse and unbiased as possible; in the conducting and in the filling-in stage by giving the respondents the right idea about the nature of the study, asking them to be as honest, frank and true as they could and by including some questions in a different way. Furthermore, the researcher tried to explain to groups of teachers every individual query raised, making sure that they understood all items of the questionnaire. Writers on research methods, refer to two main sources of error in questionnaire research:

(A) Sampling faults:

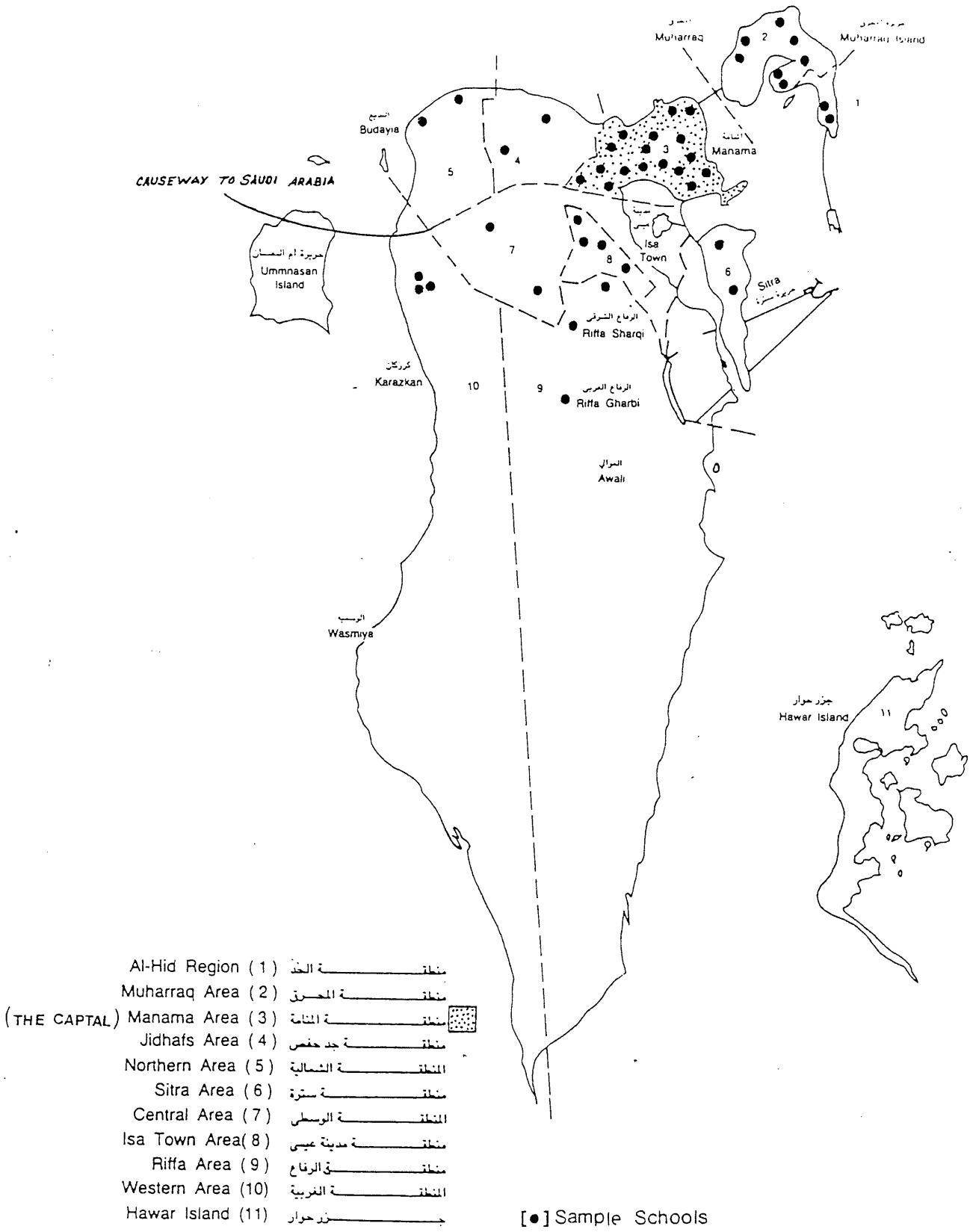
This fault may be a result of not identifying the "right" population to be investigated. This study involved 468 state school teachers and 22 private schools teachers: together they represent 490 teachers, almost (10%) of the total teaching force of 4,967 in 1986-87. Further they represented 29% of the total teaching population in the sample schools, (that is 1,675 teachers). With this percentage (29%), an adequate sample of teachers was established, and this of course narrowed the margin of error.

A three-stage sampling process was devised, in which the first stage consisted of the selection of geographical areas of Bahrain (figure 14) and the second, the selection of schools from within selected geographical areas (annexe 15a, 15b). Thus about 10% of all teachers were approached .

Before the selection was made, Bahrain was stratified into villages and city areas, schools were stratified by type, and

size, and teachers were stratified by their backgrounds and sex. Both Bahraini and non-Bahraini (expatriate) teachers were represented. They were heterogenous in age, years of experience, subjects they taught and qualifications. Various other measures were employed to ensure that each of the groups was adequately represented in the final sample and to ensure that the standard errors of sampling were as small as possible.

Figure 14. Map of Bahrain



A sample of 490 teacher in 44 schools was chosen. (TABLE 12)

TABLE 12. Number and percentage of respondents, by school type.

Type of school	T.teacher	Sample	Respon.	% of population
Primary + private	2009	201	182	9
Prim./Inter.	897	91	82	9.1
Intermediate	634	96	84	13.2
Inter./Sec.	119	15	11	9.2
Secondary	1308	165	131	10.0
Total	4967	568	490	10.2

$$\text{Response rate} = \frac{490}{568} = 0.86$$

Thus, by careful design it was possible to assemble a sample which is reasonably representative of the schools in Bahrain. Furthermore the actual response rate (0.86) was high; this gives further validity to the results. The exact number of teachers who responded to the questionnaire and their schools can be seen in (annexe 15a, 15b).

(B) The response faults

The second major source of error, response faults, occur when respondents misinterpret the questionnaire, and this source of error was avoided. The researcher checked all responses with his colleagues and with the school headmasters who carried out the distribution and as far as possible with the respondents, as is shown later.

The use of questionnaires allows for later studies to use the same instrument. It also allows for collecting as much data as one wishes in a single procedure without loosing the major aims of the study.

5.5.1.1.The design of the questionnaire:

The questionnaire consists of 24 major questions, each contains sub-divisions, making a total of 92 questions, including two open response items which asked the teachers to list certain information; one to mention the three media they use most frequently in their teaching, and the other to suggest some points which may lead to an improvement of the services of the Centre for Educational Technology. The remainder were structured questions; possible answers were supplied and coded and the respondents were asked only to tick or cross the answers that applied to them. In addition, each teacher was given the opportunity to add any information or views relating to educational technology. It was estimated that for the whole questionnaire to be answered a maximum 25 minutes was needed.

The original draft of the questionnaire was written in Arabic, the respondents' mother tongue. It is hoped that the English translation is sufficiently accurate to avoid any misunderstanding by English readers. A copy of the questionnaire in both Arabic and English is including in (annexe 16a, 16b).

The questionnaire included questions on the following aspects:

1- The personal characteristics of individual teachers, which includes: age, type of school worked in, the principal subject

taught, highest academic degree or qualification, the number of years in service, experience of Educational Technology.

2- Data on Educational Technology proficiency, and problems.

3- Data on the teaching background of the teachers in Educational Technology including pre-service or in-service training.

4- The present and the future needs of training in the production and utilisation of instructional media.

5- Awareness of advances in the field of Educational Technology and the various methods used for this purpose.

6- Importance and accessibility of various instructional media.

7- Satisfaction / Dissatisfaction with the available services in Educational Technology.

8- The perceived importance of various instructional media.

9- The teachers' procedures in solving the problems associated with instructional media usage.

The questionnaire items are discussed in more detail later.

5.5.1.2. Distribution of the questionnaire:

The questionnaire was sent to the headmasters and headmistresses of the schools in January 1987, with official covering letters from the researcher's director of studies, the researcher himself, the directorate concerned in the Ministry of Education and from the head of education department of University of Bahrain; a copy of each is included in (annexe 17a 17,b 17,c 17d).

Since the distribution procedure was carried out officially, through the Ministry of Education, an excellent response

was obtained. Out of 568 copies distributed, 490 (86.3%) were returned.

5.5.1.3. Limitations of the questionnaire:

(1)- The major limitations were those associated with the terminology of some questions. e.g. later analysis showed a poor grasp of some of the terms used in the questionnaire by the respondents.

(2)- It must be realised that as a result of the method of distribution, the teachers' response must be considered carefully, for it might be "favourable" (i.e. what they think officials want) rather than "true".

(3)- Another possible limitation of this questionnaire lies in the probability of not giving a very accurate picture of teachers' opinions, due to what may be called "personal amiability". This is a reflection of the social background of Bahraini teachers, where personal relations play a role in the nature of their responses to the questionnaire. Related to this is the fact that the writer of the questionnaire was himself an educational technology tutor for the Ministry of Education (In-service Teacher Training Centre), for more than seven years, and an instructor in Educational Technology in the University of Bahrain at the time of the distribution of the questionnaire.

5.5.3. School Administration:

Information on the number of teachers in the schools, status of the teachers and the students, the availability of Audio-Visual equipment, the support schools provide for the teachers in Educational Technology were gathered from the school administrators, simultaneously during the school visits for the distribution of the questionnaire. The means used were a list of points submitted orally to the school headmaster or his deputy. However, the fact that this information reflects an official point of view was taken into consideration in the analysis.

5.5.4. Printed materials:

During the school visits for the distribution of the questionnaire, an attempt was made to collect printed materials such as books, periodicals and official documents relating to the use of media in schools. Data about schools which were not visited and were not included in the sample, together with materials collected from the Ministry of Education were also analysed.

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CHAPTER SIX

6. Participants (Population)

6. Participants (population)

Data was collected from three types of teachers: primary, intermediate, and secondary. Each of these groups was divided into males and females, as co-education is not provided in Bahrain. However a detailed description of each type of teacher is given in the following pages. Lists of the schools' names are presented in annexe 15a, 15b.

6.1. Primary stage teachers. (PST)

Historically, Bahraini primary school teachers are those who have not been to universities, but to either a Secondary Teacher Training School (*), General Secondary School, or to Teacher Training Institutions for a two years course after leaving secondary school (**). These local qualifications used to allow them access to a teaching career in primary schools and sometimes to intermediate schools especially, those who have graduated from Teacher Training Institutions.

The salaries of primary school teachers are lower than those of intermediate and secondary school teachers. Although they work for 28-30 hours per week, their teaching methods and academic ability were far below the level required.

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* Secondary Teacher Training School discontinued in 1964, and replaced by " Teacher Training Colleges " in 1966 and 1967.

** Teacher Training Colleges were discontinued in 1978 and replaced by the establishment of University College of Arts Science and Education in 1978.(Hebail 1985)

To cater for the needs of modern primary schools, those under-qualified primary school teachers who had only a Secondary School Certificate were given in-service training courses lasting for two years, under a teacher training plan provided between 1973 and 1979. However, until the beginning of 1980, primary school teachers have not made much progress in the profession.

Adiby, (1984) in his unpublished thesis, when refering to primary teachers, noted that:

> " .... 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."
>
> (Adiby, 1984 p.387)

Since the teacher is the prime factor in the success of education, it is abundantly evident that general professional training, both initial and in-service, are a crucial resource which leads to rising standards in the profession as a whole. Thus we might expect the proper application of instructional media should help to improve the teaching situation.

In Bahrain until very recently, both the initial and in-service training of teachers were inadequate. For example, from 1948 until 1964 only in-service evening courses, were provided and these emphasised the academic side more than the educational or professional preparation of a teacher (Hebail, A.A.1985). Since Teacher Training Colleges were established in 1965 for males and in 1967 for females, those in charge of

education have constantly tried to improve the quality of the teacher, but unfortunately the training programmes were still not as efficient as they should have been. At the beginning of the 1970's, the Ministry of Education felt that the curriculum of both colleges (which depended on what may be called a "knowledge based curriculum "), which prepared the student to teach the content of a number of subjects in a particular area, was inadequate for preparing teachers to cope with the needs of children in todays' ever increasing and changing society (Al-Moosawi N.1985).

Adiby, (1979) stated that :

> " It seems that the colleges have not succeeded in establishing the intellectual credibility of progressive education in the Bahraini context and thus the teacher is left susceptible to attacks from society. Teacher education thus demands a firmer and more advanced policy by the authorities".
>
> (Adiby, 1979 p.78)

However, one would not expect a secondary school leaver, even with one or two years in-service or pre-service training, to become a qualified teacher with all the skills and knowledge he will need during a professional career, especially at a time of rapid change in educational aims, methods and techniques. It is obvious that those teachers who are underequipped and insecure in their specialist knowledge are unlikely to offer a stimulus or the example of personal enthusiasm which might arouse their pupils efforts. Even when teacher training came under the control of the former In-service Teacher Training Centre in 1973, the outcomes were not very satisfactory and did not match

expectations. The Ministry of Education felt that the two years in-service system was simply not adequate to provide sufficiently qualified teachers for all types of school: primary, intermediate and secondary.

At a time of educational change, teachers must have all possible support. They, and those who provide their training and education, must cooperate closely in a continuous search to match provision to needs. Accordingly, the intention in the past few years was to give priority to providing in-service training courses. The Ministry of Education believed that there should be a much closer relationship between training institutions and the teaching profession in the field of in-service training to enable the teacher to draw on support of different kinds, and for varying purposes - especially in the form of multi-media resources. It has also believed that students of good quality and potential can be expected to achieve a high level of academic performance in one or more subjects as well as acquiring the professional skills of teaching.

To improve the situation in primary schools, the Ministry of Education suggested that the minimum required level of qualification for entry to the teaching profession should be the degree of Bachelor in Education (B.Ed). It has also suggested that a class teaching system (in lower primary schools) should be introduced. Consequently a class teaching system was introduced, as an experiment in some classes in 1973-1977 by those teachers who had undergone a two years in-service training programme at the former In-service Teacher Training Centre. Following this,

the Ministry of Education recommended the beginning of a reform programme for the training of teachers in 1982. An enormous amount of money (21,212,190 Bahraini Dinars, approximately 32,600,000 Pounds Sterling) was allocated or his project, (Hebail, 1985).

What was envisaged was a reform of teacher training in general and the training of primary school teachers in particular. It was the first time that such a large sum of money had been allocated for any development or reform in education.

As far as primary and intermediate school teachers are concerned, the main part of the project was the re-education and training of all primary school teachers so that they would qualify for a B.Ed degree in primary school education in general and in class teaching in particular. The University College of Art, Sciences and Education, Bahrain (UCB) at that time (1982); the University of Bahrain (UB) at present, took responsibility for organising and running this project.

In September, 1982 the first group of teachers (120), was enrolled on the programme. Three groups of teachers have graduated from this programme by 1987-1988 (Ministry of Education 1988).

It is important to note that the class teaching programme is also open to secondary school leavers who wish to be primary school teachers. Therefore, the "class - teacher" programme is both an in-service training programme for primary school teachers and a pre-service education and training programme for those secondary school leaver who intend to join the teaching

profession.

Another part of the project was a special certificate course for the in-service re-training of subject teachers of upper primary and lower intermediate schools who are holders of Bachelor's degrees in particular subjects but are teaching different subjects.

For those intermediate school teachers, the Ministry of Education has provided a special 'Postgraduate Diploma' programme in education, run by the UCB. This programme can be either on a one year full-time basis or a two-year part time basis.

It is important to realise, however, that all the above programmes are sponsored by the Ministry of Education and the Ministry has seconded teachers on full salary and hired expatriate teachers to replace those in training.

The present map of the teaching force in primary schools, reveals a mixture of teachers with a different variety of qualifications, from pre-secondary school certificate up to masters degree. The following (Table 12a, 12b) distributes teacher in primary public schools in Bahrain, by qualification and sex, 1984 / 1985.

TABLE 13a. No. of Bahraini Teachers at all Public Schools by Qualification, Type of School and Sex 1984/85

Qualification / Type of School	Sex	Bahraini												
		Total	Other	Non Ed. M	Ed. M.	Non-Educational Higher Diploma	Educational Higher Diploma	Non-Eduational Bachelor	Educational Bachelor	Non-Educational Diploma	Educational Diploma	Less than Diploma	Secondary or equivalent	Pre-secondary
Primary	Male	631	—	1	—	—	—	47	51	—	342	18	153	19
	Female	923	—	—	—	2	—	140	75	2	575	13	78	38
Primary / Intermediate	Male	382	3	2	—	—	4	69	51	1	203	5	36	8
	Female	269	—	—	—	—	—	40	61	1	138	8	16	5
Intermediate	Male	147	—	—	—	1	5	25	17	—	72	2	20	5
	Female	213	4	1	—	1	1	37	45	1	111	4	8	—
Intermediate/ Secondary	Male	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	114	—	—	—	—	4	37	22	3	34	5	9	—
General., Commercial Health Scie. SC.	Male	90	2	2	—	2	14	33	19	5	4	5	3	1
	Female	249	2	—	—	—	30	108	54	20	21	11	3	—
Commercial Secondary	Male	15	—	—	—	—	4	4	5	1	—	—	1	—
	Female	74	—	—	—	—	13	15	16	23	1	1	5	—
Industrial Secondary	Male	41	9	—	—	—	—	7	4	2	—	9	10	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—
Religious Instituate	Male	5	—	—	—	—	—	—	5	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	Male	1311	14	5	—	3	27	185	152	9	621	39	223	33
	Female	1842	6	1	—	3	48	377	273	50	880	42	119	43

TABLE 13b. No. of Non-Bahraini Teachers at all Public Schools, by Qualification, Type of School & Sex: 1984/85

Type of School \ Qualification	Sex	Non-Bahraini												
		Total	Other	Non-Ed. M.	Ed. M.	Non-Educational Higher Diploma	Educational Higher Diploma	Non-Educational Bachelor	Educational Bachelor	Non-Educational Diploma	Educational Diploma	Less than Diploma	Secondary or equivalent	Pre-Secondary
Primary	Male	173	—	1	1	1	12	43	111	—	4	—	—	—
	Female	198	—	—	1	1	2	70	86	—	33	3	1	1
Primary/ Intermediate	Male	201	—	6	2	3	3	169	113	1	1	1	1	1
	Female	96	—	—	—	—	—	50	31	1	11	—	3	—
Intermediate	Male	86	—	2	—	—	4	35	38	—	2	1	4	—
	Female	45	—	—	1	—	—	25	11	1	4	—	3	—
Intermediate Secondary	Male	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	29	—	—	—	—	1	23	5	—	—	—	—	—
* General Commercial Health Science Sc.	Male	240	4	4	—	7	27	126	64	—	—	4	4	—
	Female	154	—	9	5	1	9	82	43	—	4	—	1	—
Commercial Secondary	Male	81	1	6	1	—	1	39	31	1	—	—	1	—
	Female	63	—	10	3	—	5	27	16	1	1	—	—	—
Industrial Secondary	Male	270	1	2	—	5	1	201	36	9	—	3	10	2
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—
Religious Institute	Male	14	—	—	1	—	1	8	1	—	—	1	2	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	Male	1065	6	21	5	16	49	521	394	11	7	10	22	3
	Female	585	—	19	10	2	17	277	192	3	53	3	8	1

* Other Sections: Animal Husbandry, Textiles, Printing and catering

From this data, we can see that there are significant differences in the number of male and female teachers at the primary stage and also between Bahraini and non-Bahraini teachers at the same stage. It is also clear that most of Bahraini primary teachers are those with a teacher training diploma qualification followed by those with bachelor degrees. The data also indicates that there are more than 400 (14%) teachers with only a secondary school qualification or less, nearly all of whom are Bahraini. Overall in 1985 nearly 40% of primary stage teachers still had no teacher training. In 1984-85 there were 3,360 unqualified school teachers and headmasters working in Bahrain schools. Since January 1983, 454 primary stage teachers have undergone a training programme in the University of Bahrain for a Bachelor degree in Class-Teaching. Three groups of teachers have graduated (up to 1987/88). It is expected that by 1989/90 all primary stage teachers will be professionally qualified.

To conclude, one can say that still in most primary schools, children will be taught as a whole class, but with increased activity and involvement. Children at this stage study in relatively large groups, working at the same rate. In other words they follow a conventional pattern of education. At present it is noticeable that the primary stage is short of Bahraini teachers (especially male teachers). Until 1987-88, there were a total of 405 (13.5 %) Non-Bahraini teachers in primary schools, of whom 126 male and 279 female. This shortfall of teachers in primary schools is a temporary one, caused by the

fact that most of Bahraini teachers at this stage are undergoing an in-service programme in the University of Bahrain as was mentioned above. However, non-Bahraini teachers represent 23.3% of the total teaching force in all schools in Bahrain (Table 12a,12b).

Primary stage teachers normally teach 20 periods every week in addition to other responsibilities, such as supervising pupil activities, clubs, pastoral administration, assessing pupil adjustment, (contact parents over problem), controlling teaching supplies, (order materials & books), and external liaison duties.

Because of the large number of pupils at this stage, and because of the limited number of primary school buildings, there are total of 18 Primary/Intermediate combined schools, which include many primary stage teachers.

6.2. Intermediate stage teachers (IST)

Prior to giving details of the teaching force at this stage, it must be realised that historically there were no criteria for a teacher to be an intermediate stage teacher, accordingly, intermediate teachers are those holding a mixture of qualifications, including some unqualified persons who have been working for long time in teaching (Table 12a, 12b).

The 1984/85, Educational statistics show that 251 (69.7%) out of the total 360 Bahraini teachers working in the intermediate stages graduated with an educational background, whilst the rest 109 (30.3 %) of the teachers are non-graduates or

graduated from other colleges with no educational background (Table 12a, 12b).

At this stage, as at the primary stage, female Bahraini teachers outnumber the males. There are 213 female teachers and only 147 male teachers in intermediate schools. Let us not forget that there are many intermediate combined schools as well. Some qualified intermediate stage teachers are teachers of primary stage pupils in these combined schools.

At present, the College of Education in the University of Bahrain is the only source for supplying teachers for general education in Bahrain. The College of Education in the University of Bahrain, which consists of the following departments Education, Psychology, Physical Education and the Continuing Education Programme, prepares teachers for the three educational stages (primary, intermediate and secondary).

In addition, the Directorate of Training in the Ministry of Education organises many in-service long and short courses and training programmes for teachers and administrative staff in the public and private schools in order to upgrade their educational and professional standards.

A minimum requirement for teaching at the intermediate stage is a Bachelor's degree in Education, or an ordinary Bachelor's degree plus a certificate in education. As was mentioned earlier, at the moment the University of Bahrain is holding a retraining scheme for those teachers with only a Bachelor's degree and under-qualified teachers in the intermediate stage. With the cooperation of Ministry of Education they will be

trained as specialist subject teachers for this stage.

In 1987/88 there were 21 intermediate schools in Bahrain, divided equally between 10 male schools and 11 female schools. At the same time there were also 18 primary/intermediate (combined) schools,12 for males and 6 for females plus another 2 intermediate/secondary (combined) schools, both for females (Table 12a, 12b).

The intermediate schools vary in size from 20 to 60 teachers. Such variation is also true in all the other types of schools in Bahrain.

6.3. Secondary Stages Teachers (SST)

The total teaching force in the secondary schools in Bahrain in the academic year 1987/88 was 1277, excluding 121 teachers in two intermediate/secondary (combined) girls schools and 20 teachers in the male combined religious education schools, of which only 597 (46.8%) teachers were Bahraini while the rest were non-Bahraini expatriates teachers (see annexe 18).

However, amongst those 597 actual Bahraini teachers in secondary schools, the researcher strongly believes that there were a good number of unqualified teachers.

In 1984/85, there were 469 Bahraini teachers in this form of education, only 185 (39.4%) were in fact qualified. There were also 808 (60%) non-Bahraini teachers. Among them were 145 (18%) who were unqualified for teaching (Table 12a, 12b).

However, the Ministry of Education regularly offers scholarships is Bahraini secondary school teachers to be trained

in the University of Bahrain which offers a one-year full time or two years part time course leading to the Post-graduate Diploma in Education (PGDE), to holders of a B.A., B.Sc. or an equivalent degree. The programme is designed primarily for the in-service training of secondary school teachers to help them acquire the necessary experience and skills for their careers.

Secondary stage teachers normally teach between 17-19 periods a week, except those industrial secondary teachers who normally teach 27 periods every week (see annexe 19). The Pupil/Teacher ratio in general secondary schools in 1984/85 was between one to 11-14, but in industrial secondary schools the ratio was 1:8 students for every teacher.

The institutional contexts of secondary education are also varied; large and small schools; large secondary schools that include first, second and third grades. Secondary/Intermediate (combined) schools may include only the first and the second grade of the secondary stage.

Secondary education varies in the type of education on offer, there is general secondary, which in turn is divided into Literary and Scientific, Health, Commercial, Industrial, Catering, Agricultural, Textiles and Printing. Beyond this variety, however the one fixed fact in secondary practice is the teaching system; the school day is divided into 6 periods of 40-45 minutes, distributed among several teachers (subject teaching system); one teacher for every period. Often classes last for more than one period. However, there is not much distinction between secondary teachers and other teachers in

their approach and methods of teaching.

Relatively, the average salary of qualified Secondary Stage teacher in Bahrain has been low compared with those in other occupations; although, the salaries of teachers were notably improved from 1976 onwards.

> " Teachers, until recently, were at the lower level of the wage and salary earning scale in Bahrain. .... Because of this , many well trained Bahraini teachers have resigned."
>
> (Adiby, 1982)

6.3.1. Professional Structure of the Secondary School

A typical secondary school in Bahrain has a headmaster, a deputy headmaster, a secretary, one or more administrative supervisors (usually they are involved in teaching as well), subject teachers, various laboratory technicians, a store-keeper (technical secondary only) and various janitors and workers. This gives the secondary school structural complexity and provides their members with a wider range of options in areas of professional identity and institutional power than intermediate or primary schools.

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CHAPTER SEVEN

7. The analysis of the interviews

7. Analysis of the interviews

Based on a written record of interviews, an individual report was written by the interviewer. The results which follow are a condensation of each group's answers. For convenience they are discussed in three sections.

7.1. Section one: Senior Administrators

The interview sheet for the senior administrators consisted of six major questions. The following are the results of data collected from the interviewees and will be presented as comments, quotations, statements and conclusions.

The results:

Senior administrators unanimously agreed that it is, not only worthwhile to apply Educational Technology as understood today (as a systematic approach to teaching/learning), but it is essential to do so especially as the Ministry of Education is continually supporting the schools and supplying them with all necessary equipment and materials through the appointed Centre For Educational Technology.

When the question of what sort of strategies they would apply to make sure that such methodology in Educational Technology was utilised accurately in the system was asked, the interviewees commented that the Ministry of Education has always evaluated schools' needs for different type of equipment and materials through direct contact with various schools in

collaboration of Educational Technology Centre, in order to fulfill their requirements.

One of interviewees commented that, "at present, there is a video-tape recorder in every school; and that is obvious evidence that the Ministry is actually supporting Educational Technology". He agreed that in the past few years, schools had an excuse not to utilise media in their daily teaching because of the lack of equipment.

Senior administrators were asked to mention possible problems that have been, or are today, facing them concerning the application of media in the schools in general. Only one person revealed that the main problem was psychological; some teachers are afraid that these technological devices may replace them one day.

Another problem mentioned was lack of training which has been resolved by the Department of Training of Ministry of Education. All of the interviewees had great enthusiasm for the improvement of educational technology services in the schools through the introduction of new concepts and practices, such as School Resource Centres, by improving school libraries to become a resource centres, and the introduction of Credits Hour course systems and so on.

Every one individually reported that the national interest in improving education has generated several highly important plans and projects to improve curricula at all levels of education. The following plans and measures were amongst those mentioned :-

a) Establishing an efficient educational information system aiming at modernising and connecting it to the other information systems of the country.

b) Upgrading the school performance and training of principals in these schools in field research and the practice of planning.

c) Developing the efficiency of schools through improving teachers' qualifications and through appropriate training programmes.

d) Directing study scholarships towards fulfilling the general need of society and, in particular, the need of the Ministry of Education for teachers.

e) Working on a comprehensive development of Primary education according to the Ministry objectives by setting a work plan to apply the "Class Teacher System" at this stage.

f) Continuing to develop curricula in all the three stages besides initiating research and experiments related to the curriculum such as: improving text books, subject matter, teaching methods, developing assessment and evaluation tools.

g) Supporting works carried out in adult litrary and other aspects of adult education thus giving a better opportunity to all in order to eradicate illiteracy by the year 2000.

h) Developing educational innovation and the reform role and supporting them in every possible way.

i) Developing school buildings and expanding the construction of new schools to accommodate all students at all stages, along

with developing the quality of buildings to cope with the requirements of educational development.

j) Developing secondary education in order to make it more comprehensive and improving standards particularly by applying a Credit System and the Credit Hours.

It was also understood from both interviewees that the Ministry of Education has commenced a new scheme to introduce the use of computers in schools and to establish a computer information network to link all schools to the intended centre. It was also understood that computers have been introduced in some primary schools as an experiment, and that a committee has been formed for this purpose; its present, 1987, agenda is to study possible starting points.

Two different aims concerning the function of the computer could be distinguished from their answers; one emphasised the computer to assist learning, whilst the other supported the use of the computer as a means of information retrieval.

It was also understood from the senior administrators that the Ministry is about to introduce the school resource centres scheme and classroom teacher scheme for the third year primary stage. In this context, it is worthwhile mentioning that the classroom teaching system is already in operation at the first and second primary stages. They further claimed that these plans emphasised more attention to teaching/learning media, and required more finance for which Ministry of Education is already prepared. They further mentioned that generally (70-80 %) of schools' needs for equipment and materials are fulfilled.

Senior administrators seemed to have little enthusiasm for Educational Television in Bahrain. Nevertheless, the Ministry has started, through its Centre For Educational Technology, to produce some educational television programmes for schools.

Lastly, they admitted that the centre has inadequate technical and educational manpower at the present time.

7.2. Section two:

Academic and non academic personnel in Educational Technology.

In interview was designed for personnel involved directly in Educational Technology, both those who are teaching the subject and those involved in training the teachers to produce media hardware. A total of ten key persons in the field of Educational Technology were interviewed (see Table 13).

The results:

All the interviewees agreed that the concept of Educational Technology is still unclear to the majority of the teachers. Furthermore, some declared that the concept is not only vague to the teachers, but it is also not clearly perceived by some of those accountable for education in Bahrain. One of the interviewees mentioned that he studied this subject and concluded in his Ph.D thesis that the concept is vague to the majority of teachers. He accounted for this vagueness by the low qualifications of those responsible for teaching the subject and for training in educational technology. He further stated that at present the production side of Educational Technology is

improving and has reached a satisfactory level, but that the utilisation of Educational Technology in the classroom in an organised and systematic manner is beyond the understanding of most Bahraini teachers. Teachers should thus be given more opportunities of academic preparation and training. Moreover, they should be involved in decision making and a well-designed plan should be formulated for training all teachers to select, apply and evaluate teaching media. He also recommended a training course in Educational Technology for all subject specialists in the Directorate.

Another interviewee inferred that the reason for the misconception about Educational Technology was the method and procedure of curriculum planning. He stated that the curriculum designers and planners were not following an adequate strategy. He stressed the importance of co-operation between educational technologists and curriculum designers; they could achieve much more than by working in isolation.

Most of those interviewed were critical of the previous exercises in training teachers in general and in Educational Technology in particular. Two differing views concerning the concept of Educational Technology could be distinguished from the interviews; the first, emphasised by the teaching staff in Educational Technology in the University of Bahrain (U.B), who insisted that teachers should regard Educational Technology as more than a teaching aid. They saw Educational Technology as an integral component of a system instruction. They also agreed that a great number of teachers, and most people responsible for

education, needed to know a great deal about Educational Technology. Furthermore, a top ranking person in the Centre For Educational Technology admitted that, although the name of the "Audio Visual Centre" has been changed to "Centre for Educational Technology", its role is unchanged; it remains no more than a distribution centre for hardware and materials to the schools. He once more stressed that the concept of Educational Technology is, not only unclear to most teachers, but also to those responsible for training the teachers and to those responsible for educational policy as well.

The second group was more optimistic, though they might agree with the previous respondents that most teachers find the Educational Technology concept mysterious. However, for those few teachers who had been given training courses in Educational Technology, and who have been trained in the subject, this is not so. They thereby attributed this lack of understanding of educational technology to the small number of specialised persons in the field, and to the ineffectiveness of those who did exist. They further blamed both the Ministry of Education and the University of Bahrain; the former for not evaluating the training courses in Educational Technology and the latter for not co-operating in such evaluation.

When the interviewees were asked whether they believed that it is necessary for the teachers to understand Educational Technology as wider concept, - as a systematic approach to teaching/learning, - without exception, they agreed that teachers should understand and use Educational Technology as a

vital part of all instruction, and that its usage should be pre-planned and specified in the planning of curricula and syllabuses at every educational stage. They repeated the necessity of co-operation between curriculum planners and educational technologists, and the need for the immediate alteration of present curricula to allow teachers flexibility to adopt Educational Technology more systematically. They individually suggested some possible measures to be taken if improvement is to occur, they can be summarised as :-

(1) The necessity for individual bodies in the Ministry of Education to achieve a consensus about the integrative role of Educational Technology.

(2) Since educational technologists are essential for training teachers, as for other areas of Educational Technology propagation, it is necessary to remedy the shortage of personnel in this area. In this context, it has been suggested that the University of Bahrain should play a more substantial role.

(3) Teachers should be involved in curriculum design; their views and opinions should be given serious consideration at different stages of the planning, application and evaluation of the core curriculum.

(4) School libraries should be reorganised as resource centres to contain non-book materials (films, transparencies, charts, etc.) in addition to books and other printed materials. The present librarians must be re-trained to fulfill their new role as resource persons.

(5) A well qualified network is needed to follow up and evaluate all aspects of educational technology. It has been suggested that expatriates could be invited for this purpose.

(6) The Educational Technology Centre should re-examine its present function as a materials and machines supplier, to play a more active role in leading a campaign to encourage the wider concept of Educational Technology by both teachers and educational authorities.

However, most the interviewees supported the idea of the mass production of instructional materials by the "Centre for Educational Technology", and distributing them (as practiced now) to the schools. But two insisted that teachers should also be creative and design and produce teaching materials for specific purposes.

Educational Technologists seemed to have a negative attitude towards the introduction of Educational Television in schools. From their statements, one can notice that they unanimously disapprove of the idea of Educational Television for a number of reasons:

(a) Bahrain is a small island and schools can easily be contacted without a television network.

(b) Educational Television is a costly project that Bahrain cannot afford at the present time.

(c) Lack of specialised Bahraini personnel to run the project.

(d) Educational Television has proved a failure in some of the neighbouring Gulf States which have similar characteristics as Bahrain.

Nevertheless, the interviewees emphasised the need for video recording facilities in schools. The tendency for the increasing use of video-tape recordings, and for making full use of these facilities by producing more programmes related to the schools' curricula, rather than for Educational Television, was apparent. This is interesting as, of course, video tapes can be introduced as required and teachers do not have to fit in with a television time-table.

Some interviewees felt that the Centre for Educational Technology had little to offer to schools at present (1986), and teachers had few of their needs adequately met. The other group were more optimistic, and expressed their appreciation to the centre's efforts in helping teachers.

Unlike most of their answers to the questionnaire items, educational technologist revealed different views, some were in favour of at least introducing computer into secondary, if not primary, schools as a teaching tool; whilst others suggested the use of the computer for storing and retrieving information only.

The interviews and discussions with the educational technologists suggested that they were not very enthusiastic about the role of the computer in education. Only one interviewee recommended that education in Bahrain must give computers serious attention. He further suggested many changes and reforms to the present school curricula to accommodate the computer. Technically, he fully supported the idea of computer assisted instruction (CAI) and to a lesser extent, of computer managed instruction (CMI).

However, a while after these interviews, the Ministry of Education appointed a committee to introduce computers into schools, and the researcher understands that secondary schools will be the first targets of this reform.

7.3. Section Three: Subject Specialists

Eleven subject specialists were interviewed for their opinions about issues of Educational Technology in schools. Their answers to the question whether the use of media is important in classroom teaching resulted in three varied opinions. The first group were optimistic about the power of media in subject teaching and at all stages of schooling. The second group stated that media are most useful at the primary stage, rather than at the upper stages. In their opinion the flexible nature of primary stage subjects encourages the use of media more than at other stages. They also mentioned that many materials are readily available for the primary stage, whilst the intermediate and secondary stages have always lacked ready-made teaching materials. Finally there was a group who were very unhappy about reliance on teaching media, especially for practical subjects.

To justify their viewpoint the first group of subject specialists (the optimistic group) made general statements, such as "media can improve teaching and strengthen communication throughout teaching, ... media are a vital aid for the teacher,...pupils can acquire knowledge much more easily with the use of media", and so on.

The second group emphasised that the importance of media at the primary level is probably more generally true than at any other level, but there are still some subjects at other stages in which media are useful. They emphasised that teaching is, however, an essentially personal profession, and is not restricted to audio-visual gadgetry.

Furthermore, a number of them stated that most of the audio-visual materials available to the schools or in the Centre for Educational Technology are often designed to meet the needs of primary school teachers, so that most other teachers are deprived of suitable audio-visual media.

The second item of the interview asked for information about whether audio-visual media are properly utilized in the schools. All the interviewees agreed that audio-visual media have failed to develop to their full potential in Bahrain. Consequently they have not been properly utilised in Bahraini schools. They enumerated a number of reasons for this under-utilisation of media:

(a) The theoretical ground and justification for such innovation was not clearly formulated by teachers and administrators. The concept of Educational Technology is not easily understood by either group. As a result, the practical implementation of the media in instruction has been weak.

(b) The management procedures are not well established in areas such as media preparation, production, distribution and retrieval. Materials are not classified, catalogued and shelved to make them available to teachers. Decisions are not

always made concerning the storage, accessibility and servicing of the equipment required by the teacher. Also timetabling for resource provision and accommodation for software and hardware have not been given serious consideration.

(c) Funds have not been sufficient for the initial purchase of equipment, materials and its accommodation.

(d) Many teachers are ill-equipped to deal with new teaching techniques and methods. They are simply geared to whatever teaching style they came across when they started their teaching career. These teachers tended to look for solutions to new problems in traditional educational theories and assumptions. They have no inclination for self evaluation. This is not to say that they are against change, but that they simply lack the required training. Accordingly, they are becoming increasingly less conscious of quality in teaching (of how soon lessons are planned, organised and assessed) and are more hesitant to make their views known to their school administrators. In this climate, audio visual media find great difficulty in being accepted.

(e) Another reason that many teachers do not use audio-visual media, or use them functionally, is the absence of a specialist body to encourage the utilisation of these media in the classroom. Normally teachers are evaluated by curriculum specialists, subject specialists and subject inspectors, who themselves have not necessarily been trained in Educational Technology. Subject specialists use a

different evaluation form than those of subject inspectors, and none of their forms contain sections concerned with the evaluation of the use of audio-visual media. Some subject specialists reported that subject inspectors themselves lack a knowledge of audio-visual media. Teachers hold neither inspectors nor subject specialists in esteem because they feel that the evaluation results do not affect their teaching careers.

(f) The process of teaching which is based on the teachers' own efforts, to a great extent, plus the physically constrained environment of the classroom, with some conventional aids such as blackboard, a few charts hanging on the wall, the teachers' desk to establish a position of authority, sets of textbooks for a large group, the rigid timetable and the period bells, together with the conventional teacher-based system of education, do not create an environment in which the use of media is easy. All these comments express the general concern felt by subject specialists about the need for improving the teaching process, to allow more opportunity for the use of teaching media.

The researcher in a different place asked subject specialists to state the major problems that faced teachers in using media. They listed the following problems :-

[1] The Centre for Educational Technology in the Ministry of Education does not offer teachers enough guidance in the utilisation of instructional media.

[2] Most teachers lack enthusiasm for instructional media and

their use.

[3] Most teachers teach subjects other than the subjects they specialise in.

[4] Lack of materials (software) for many topics taught.

[5] Fear of handling and dealing with equipment.

[6] Some school administrators do not co-operative with the teachers in the use of instructional media.

However, subject specialists offered some possible solutions to overcome these problems, listed according to their order of appearance :-

(I) The emergence of a recognition of the educational systems' needs, which Educational Technology could meet.

(II) The availability of appropriate skilled or trained personnel in the field of Educational Technology.

(III) The necessity for an evaluation team to assist teachers in the application of Educational Technology.

(IV) The appearance of entrepreneur teachers and the conditions conducive to change in which they could be effective.

(V) The availability of essential materials and tools for the production of the audio-visual media required.

(VI) The pre-service training of teachers should offer practice experiences in Educational Technology as well as the understanding of its theory.

(VII) For those teachers who are already in service, continuing training and re-training in Educational Technology is needed.

(VIII) The Educational Technology Centre should develop support materials for use in re-training teachers in Educational

Technology.

(IX) Educational Technology can only function properly if it is recognised by the teachers as an integral part of the instructional situation.

(X) It is important to promote an educationally constructive interaction and co-operation amongst all educational institutions concerned, such as the University of Bahrain, the Educational Technology Centre, the Directorate of Curriculum and the Directorate of Training in the Ministry of education.

Summary and Conclusion

The interviews revealed that the administrative context of the Educational Technology is extensive though it is not well integrated. Decisions taken within it by administrators and by subject specialists, sometimes at points far away from the schools themselves, can have a major impact on what can be achieved within the classroom.

The Ministry of Education is seen as supportive by teachers, though sometimes teachers felt that the Ministry of Education, through its Educational Technology Centre, was inhibiting and unsympathetic to their needs.

There are educational innovations and changes under-way which are resulting in new attitudes towards methods of teaching, priorities and criteria for teaching and learning which reflect use of Educational Technology. Most of these changes are parallel to the contemporary trends and developments in education at an

international level.

An awareness of what Educational Technology is all about by both teachers and administrators is essential if its application in the instructional situation is to be effective.

The training of teachers should also be re-examined if the use and understanding of teachers of modern instructional technology is to be raised. It was also argued that the effective use of media requires that Educational Technology services be seen by teachers to be adequate. Teachers, if they are to use media effectively, need more support and guidance both in school from their headmaster and subject specialists and, outside the school, from media specialists in the Educational Technology Centre. Only through such help can improvement in media usage take place.

CHAPTER EIGHT

8. The analysis of the questionnaire

8. Analysis of the questionnaire :

8.1. Introduction:

In this chapter the data collected by the questionnaire is analysed using the statistical package for Social Sciences (SPSSX). A total of 98 variables derived from 29 questions were manipulated. The analysis of the questionnaire is based on the objectives and the hypotheses which were identified earlier. The data is presented as frequencies and percentages, and further reanalysis of the data may be employed according to the need for different analysis and tests and of the various interpretations required. A copy of the programme can be seen in annexe 20.

8.2. Characteristics of the Population.

This Section is concerned with the variables describing the individual teacher and his/her work environment as seen by him/her. These variables are considered to be independent and are expected to have certain effects on the dependent variables especially those describing teacher training. The independent variables mentioned in the questionnaire are: Type of School, Qualification, Subject taught, Age Group and Sex.

8.3. Number of Cases

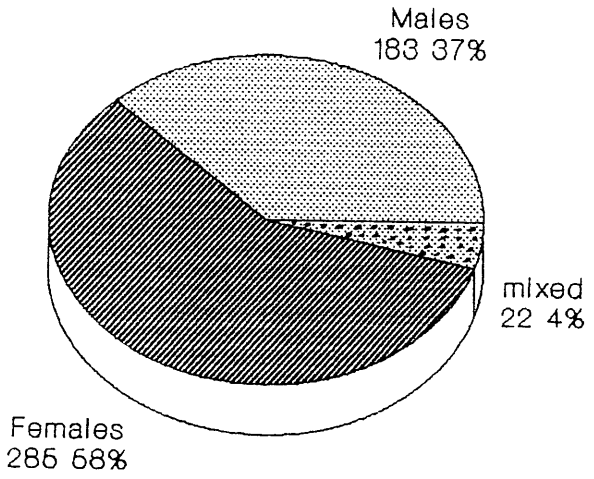
490 teachers responded to the questionnaire, chosen from forty two (42) state schools and two (2) private schools. Amongst these 490 teachers are 183 (37.3%) male teachers, 285 (58.2%) female teachers and 22 (4.5%) were mixed private school teachers not differentiated by sex.

The respondents were chosen from ten different types of school (see annexe 15a & 15b). School types are as follows:

A- Secondary Male
B- Secondary Female
C- Intermediate/Secondary Female (Combined School)
D- Intermediate Male
E- Intermediate Female
F- Primary/Intermediate Male (Combined Schools)
G- Primary/Intermediate Female (Combined Schools)
H- Primary Male
I- Primary Female
J- Private (Mixed Sex Schools)

The following pie chart (figure 15) shows the distribution of teachers who answered the questionnaire by sex.

Figure.15 Number of respondents



Valid cases = 490
Missing Cases = 0

The above list clearly indicates that co-education does not exist in Bahraini state schools; boys are taught separately in different schools from girls.

In this context, it is worthwhile mentioning that recently the Ministry of Education has employed female teachers to teach boys in some male primary schools; this is due to the shortage of male teachers, especially at the primary education stage.

The Ministry of Education official statistics for 1984-85 showed that there were 187 female teachers teaching in boys' schools. Amongst those who completed the questionnaire were some female teachers who teach in boys' primary schools.

Women in Bahrain give family responsibilities a priority in their lives. Teaching careers tend to fit in well with this due to the long summer holidays and half-day working, in addition to other mid-term holidays.

However, Bahraini males have access to a wider range of jobs (many of which are better paid) in fields other than teaching.

The results showed clearly that female teachers predominate in Bahraini schools (especially in primary and in private schools).

Thus, the majority of state school teachers who responded to the questionnaire were females and also almost all the respondents in private schools were females (fig 15).

The total number of teachers responding to the questionnaire, 490 represent 30% of the total number of teachers in the sample schools and 10.2% of the total number of teachers

in all Bahraini schools. However, the Ministry of Education Annual Statistics Report for 1985-86 shows that the number of male teachers increased by 4% since the previous year, whilst the number of female teachers, on the contrary, decreased by almost 10% over the same period.

The fall in the number of female teachers is only temporary, due to the enrollment of a large number of teachers in the University of Bahrain for a degree course in education. Accordingly the female Students/Teachers ratio increased from 1:16 to 1:18, whilest the Male Students/Teachers ratio decreased from 1:18 to 1:17.

The four hundred and ninety (490) respondents were selected from forty two (42) state schools in Bahrain, seventeen (17) male schools and twenty five (25) female schools, beside two (2) private mixed sex schools. (see annexe 15a & 15b)

The forty two (42) state schools that were involved in answering the questionnaire represent 30% of the total number of state schools, according to 1985-86 educational statistics of Ministry of Education.

The following table represents the schools involved in the questionnaire according to there type and sex.

TABLE 14. Schools involved in the questionnaire by type and sex.

School type	Male	Female	Mixed	Total	%
Secondary	4	5	-	9	20.5
Secondary / Intermediate	0	1	-	1	02.0
Intermediate	2	6	-	8	18.0
Intermediate / Primary	3	4	-	7	16.0
Primary	8	9	-	17	39.0
Private schools	-	-	2	2	04.5
	17	25	2	44	100.0

Seventeen (38.6%) out of the total forty four (44) schools who answered the questionnaire were located in Manama, the state capital. This is because most Bahraini schools, 39 (25%) are located in the capital. As a result, 201 (41%) of the 490 teachers who answered the questionnaire live in Manama. This concentration of teachers in the capital makes the planning of in-service courses easier. However, even the remaining teachers, because Bahrain is a very small island, can be reached in few minutes. The total area of Bahrain in approximately 661sq. Kilometers and most people live within 30 minutes of Manama.

To minimise the problem of a particular area being under-represented, schools were grouped by size, to ensure that each of the groups was adequately represented in the final sample.

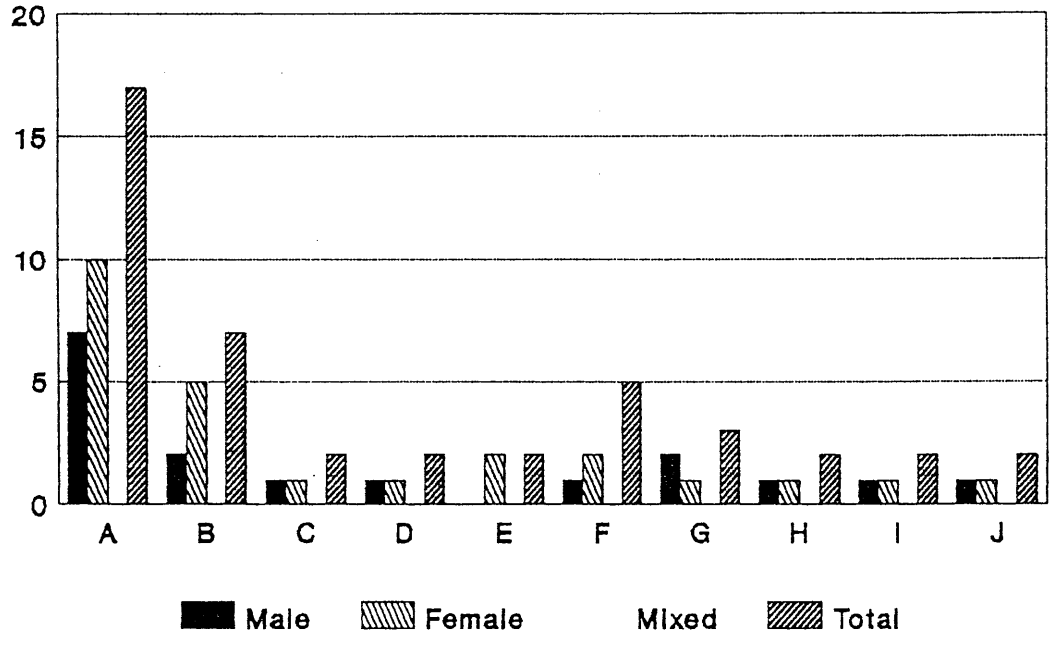
The following table shows the schools that participated in the questionnaire by location and sex.

TABLE 15. The location of the schools participated by sex.

	Location	Male	Female	Mixed	Total	%
A	Manama	7	10	-	17	38.6
B	Muharraq	2	5	-	7	16.0
C	Sitra	1	1	-	2	4.5
D	Riffa	1	1	-	2	4.5
E	Jidhafs	-	2	-	2	4.5
F	Isa Town	1	2	2	5	11.4
G	Hammed Town	2	1	-	3	7.0
H	Northern region	1	1	-	2	4.5
I	Central region	1	1	-	2	4.5
J	Hidd	1	1	-	2	4.5
	Total	17	25	2	44	100

The above table can be represented in the following graph.

Figure 16. No. of schools who responded to the questionnaire by geographical location.



The sample was chosen from ten different areas in Bahrain, as is illustrated above, and cover the entire area of Bahrain.

8.4. Type of School

Because Bahrain is a Muslim country, there is no state co-education. However most of the private schools in Bahrain are co-educational, and almost all teachers in private schools are females. Only one teacher out of the total twenty two private school teachers approached to fill the questionnaire was a man.

The following (table 16) distributes number of teachers who participated in the questionnaire by school type and sex.

TABLE 16. Number of teachers who participated by school type and sex.

Type of School	Schools				Teachers			
	M	F	MX	T	M	F	MX	T
Secondary	4	5	-	9	58	71	-	129
Intermediate /Sec.*	-	1	-	1	-	11	-	11
Intermediate	2	6	-	8	22	61	-	83
Primary /Inter.	3	4	-	7	33	42	-	75
Primary	8	9	-	17	70	100	-	170
Private schools	-	-	2	2	-	-	22	22
Total	17	25	2	44	183	285	22	490

Abbreviations : M = Male F = Female Mx = Mixed

It is noticeable from the above table that there are five types of school in Bahrain, although there are only three stages in the school system, namely primary, intermediate and secondary.

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* In 1986-87 , the Intermediate / Secondary combined schools increased into two schools, by adding some secondary stage classes to (Haleema) Intermediate girls school. Accordingly Intermediate schools decreased to only seven (7) schools .

The other types are combined schools, which comprise the primary and intermediate or intermediate and secondary stages. These combined schools are the result of a shortage of school buildings.

Each type of school, (large, medium and small) was represented in the sample. Each of these schools would also have teachers with different backgrounds and training.

8.5. Teachers' Qualifications

Respondents were asked to state the highest academic qualification that they held at the time of survey. Eight categories were assigned to this variable. All respondents answered this question. The distribution of their qualifications showed that there is a balance between the number of B.Ed, B.A./ B.Sc. and the number of the T.T.Dip. who have followed a two year course after secondary school. Almost 70% of all teachers, hold one of these three qualifications; 70.4% of the sample did so.

TABLE 17. Distribution of teachers' academic qualifications

Highest qualification	Frequencies	Percentage
Master of Education .....(M.Ed.)	4	0.8
Master of Arts .....(M.A.) & Master of Sciences .....(M.Sc.)	8	1.6
Post graduate diploma in Education .....(PGDE)	38	7.8
Bachelor of Education .....(B.Ed.)	116	23.7
Bachelor of Arts .....(B.A.) & Bachelor of Sciences .....(B.Sc.)	112	22.8
Teacher Training Diploma ....(T.Dip)	117	23.9
Secondary school Certificate (GSSC)	38	7.8
Others	57	11.6
Total	490	100

The small number of Masters' degree holders, 12 (2.4%) amongst the sample reflects the overall number of teachers with Master's degree in Bahrain. Based on 1984-85 educational statistics from the Ministry of Education, the number of Master's degree holders were 61 (1.3 %) of teachers: 31 males and 30 females. The 61 teachers divided into 46 non-educational masters and only 15 educational masters. However, only six teachers out of the total of 61 masters's degree holders are Bahraini citizens; the rest are expatriates.

The distribution of teachers' qualifications also explains why only 38 (7.8%) of the graduates in the sample have a Post-graduate Diploma in Education. It also shows that there are another 38 teachers (7.8%) with a low qualification, the Secondary School Certificate. The last group in the table are teachers who rate themselves as "others"; most of these teachers hold a non-graduate certificate.

However, by a reanalysis of the qualification fractions into smaller cells, its possible to identify two major groups; namely, graduates and non graduates. (see table 18)

TABLE 18. Teachers' qualification by Grad./Non grad. and sex.

Value Label	Female	Male	Mixed	Total	%
Graduates	173	91	14	278	56.7
Non-Graduates	112	92	8	212	43.3
Total	285	183	22	490	100

It is quite clear that both groups are approximately equally divided between the two cells, Graduates/Non Graduates.

Using a different recoding the teachers' qualifications can be divided into another two categories according to their training and educational background (see table 19).

TABLE 19. Distribution of teachers according to their background.

Type of teachers	Males	Females	Mixed	Total	%
Educationally qualified	73	191	11	275	65.1
Educationally not qualified	110	94	11	215	43.9
Total	183	285	22	490	100

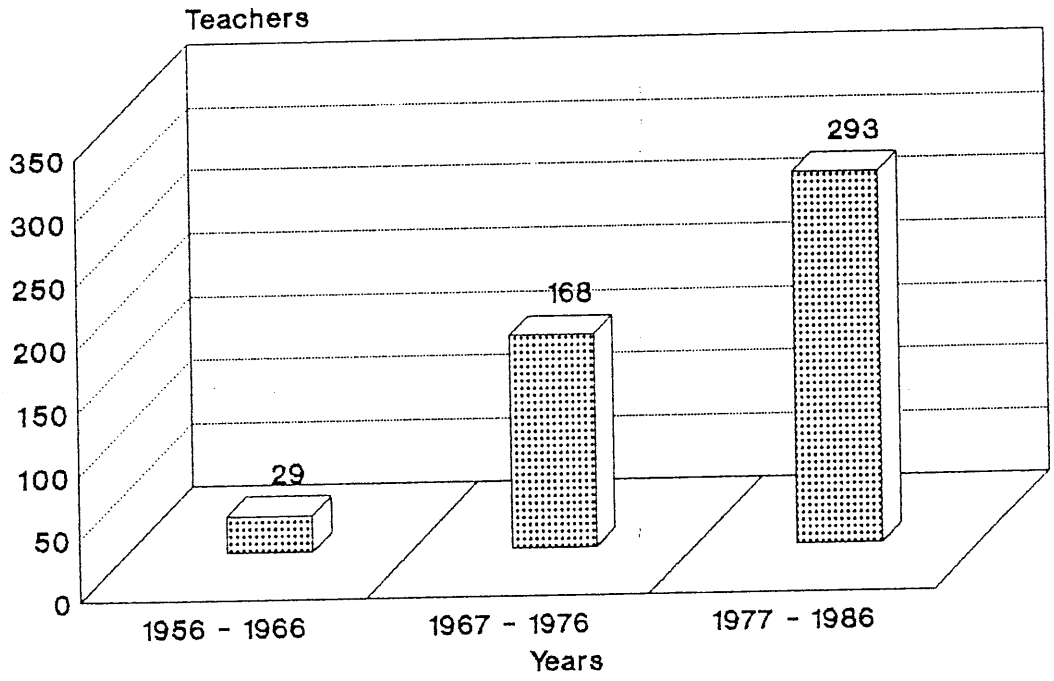
Once again the results show that teachers are almost equally distributed between the two cells, qualified and unqualified. But looking at the table from a sex division, one notice that female are the majority among the qualified teachers, 191 (69.4%) while males are only 73 (26.5%). Clearly teaching offers more to women with an educational background than men for the reasons outlined above.

8.6. Date of academic qualifications:

Teachers were asked to state the year in which their qualification was gained. All respondents answered this question. The data in the table below shows that 29 (5.9%) of the teachers gained their qualification between 1956-66, and 168

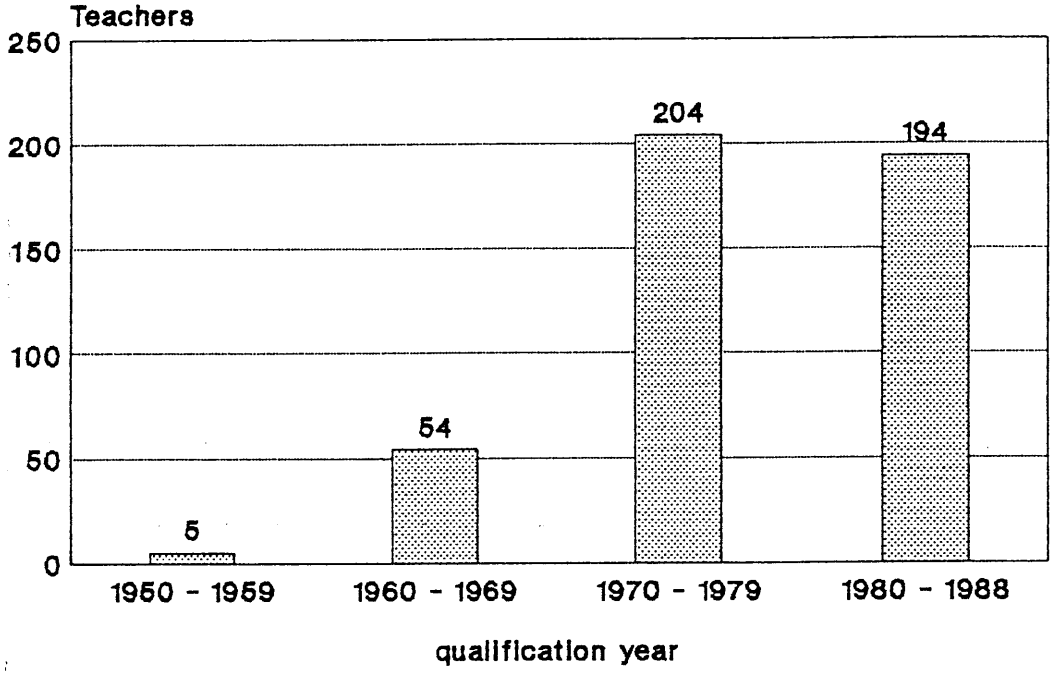
(34.2%) between 1967-76, followed by 293 (59.7%) teachers in the years 1977-86. (see figure 17).

Figure 17. No. of teachers by the year of qualification.



The results show that there are few graduates who took their degree more than twenty years ago working in state schools. Teachers who graduated between the mid sixties and mid seventies are the second lagest group. But the overwhelming majority of the teachers in the sample graduated in the years falling between mid seventies and mid eighties. However, another recoding of the results suggests the following findings (fig. 18)

Figure 18. No. of teachers by years of qualifications.



It is clear that most of the teachers 237 (48.4%) graduated in the seventies, followed by 194 (39.6%) teachers who graduated in the eighties. Apparently there is only a small proportion of teachers, (five teachers) who graduated in the fifties.

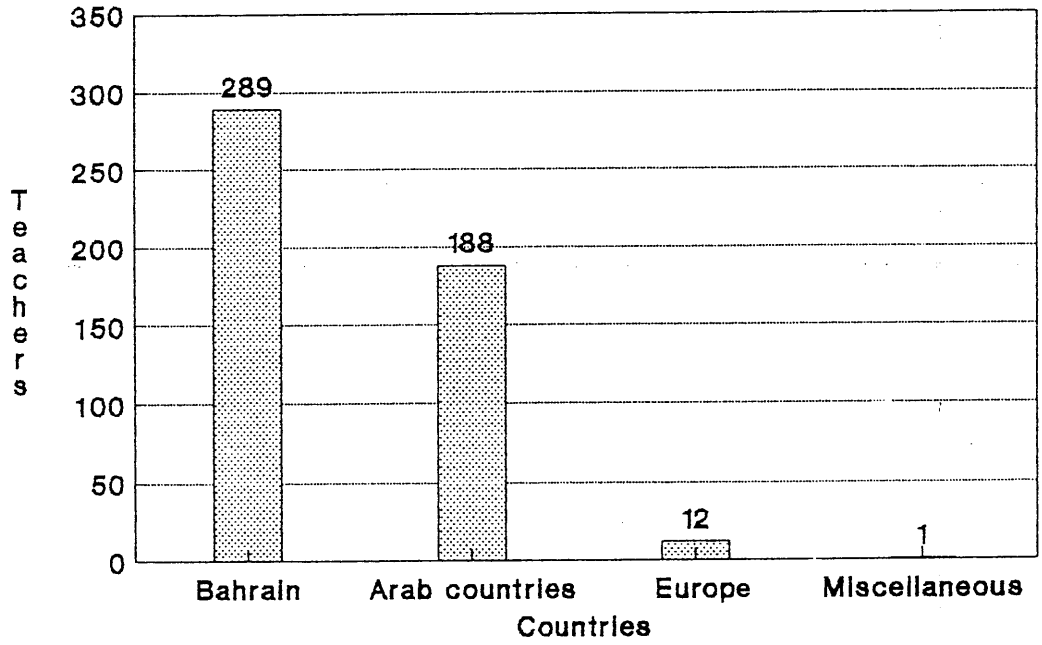
Further analysis of the results of the qualifications of the sample of teachers confirmed that the number of teachers who graduated in 1950s and 1960s were very few (12%) compared with those (88%) who graduated from the 1970s onwards. The majority of teachers in Bahrain are, therefore, relatively young, which, in turn, shows the need for in-service training.

8.7. Country from which the degree was gained:

Respondents were asked to name the country from which their highest academic degree was gained, all the teachers responded to the question. Four categories were assigned under the following headings :- Bahrain, Arab Countries, Europe and Miscellaneous.

The results are as follows:

Figure 19. Distribution of countries by qualification



That majority of teachers in the sample 289 (59%) graduated from Bahrain, followed by 188 (38.3%) teachers who graduated from other Arab countries. These results strongly suggests that, although University Education in Bahrain started recently (1978), it has had a strong impact on the teaching force. Most university graduate teachers in Bahrain teach in primary and in intermediate state schools, whilst a smaller number of them teach in secondary schools. The secondary

stages however still mainly depends on expatriate teachers, mostly from Arab countries. According to the 1984-85 educational statistics, there were 1,650 (34.3%) expatriate teachers in Bahrain schools. It is also noticeable that there are quiet a few teachers 12 (2.4%) who graduated from European countries. The data overall clearly shows, the strong Arabic influence amongst Bahraini teachers.

However, there were 135 Bahraini teachers with higher degrees in 1984-85, among them 114 (84.5%) graduated from Arab countries and only 21 (15.5%) graduated from European Countries. None of the 21 graduates had studied education.

8.8. Distribution of stages and subjects :

Respondents were asked to state the level or the stage they were teaching. All teachers answered the question. The following (TABLE 20) shows the overall findings.

TABLE 20. Distribution of teachers by the stage at which they teach.

Stage type	Male	Female	Mixed	Total	%
Primary stage	84	127	22	233	47.5
Intermediate stage	43	80	-	123	25.0
Secondary	56	78	-	134	27.5
Total	183	285	22	490	100

The 490 teachers teach a wide range of subjects in all stages, and some teach more than one subject, usually an

important one as a main subject and an another less important subject as a secondary or a complementary subject. This applies to all stages, primary, intermediate and secondary.

The primary stage teachers only started in 1986-87, to practise class teaching whereby the teacher teaches all subjects with a whole class. Class teaching is a training programme that started as a result of cooperation between the Ministry of Education and the University of Bahrain in 1982-83.

However, the respondents were requested to confirm the subjects they taught by ticking out list of subjects . All teachers responded. The following are the results gathered from the teachers' responses to the question.

TABLE 21. Distribution of teachers by subject they teach.

Subjects	Frequency	V. %	CUM %
Arabic Language and Religion	140	28.6	28.6
English and French Language	82	16.7	45.3
Humanities and Social Subjects	63	12.9	58.2
Mathematics, Stat.& Com.Law	69	14.1	72.2
Physics, Chemistry and Biology	21	4.3	76.5
General Sciences	37	7.6	84.1
Practical Studies	6	1.2	85.3
Typing	3	0.6	85.9
Secretarial Practice	1	0.2	86.1
Accounting	6	1.2	87.3
Economics	7	1.4	88.8
Machine Drawing	10	2.0	90.8
Applied Mechanics, Workshop	12	2.4	93.3
Fine Arts	12	2.4	95.7
Music	8	1.6	97.3
Physical Education	13	2.7	100.0
Total	490	100.0	

The above findings show a great number of teachers in the sample 140 (28.8 %) teach "Arabic language and religion", followed by 82 (16.7%) who teach "English or French language". However, crosstabulation of subjects taught by the type of school shows a highly significant association between the two variables in "Arabic language and religion" and primary schools. The following (table 22) shows the association between subjects and school type.

TABLE 22. Crosstabulation, subject by type of school

Subject	School Type							
	P.	P.I.	I.	I.S.	S.	Priv.	T.	%
Arabic, Religion	61	25	18	3	26	7	140	28.6
English, French	16	18	20	1	26	1	82	16.7
Hum., Soc.sub.	21	13	13	-	13	3	63	12.9
Math, Stats,com.low	27	11	10	2	15	3	69	14.1
Phys., Chem., Bio.	--	--	--	1	20	-	21	4.3
General Sciences	12	9	11	2	--	4	37	7.6
Commercial Subjects	--	-	-	-	17	-	17	3.4
Technical Subjects	--	-	1	-	21	-	22	4.4
Art and Crafts	10	2	7	-	4	3	26	5.2
Physical education	3	1	4	2	2	1	13	2.7
Total	150	79	84	11	144	22	490	100

To simplify the above results it is possible to categorise teachers' subjects into three broad streams, namely art subjects, science subjects and practical subjects. Accordingly the following results (table 23) would arise.

TABLE 23. Crosstabulation Subjects by school type

Subject	School Type							
	P.	P.I.	I.	I.S.	S.	Priv.	T.	%
Arts Subjects	98	56	51	4	65	11	285	58.0
Science Subjects	39	20	21	5	25	6	127	26.0
Practical Subjects	13	3	12	2	44	4	78	16.0
Total	150	79	84	11	144	22	490	100.0

8.9. Age group:

Teachers were asked to place themselvies in one of four age groups. All of them replied to the request. The following table (24) shows the results of the teachers' response.

TABLE 24. Distribution of the teachers by age group

Age group	Frequency	%	Valid %	CUM %
20 - 29	201	41.0	41.0	41.0
30 - 39	218	44.5	44.5	85.5
40 - 49	64	31.1	13.1	98.6
50 - +	7	1.4	1.4	100.0
Total	490	100.0	100.0	

The data in the above table clearly indicates that the majority of the teachers in the sample 419 (85.5 %) are between 20 and 39 years old. Only 71 teachers in the sample were over 40 years old. This results once again support the earlier argument that most Bahraini teachers are young.

For crosstabulation purposes and to avoid the invalidity of some of the statistical testing, the four given variables were recoded under the following two categories:

TABLE 25. Reanalysis of age range.

Age group	Frequency	%	Valid %	CUM %
Under 40 years	419	85.5	85.5	85.5
Over 40 years	71	14.5	100.0	100.0
Total	490	100.0	100.0	

However, correlating age group by teachers' qualification, provides the following facts:

A- That the highly qualified teachers with M.Ed, M.A, or M.Sc. are all under the age of 40. (TABLE 26)

B- That there were 195 (39.8%) graduate teachers with B.Ed., B.A. or B.Sc. amongst those "Under 40 years" whilst there were only 33 (6.7%) teachers with graduate qualifications amongst those over 40 years age.

C- There were 111 teachers holding Teacher Training Diploma (22.6 %) among those teachers "Under 40 years", as compared with 6 (1.2 %) amongst the over 40s.

D- There were 30 (6.1 %) holders of a post-graduate Diploma in Education among the "Under 40 years" category compared with 8 (1.6%) amongest the "Over 40 years" category.

E- Finally there were more teachers 24 (33.8 %) with only Secondary School Certificate or other equivalent qualification among the teachers over 40 than among the teachers under 40.

The following (table 26) summarises the results of the age group distribution.

TABLE 26. Distribution of teachers, qualifications by age groups.

Degree	Under 40	%	Over 40	%	Total	%
M.Ed., M.A., MSc.	12	2.4	----	----	12	2.4
B.Ed., B.A., B.Sc.	195	39.8	33	6.7	228	46.5
T.T. College Dip.	111	22.6	6	1.2	117	23.9
P.G.D.E.	30	6.1	8	1.6	38	7.8
G.S.C. or equivalent	71	14.5	24	5.0	95	19.4
Total	419	100.0	71	100.0	490	100.0

Summary and Conclusion

The number of women teachers outnumbered the men at all levels of schooling in Bahrain, and especially at the primary level.

Thus, in 1987-88 there was a total of 1366 female teachers as compared with 782 male teachers in primary schools. Accordingly, 21% more female teachers were chosen in order for every female member of the population to have an equal and non-zero probability of appearing in the sample.

Co-education is not practiced in Bahrain, except in private schools. And almost 20% of the total teaching force in primary schools were non-Bahraini teachers working under contract to the Ministry of Education in order to replace those Bahraini teachers

who were undergoing a four years in-service degree programme in the University of Bahrain sponsored by the Ministry of Education. However, the percentage of expatriate teachers in Bahraini schools in 1987-88 was 45 %.

To ensuer that the sample truly reflects the major characteristics of the population it represents, a fair number of different types of school were chosen from all areas in the country.

A cross section of teachers with different qualifications, training backgrounds, teaching experience, sex, age, subjects taught and school types was assembled.

Due to the shortage of school buildings in Bahrain, combined schools do exist where two school levels combine together in one building i.e primary/intermediate schools or intermediate/secondary schools.

The overwhelming majority of the teachers in the sample hold one of the following three qualifications B.Ed., B.A./B.Sc., or T.T.Dip., the later is a non-graduate qualification. Non-graduates represent 43.3 % of the teaching population.

It was also noted that the majority of the teachers have qualified between approximately 1975 and 1985. Thus, on average Bahraini teachers are relatively young, the majority of the sample being under 40 years of age, and educated in Bahrain.

8.10. Teaching Experience:

Respondents were asked to indicate the number of years they have been involved in teaching . Again four categories were

provided for the teachers to choose among. All of the teachers responded to this question. The results show that the largest group of teachers 238 (48.5 %) have had 10 - 19 years of experience. However, the results also indicated that there were a good number of teachers 184 (37.5 %) who reported to have served up to 9 years in teaching. There were only 68 (14 %) teachers who claimed to have had between 20-29 years of experience.

TABLE 27. Teachers' Years of Experience

Years of Experience	Frequencies	V.%	CUM %
0 - 9	184	37.6	37.6
10 - 19	238	48.5	86.1
20 - 29	68	13.9	100.0
Total	490	100.0	

Crosstabulating the age group of the teachers by their experience, provides the following correlation.

Amongest teachers under the age of 40 there are:

- 174 (42.0 %) teachers with 0-9 years of experience.
- 219 (52.0 %) teachers with 10-19 years of experience.
- 26 (6%) teachers with 20-29 years of experience.

Amongest teachers over the age of 40 there are:

- 10 (14%) teachers with 0-9 years of experience.
- 22 (31 %) teachers with 10-19 years of experience.
- 39 (55%) teachers with 20-29 years of experience.

The above correlations between age group and years of experience, provides a clear indication that graduates tend to become teachers immediately after graduation. This further indicates that there is no unemployment among Bahraini teachers. On the contrary, there is a lack Bahraini teachers, especially, men. According to an official document from the Ministry of Education dated 1988 there were 1018 non Bahraini males and 583 females, teaching in different schools in Bahrain in 1987-88. Together, they represented 31% of the teaching force in that year.

However, the correlation between age and experience of the teachers also showed that there were some 10 teachers of over 40 years of age with 9 years of experience or less, who must have started their teaching careers at over 30 years of age.

More than half the teachers in the sample had more than 10 years teaching experiance, as the following table shows:

a) Less experienced teachers (0-9) years..... 184 (37.6%)
b) More experienced teachers (10-29) years..... 306 (62.4%)

8.11. Training background of the teachers:

Respondents were asked to note if they had ever been trained in the production and the utilisation of educational media. The aim was to establish how much training in educational technology they had had. The entire sample responded to this question. Results showed that nearly half of the teachers 235 (48 %) had not had any training in educational technology, while the other

half 254 (51.8%) had had some training in educational media.

TABLE 28. Distribution of training course attendance.

Responses	Frequency	%	Valid %	CUM %
Not attended	235	48.0	48.1	48.1
Attended	254	51.8	51.9	100.0
Missing	1	0.2	----	----
Total	490	100.0	100.0	

An analysis of the sample according to sex and type of school (Table. 29) shows that a larger percentage of women teachers had had some training than men teachers, and that very few teachers in private schools had had any training. This latter result was to be expected as most of the training courses in educational technology in Bahrain are provided by the Ministry of Education.

TABLE 29. Distribution of training courses attended by sex.

Sex category	Not attended	%	Attended	%	Total	%
Males	98	20.0	85	17.5	183	37.4
Females	123	25.1	161	32.9	284	58.1
Private	14	2.9	8	1.6	22	4.5
Column total	235	48.0	254	52.0	489	100

Clearly this data points to the need for increased in-service training as at present more than half of the teachers have no formal training either in teaching or in the use audio-visual media.

8.12. Value of training :

The questionnaire asked 254 teachers (the 52% of the sample, who had attended training courses) to evaluate their training according to a five point scale, from "not useful" to "Excellent". The following illustrates the findings.

TABLE 30. Distribution of the value of training courses.

Value Label	Frequency	%	Valid %	CUM %
Not useful	22	4.5	8.6	8.6
Part. useful	100	20.4	39.1	48.4
Average	48	9.8	18.8	67.2
Very useful	75	15.3	29.3	96.5
Excellent	9	1.8	3.5	100.0
Missing	236	48.0	---	-----
Total	490	100.0	100.0	

Valid cases = 254

Another results can be gained by merging the variables to two categories, "Not useful" and "useful", as in the following table.

TABLE 31. Further distribution of the value of the training

Value Label	Frequency	%	Valid %	CUM %
Not useful	122	24.9	48.0	48.4
Useful	132	26.9	52.0	100.0
Missing	236	48.2	----	-----
	Total 490	100.0	100.0	
Valid cases = 254				

Thus we see that only 26.9% of the sample found the courses provided are useful to them. This is a very disappointing result.

The above analysis of the results shows that teachers who have been trained are equally divided in their views as to the value of the training courses. Clearly, however, the training courses are not as successful as one would hope.

8.13. Teachers' needs for further training:

It was hypothesised that there is a great need for further in-service training programmes for teachers in educational technology. To test this hypothesis, the questionnaire asked the teachers to indicate whether they felt that they required more training in audio-visual media or not. The verdict was that 331 (67.6 %) out of the 459 teachers who replied to this question had an interest in further training.

TABLE 32. Division of teachers' view on their need for further training in educational technology.

Responses	Frequency	%	Valid %	CUM %
Yes	331	67.6	72.1	72.1
No	128	26.1	27.9	100.0
Missing	31	6.3	----	-----
	Total 490	100.0	100.0	
Valid cases = 459	Missing cases = 39		Total cases = 490	

The table shows that a large number of teachers 331 (72.1%), that is approximately three out of every four teachers are in favour of further training in educational technology. This desire by the teachers to participate in inservice training in educational technology will ease the task of the course planners.

Crosstabulating the teachers' need for further training by their age group categories showed that 290 teachers (63.1 %) under the age of 40 were in favour of further training. Whilst only 41 (8.9 %) over the age of 40 years showed an interest in more training.

TABLE 33. Analysis of teachers' response to the need for further training courses by age group.

Age group	Yes	%	No	%	Total	%
Under 40 years	290	63.2	102	22.2	392	85.4
Over 40 years	41	8.9	26	5.7	67	14.6
Total	331	72.1	128	27.9	459	100.0
Number of missing observations = 31			Valid cases = 459			

Further analysis of teachers' need for training according to sex and type of school revealed that 71.5 % of the of male teachers, 72.4 % of the total number of female teachers and 72.7 % of the teachers in mixed private schools said that they do need further training in Educational Technology.

TABLE 34. Crosstabulation of further training by sex.

Sex	Yes	Valid %	No	Valid %	Total	%
Males	126	71.6	50	28.4	176	100.0
Females	189	72.4	72	27.6	261	100.0
Mixed	16	72.7	6	27.3	22	100.0
Total	331	72.1	128	27.9	459	100.0

Crosstabulating the teachers' views about the need for training with their qualification showed that the proportion of graduates and non-graduates in favour of training was roughly equal. (see Table 35)

TABLE 35. Training needs by teachers' qualification.

Qualification	Need for further training				Total	%
	Yes	%	No	%		
Graduates	184	40.1	75	16.3	331	72.1
Non graduates	147	32.0	53	11.6	128	27.9
Total	331	72.1	128	27.9	459	100.0
Missing cases = 31	Valid cases = 459		Total cases = 490			

8.14. The Training Areas:

Although this question was aimed at those 331 teachers who expressed their willingness to have further training courses in Educational Technology, a wider sample responded to this item. Four different areas were listed when teachers could indicate they needed training. Also, teachers were given an opportunity to add additional areas where they thought training was needed. The four areas were :-

A - Media Production.

B - Media Utilisation.

C - Media Selection.

D - Media Evaluation.

E - Other Areas.

The overall results shows that the great need for training was in "Media Production". Nonetheless, the detailed results were as follows:-

A - Media production :

It is quite clear from the the following (table 36) that only 91 (18.6 %) out of the 384 respondents, showed no interest in media production, whereas the majority 293 (59.8 %) were in favour of more training in this area.

TABLE 36. The need for training in Media Production .

Responses	Frequency	%	Valid %	CUM %
Yes	293	59.8	76.3	76.3
No	91	18.6	23.7	100.0
Missing	106	21.6	----	
Total	490	100.0	100.0	

Missing cases = 106 Valid cases = 384 Total cases = 490

Looking at the results from another standpoint, by breaking them down into different sexes, these results could be obtained:-

1- There are more female teachers 176 (82.6 %) out of the total, who showed their interest in media production as compared with 102 (66.2%) male teachers.

2- Almost all the respondents 15 (88.2 %) in the mixed private schools voted in favour of extra training courses in media production.

TABLE 37. Teachers' views on more training in "Media production" by sex.

Teachers	Yes	%	No	%	Total	%
Males	102	66.2	52	33.8	154	100.0
Females	176	82.6	37	17.4	213	100.0
Mixed	15	88.2	2	11.8	17	100.0
Total	293		91		384	

Missing cases = 106 Valid cases = 384 Total cases = 490

When the view of the "under 40 years olds" and "over 40 years olds" were compared the following is the result:

3- 259 (78.2%) of the teachers under the age of forty were in favour of more training compared with 34 (64.1%) of those over the age of 40. It is, perhaps, inevitable that the younger teachers should be more amenable to training and the change in practice that this implies.

TABLE 38. Teachers' views towards further training in "Media production" by Age group.

Age group	Yes	%	No	%	Total	%
Under 40 years	259	78.2	72	21.8	331	100.0
Over 40 years	34	64.2	19	35.8	53	100.0
Total	293	76.3	91	23.7	384	100.0

Missing cases = 106 Valid cases = 384 Total cases = 490

B - Media utilisation:

Three hundred and eighty three teachers (78 %) replied to this part of the question which was intended to pinpoint the paucity of training in media utilisation, since 188 (49.1%) of the total teachers who responded showed a lack of expertise this area.

The teachers were thus were divided roughly into two halves:

1 - 188 teachers (49.1%) who were interested in training in media utilisation. As the above table shows this

number included 71 male teachers, (45.5 % of the male teachers who responded) 107 female teachers (54.5 % of female teachers who responded) and some 10 teachers (59.%) from mixed private schools.

2 - The other group of teachers were obviously those who were not seen to show an interest in any further training in the media utilisation part of educational technology. In this category, male teachers were the majority of those who felt that they had sufficient knowledge.

TABLE 39. Training needs in media utilisation by sex.

Sex	Yes	%	No	%	Total	%
Males	71	45.5	85	54.5	156	100.0
Females	107	51.0	103	49.0	210	100.0
Mixed private	10	59.0	7	41.0	17	100.0
Total	188	49.1	195	50.9	383	100.0
Missing cases = 107		Valid cases = 383			Total cases = 490	

However, the results from the age group point of view showed that both younger and older teachers are equally distributed in between the "Yes" and the "No" cells. (see Table 40).

TABLE 40.The need for training in media utilization by age group.

Age group	Yes	%	No	%	Total	%
Under 40 years	162	49.0	168	51.0	330	100.0
Over 40 years	26	49.0	27	51.0	53	100.0
Total	188	49.1	195	50.9	383	100.0
Missing cases = 107	Valid cases = 383		Total cases = 490			

C - Media Selection:

A total of 240 (63.2 %) out of the 380 respondents said that they did not need training in media selection, while only 140 (36.8 %) thought that they did. This result is interesting in view of the positive replies to the two previous questions. It could be that the replies indicate a lack of understanding by the teachers of the meaning of the area "Media selection".

However, the following table lists the teachers' views on the need for training in "Media Selection".

TABLE 41. Training needs in Media Selection.

Responses	Frequency	%	Valid %	CUM %
Yes	140	28.6	36.8	36.8
No	240	49.0	63.2	100.0
Missing	110	22.4	----	
Total	490	100.0	100.0	
Missing cases= 110	Valid cases = 380		Total cases = 490	

There was no significant difference between the responses of male and female teachers or the younger and elder teachers as the following tables show:

TABLE 42. Training needs in " Media Selection " by sex.

Sex	Yes	%	No	%	Total	%
Males	56	36.6	97	63.4	153	100.0
Females	77	36.7	133	63.3	210	100.0
Mixed	7	41.2	10	58.8	17	100.0
Total	140	36.8	240	363.2	380	100.0
Missing cases = 110 Valid cases = 380 Total cases = 490						

TABLE 43. Training needs in Media Selection by age group.

Age group	Yes	%	No	%	Total	%
Under 40 years	121	37.0	206	63.0	327	100.0
Over 40 years	19	35.8	34	64.2	53	100.0
Total	140	36.8	240	63.2	380	100.0
Missing cases = 110 Valid cases = 380 Total cases = 490						

D - Media Evaluation:

Three hundred and seventy seven teachers responded to the question as to whether they needed training in media evaluation as part of Educational Technology or not. Once again more than half of the respondents, 232 (61.5%) were classified as not being interested in being trained in this subject, and only 145 (38.5%) showed any interest in this sort of training. The following table illustrate the results.

TABLE 44.Training needs in Media Evaluation

Responses	Frequency	%	Valid %	CUM %
Yes	145	29.6	38.5	38.5
No	232	47.3	61.5	100.0
Missing	113	23.1	----	
Total	490	100.0	100.0	
Missing cases = 113	Valid cases = 377		Total cases = 490	

However, crosstabulating media evaluation by age group, reveals that the majority of the teachers in all age groups are not interested in further training in this aspect of educational technology. The views of both those "under 40 years old" and those "Over 40 years old" are proportionally similar.

TABLE 45. Training needs in Media Evaluation by age group.

Age group	Yes	%	No	%	Total	%
Under 40 years	126	38.8	199	61.2	325	100.0
Over 40 years	19	36.5	33	63.5	52	100.0
Total	145	38.5	232	61.5	377	100.0
Missing cases = 113	Valid cases = 377			Total cases = 490		

It is noticable from crosstabulating "Media Evaluation" by sex groups, that of 136 out of the 208 female respondents (65.4%) in state schools did not consider that any training was required, whereas only 85 male teachers (55.9%) were of the same view. The most negative response came from mixed private school

teachers, 64.7 % of whom showed no interest in this kind of training.

TABLE 46. Training needs in Media Evaluation by sex groups

Sex groups	Yes	%	No	%	Total	%
Males	67	44.1	85	55.9	152	100.0
Females	72	34.6	136	65.4	208	100.0
Mixed	6	35.3	11	64.7	17	100.0
Total	145	38.5	232	61.5	377	100.0
Missing cases = 113		Valid cases = 377		Total cases = 490		

Results on training needs in "Media Evaluation" by school type revealed that teachers in all types of school showed very little interest in this aspect of training. The highest positive percentage of teachers were in primary schools, with 46% of them giving a "Yes" response.

TABLE 47. Training needs in " Media Evaluation " by school type.

School Type	Yes	%	No	%	Total	%
Primary	58	46.0	68	54.0	126	100.0
Primary / Intermediate	21	34.4	40	65.6	61	100.0
Intermediate	14	24.1	44	75.9	58	100.0
Intermediate / Secondary	4	36.4	7	63.6	11	100.0
Secondary	42	40.4	62	59.6	104	100.0
Private (All type)	6	35.3	11	64.7	17	100.0
Total	145	(38.5)	232	(61.5)	377	(100.0)
Missing cases = 113		Valid cases = 377		Total cases - 490		

E - Other required areas suggested by the teachers:

Teachers were asked to point out whether they need to be trained in any areas other than those mentioned. Only 122 (25%) out of the teachers in the sample responded to this question with just 44 (9%) suggesting further areas where training was required. Most of the topics that were suggested, however, were within the areas listed in the questionnaire. No significant area would, therefore, seem to have been omitted from the questionnaire.

TABLE 48. Training needs in " Other Areas " .

Responses	Frequency	%	Valid %	CUM %
Yes	44	9.0	36.1	36.1
No	78	15.9	36.9	100.0
Missing cases	368	75.1	---	
Total	490	100.0	100.0	
Missing cases =	368	Valid cases= 122	Total cases = 490	

Summary and Conclusions

By examining the above findings, it was noticed that the majority of the respondents had a lengthy experience as teachers, most of them having served up to nineteen years.

Also, teachers were divided equally in respect to their training, with 48.1% having not experienced any kind of training in educational technology and 51.9% who had some

training in this field.

Females who had attended training courses outnumbered their males colleagues by almost 30 % .

Slightly over half of those teachers who attended training courses felt they were useful, and the majority manifested a need for further training in Educational Technology. Unexpectedly, the majority of this category (88%) were over 40 years of age.

Most of the teachers did not consider that further training was needed in most of the areas suggested to them, such as media utilisation, media selection, media evaluation and other possible areas. Exceptionally, the majority (76.3%) showed their interest in training in media production.

8.18. Degree of importance of some instructional task

Teachers were asked to specify the degree of importance they attached to some educational technology aspects of classroom teaching, such as specifying lesson objectives, specifying lesson content, selecting lesson strategies, selecting media, designing and producing media, setup and preparation for media utilisation, and evaluation tools. The questions aimed to establish those perspectives and topics of training that the teachers regarded as priorities.

Additionally, the purpose was to explore teachers' attitudes towards training in Educational Technology and the value they attached to it.

Three level scales were provided and teachers were asked to tick one. The findings were as follows:-

8.18.1. Specifying lesson objectives

Of the 443 valid responses to this question 405 (91.4%) considerd that specifiying lesson objectives was "veryimportant". Although this was not an unexpected response, it was, nevertheless, very encouraging.

TABLE 49. The importance of specifying lesson objectives.

Teachers' View	Frequency	%	Valid %	CUM %
Not Important	13	2.7	2.9	2.9
Little Important	25	5.1	5.6	8.6
Very Important	405	82.7	91.4	100.0
Missing Cases	46	9.4	----	
Total	490	100.0	100.0	
Missing Cases = 47	Valid Cases = 443			Total Cases = 490

Crosstabulation analysis of the previous results by sex reveals that both an equal number of males and females considered "Specifying lesson objectives" to be important: 152 out of 166 male teachers (91.6%) and 232 out of 256 female teachers (90.6%). All the 21 respondents from mixed private schools agreed about the importance of specifying lesson objectives (see table 50).

TABLE 50. The importance of "specifying objectives" by sex.

Sex	Not	%	Little	%	Very	%	Total	%
Males	5	3.0	9	5.4	152	91.6	166	100.0
Females	8	3.1	16	6.3	232	90.6	256	100.0
Mixed	-	--	--	--	21	100.0	21	100.0
Total	13	2.7	25	5.6	405	91.4	443	100.0
Missing Cases = 47			Valid Cases = 443			Total Cases = 490		

However, analysing this question using different selection criteria, eg. age group, teacher qualifications, school type and sex provided similar results in each case. The majority of teachers agreed that specifying lesson objectives is an important aspect of the act of instruction.

8.18.2. Specifying lesson content:

The second area in this question asked the teachers to evaluate the importance of specifying lesson content. Again 473 teachers responded. The results showed that only 52 teachers out

considered it as not very important, but the great majority, 421 (89 %) as expected, viewed it as very important.

TABLE 51. The importance of specifying lesson contents.

Value Label	Frequency	%	Valid %	CUM %
Not important	4	0.8	0.8	0.8
Little Important	48	9.8	10.1	11.0
Very important	421	85.9	89.0	100.0
Missing Cases	17	3.5	-----	
Total	490	100.0	100.0	

Missing Cases = 17 Valid Cases = 473 Total Cases = 490

Crosstabulating the results by sex showed that, there is no significant differences between the male and female point of view. 88% of males and 89 % of females saw "specifying lesson content" as very important. The vast majority (95.5%) of teachers in private schools agreed with this view.

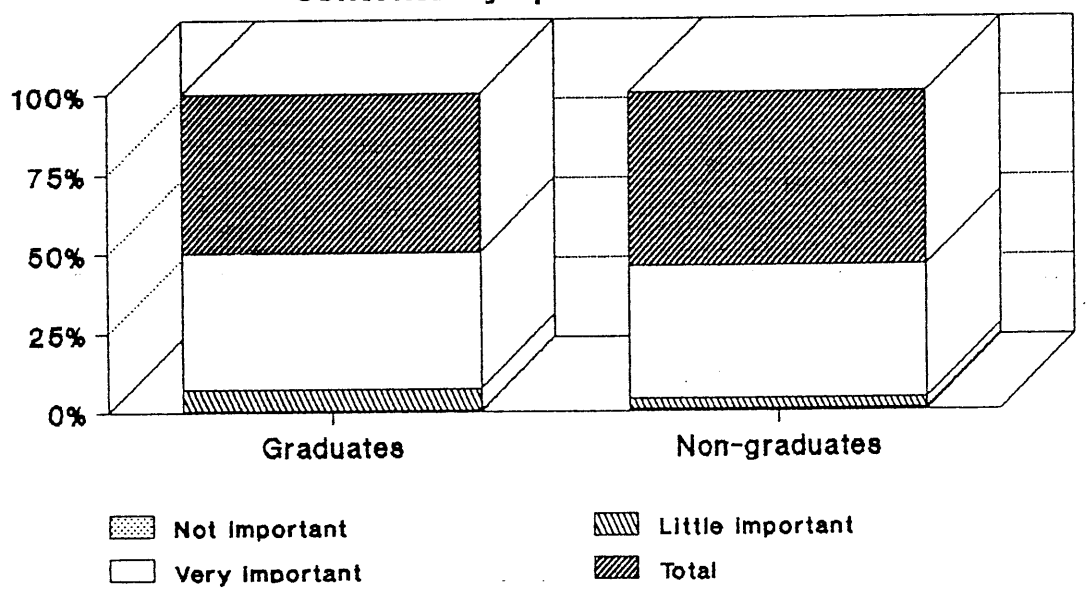
TABLE 52. Analysis of teachers' view to lesson content by sex.

Sex	Not import.	Little import.	Very import.	Total
Male	2	19	156	177
%	1.1	10.7	88.2	100.0
Female	2	28	244	274
%	0.8	10.2	89.0	100.0
Mixed	-	1	21	22
%	-	4.5	95.5	100.0
Total	4	48	421	473
%	0.8	10.2	89.0	100.0

Missing Cases = 17 Valid Cases = 473 Total = 490

An interesting finding was obtained by crosstabulating the above criteria according to teacher qualifications. A higher percentage of non-graduate than graduate teachers considered specifying lesson content as very important.

Figure 20. Teachers' view on lesson contents by qualification



8.18.3. Selecting Instructional strategies:

An analysis of teachers' views about the degree of importance of "Instructional strategies" for lesson preparation, revealed that a total of 329 (75.5 %) out of the 436 respondents saw this as very important, while the remaining 107 (24.5 %) teachers saw it as not important or of little importance.

TABLE 53. The importance of selecting lesson strategies.

Value Label	Frequency	%	Valid %	CUM %
Not Important	7	1.4	1.6	1.6
Little Important	100	20.4	22.9	24.5
Very Important	329	67.1	75.5	100.0
Total	490	100.0	100.0	
Missing Cases = 54	Valid Cases = 436		Total Cases = 490	

Crosstabulating the above results by teachers' qualifications showed that 70% or more teachers with all types of qualification found "selecting instructional strategies" as very important in lesson preparation. Moreover, crosstabulating the same factor by school type indicated that a higher percentage of teachers in intermediate/secondary (combined) followed by primary schools considered it to be "Very Important" (88.9 %) & (84.5 %) than the other types (see table 54).

TABLE 54. Analysing lesson strategies by school type

School Type	Not	%	Little	%	Very	%	Total	%
Primary	2	1.3	21	14.2	125	84.5	148	100.0
Prim. / Inter.	2	2.7	21	28.8	50	68.5	73	100.0
Intermediate	2	2.7	28	39.0	42	58.3	72	100.0
Inter. / Sec.	-	---	1	11.1	8	88.9	9	100.0
Secondary	-	---	24	21.4	88	78.6	112	100.0
Private	1	4.6	5	22.7	16	72.7	22	100.0
Total	7	1.6	100	22.9	329	75.5	439	100.0
Missing Cases = 54	Valid Cases = 436				Total Cases = 490			

8.18.4. Media Selection

At this stage of the questionnaire, teachers were asked to evaluate the importance of selecting media for their classroom teaching. 466 teachers replied to the question, and the following were the results obtained:

a) A very large number of teachers, 411 (88.2 %) rated "media selection" as a very important concern in lesson preparation, and the remaining 55 (11.8 %) considered it to be less so.

An interesting insight comes from a comparison between teachers' answers to this question and their answers to the earlier question about their training needs in media evaluation, that is:

- Although many teachers (411) agreed that selecting media is a very important factor in lesson preparation, only 140 teachers (36.8 %), felt that they needed further training in this area. (see page 224). This seemingly means that many teachers felt self confident in this field, or else they were not happy about the suitability of the existing training provision. A similar result can be obtained by crosstabulating results of the importance of media selection with attendance at training courses. These results showed that even the 199 (88.4 %) teachers out of the 225 who were untrained, regarded selecting media as a crucial factor in teaching (see table 55).

TABLE 55. The importance of " Media Selection " by their training background.

Training Attendance	Degree of importance							
	Not	%	Little	%	Very	%	Total	%
Not attended	4	1.8	22	9.8	199	88.4	225	100.0
Attended	2	0.8	27	11.2	212	88.0	241	100.0
Total	6	1.3	49	10.5	411	88.2	466	100.0
Missing Cases = 24	Valid Cases = 466				Total cases = 490			

However, crosstabulating teachers' views of the importance of media selection by sex group does not provide a different result, except that all the 22 teachers in private schools viewed media selection as being very important.

8.18.5. Designing and producing teaching media:

In this question, teachers were asked to rate the importance of designing and producing media for classroom instruction.

Results showed that 74.1% of the valid cases supported the idea that "Media designing and producing" as being very important, whilst 25.9 % attributed little importance in this process.

TABLE 56.The importance of media production .

Value Lable	Frequency	%	Valid %	CUM %
Not important	19	3.9	4.2	4.2
Little importance	97	19.8	21.7	25.9
Very Important	332	67.8	74.1	100.0
Total	490	100.0	100.0	
Missing Cases = 42	Valid cases = 448		Total Cases = 490	

Crosstabulating the importance of media production by school types, suggested that secondary school teachers viewed this of lesser importance than primary or intermediate school teachers. However the private school sample is very small.

TABLE 57. Media production by type of school.

School Type	Degree of importance							
	Not	%	Little	%	Very	%	Total	%
Primary	6	3.9	20	13.0	128	83.1	154	100.0
Primary /Inter.	4	5.6	20	27.8	48	66.6	72	100.0
Intermediate	4	5.4	8	10.8	62	83.8	74	100.0
Secondary	5	4.0	47	37.0	75	59.0	127	100.0
Private	-	---	2	9.5	19	90.0	21	100.0
Total	19	4.2	97	21.7	332	74.1	448	100.0
Missing Cases = 42	Valid Cases = 448			Total Cases = 490				

The above findings showed that secondary school teachers were less in favour of "media designing and producing" than those in primary or intermediate schools. This suggests that

there may be a strong case for employing ready-made teaching media, rather than the teachers making them themselves. At the secondary stage abstract learning is more dominant than in primary or intermediate schools and less opportunities are available for the teachers to design learning experiences.

However, one has also to consider the following points:-

(a) Are facilities for media readily available?

(b) How appropriate is it for the teachers to make all types of media?

(c) There may thus be a good case for well-documented resource collections.

8.18.6. Setting up and preparation for media usage :

This question asked the teachers to specify the degree of importance they give to the preparation and organisation stage of using media in classrooms. 457 (93 %) of the teachers responded to this question. The majority 356 (77.9%) considered the utilisation of teaching media to be very important, while 85 (18.6%) gave this matter little significance and 16 (3.5 %) considered it as not important. Surprisingly, 58 (22.5 %) of the Graduate teachers saw little importance to this area, while the number of "Non-Graduate" teachers was only 27 (13.5%) (table 58).

TABLE 58. The importance of preparation for media usage by qualifications.

Qualifications	Degree of importance							
	Not	%	Little	%	Very	%	Total	%
Graduates	11	4.2	58	22.6	188	73.2	257	100.0
Non graduates	5	2.5	27	13.5	168	84.0	200	100.0
Total	16	3.5	85	18.6	356	77.9	457	100.0
Missing Cases = 33 Valid Cases = 457 Total Cases = 490								

8.18.7. The evaluation of teaching media:

When teachers were asked to consider the importance of the evaluation process for lesson preparation, 470 (95.9 %) replied, 390 (83 %) of them rating "Evaluation" as a very important task, while some 80 (17 %) rated it otherwise.

Although, most teachers regarded media evaluation as a very important step in lesson preparation, this contradicts the view of the majority of the teachers in an earlier question, regarding evaluation as an area in which they do not need further training. This contradiction may suggest that, although teachers regarded media evaluation as an important matter, they do not wish to be involved in training courses in this area. The potential clearly exists for confusion occurring in the teachers' understanding of media evaluation and that of evaluating teaching performance itself. There is also room for confusion in this aspect because of the evaluation of teaching that is covered by inspectors and subject specialists - and on which prospects of promotion

lie. It is possible that the training courses have so far failed to prepare teachers for the task of evaluating media for incorporation into teaching strategies.

8.19. Media usage:

In this question teachers were asked to categorise themselves according to their media usage. Originally teachers were provided with a five points ordinal scale:-

- Non user.
- Below average user.
- Average user.
- Above average user.
- Constant user.

The results obtained are shown in the following table:

TABLE 59. Teachers' status in media usage .

Value lable	Frequency	%	Valid %	CUM %
Non user	17	3.5	3.5	3.5
Below average	49	10.0	10.1	13.7
Average user	127	25.9	26.3	40.0
Above average	123	25.1	25.5	65.4
Constant user	167	34.1	34.6	100.0
Total	490	100.0	100.0	
Missing Cases = 7	Valid Cases = 483		Total Cases = 490	

The results revealed that only a few teachers 17 (3.5 %) considered themselves as non-media users, whilst the remaining 466 (96.5 %) teachers counted themselves as media users in

one way or another. However, even if those 49 (10.1%) teachers, who rated themselves as below average users are excluded as real media users, there will be still 417 (86.3 %) teachers who may be deemed as media users.

Crosstabulating media users by sex showed similar patterns between those who use media and those who do not use it amongst both sexes, whilst again in mixed private schools all the teachers recorded themselves as media users.

However, the percentage of female teachers rating themselves as consistent media users (37.5 %) noticeably exceeded that of male teachers (26 %) (see table 60).

TABLE 60. Teachers' status in media usage by sex.

Value lable	Males	%	Females	%	Mixed	%	Total	%
Non user	10	5.5	7	2.5	-	-	17	3.5
Below average	17	9.4	33	11.8	-	-	50	10.4
Average user	50	27.6	74	26.4	3	31.6	127	26.3
Above average	57	31.5	61	21.8	5	22.7	123	25.5
Constant user	47	26.0	105	37.5	14	63.7	166	34.4
Total	181	100.0	280	100.0	22	100.0	483	100.0

Missing Cases = 7 Valid Cases = 483 Total cases = 490

Another possible method of looking at the results is by crosstabulating teachers' status in using media by their years of experience. This analysis showed a similar distribution of teachers in the different categories. But the percentage of

those non-media users and the below average users amongst younger teachers were slightly higher than amongst older teachers. A possible explanation for this is that the younger teachers are concentrating on "Content". With experience they might well become media users.

TABLE 61. Crosstabulating media user by years of experience

Degree of Usage	Years of experience							
	0-9	%	10-19	%	20-29	%	Total	%
Non user	6	3.3	8	3.4	3	4.4	17	3.5
Below average	24	13.2	20	8.6	6	8.8	50	10.4
Average user	50	27.5	59	25.3	18	26.5	127	26.3
Above average	41	22.5	63	27.0	19	28.0	123	25.5
Constant user	61	33.5	83	35.7	22	32.3	166	34.4
Total	182	100.0	233	100.0	68	100.0	483	100.0
%	(37.7)		(48.2)		(14.1)		(100.0)	

Missing Cases = 7 Valid Cases = 483 Total cases = 490

Another interesting finding can be obtained by crosstabulating media users by whether they attended training courses or not. Interestingly, results revealed that, not only those who attended courses proved to be media users, but there was a total of 202 teachers amongst those 230 teachers (87.8%) who claimed not to have attended any training courses who said that they used media in their teaching.

TABLE 62. Media usage by training course attendance

Degree of Usage	Training courses attended					
	Not Attended	%	Attended	%	Total	%
Non user	8	3.5	9	3.6	17	3.5
Below average	21	9.1	29	11.5	50	10.3
Average user	68	29.4	59	23.4	127	26.3
Above average	49	21.2	74	29.4	123	25.5
Constant user	85	36.8	81	32.1	166	34.4
Total	231	100.0	252	100.0	483	100.0
%	(47.8)		(52.2)		(100.0)	
Missing Cases = 7 Valid Cases = 483 Total cases = 490						

Thus we see some evidence of a "spin off" from the provision of training, where those using media "lead out" previous "non-users" into classroom action.

Crosstabulating media usage by school type showed that secondary school teachers were the poorest users of media. (see table 63). This supports the earlier findings where a lower percentage of secondary school teachers considered media production as being a very important factor in teaching.

TABLE 63. Media usage by school type

Degree of Usage	School types & Percentage						
	P. %	PI. %	I %	IS %	S %	Priv. %	T. %
Non user	6 3.7	1 1.3	4 4.8	- -	6 4.7	- -	17 3.5
B.average	11 6.8	5 6.3	9 10.7	2 20	22 17.5	- -	49 10.1
Average	32 19.7	23 29.1	30 35.7	3 30	37 29.4	2 9.0	127 26.3
A.average	45 27.8	26 33.0	15 17.9	2 20	30 23.8	5 22.7	123 25.5
Constantly	68 42.0	24 30.3	26 30.9	3 30	31 24.6	15 68.0	167 34.6
Total	162 100	79 100	84 100	10 100	126 100	22 100	483 100
Missing Cases = 7 Valid Cases = 483 Total cases = 490							

8.20. Diversification of media usage

In this part of the questionnaire, teachers were provided with a list of 16 different media and asked to indicate whether they never used them, sometimes used them or always used them. The following are the overall findings, which show each media and its frequency of use (table 64).

TABLE 64. Media usage

Type of media	Users	%	Non-users	%	Total
Educational displays	404	84.0	75	16.0	479
Overhead materials	183	40.0	276	60.0	459
Film strips	134	29.0	324	71.0	458
Film slides	104	23.0	350	77.0	454
Audio tapes	276	59.0	191	41.0	467
Video tapes	261	57.0	199	43.0	460
Programmed text	156	35.0	293	65.0	449
Specimens	287	63.0	166	37.0	453
Models	348	75.0	114	25.0	462
Dramatisation	311	67.0	150	33.0	461
Field trips	234	51.0	222	49.0	456
Television prog.	185	40.0	273	60.0	458
Radio programmes	121	27.0	327	73.0	448
Computer as media	48	11.0	397	89.0	445
Educational games	205	45.0	249	55.0	454
Other media	344	78.0	97	22.0	441

Using the percentage, a rank order can be computed from the above data (table 64) and this is presented in the following table.

TABLE 65. Rank order for media usage

Medium	Rank order
Educational displays →	1
Other media.(chalk boards etc.) →	2
Models →	3
Dramatisation →	4
Specimens →	5
Audio tapes →	6
Video tapes →	7
Field trips →	8
Educational games →	9
Television programmes →	10
Overhead materials →	10
Programmed text →	12
Film strips →	13
Radio programmes →	14
Film slides →	15
Computers →	16

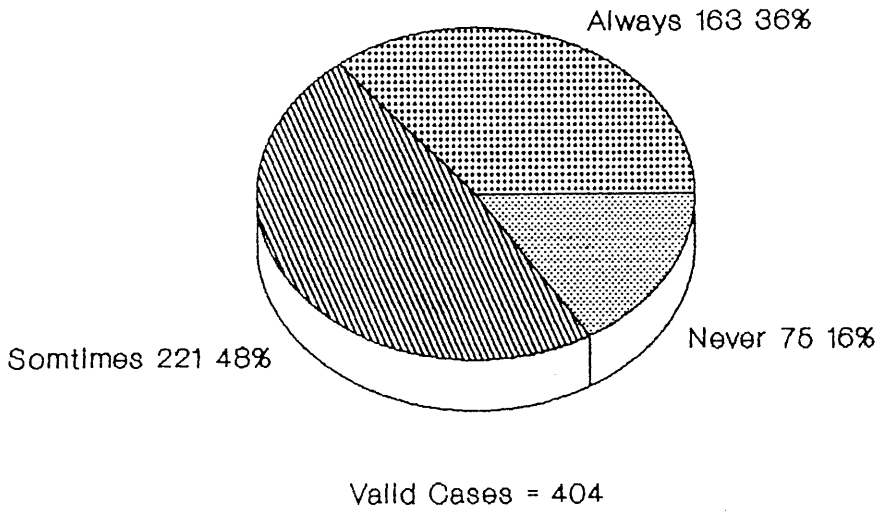
Mapping the above table indicated that, " Educational Displays" were the media used more often by teachers, followed by " Other media " which included non-projected media such as chalk boards, flash cards, cutouts from magazines or newspapers and so fourth. The "computer" showed the lowest percentage use. However, it is assumed that this negative attitude toward the computer is beginning to change, as a result of the introduction of the computer in the school curriculum. Clearly the fewer the special facilities needed, the greater chance there is of a medium being used.

8.20.1. Educational displays:

Educational displays, such as maps, charts, diagrams, tables, pictures and cards were the most used media by the teachers. The reason for this favourable attitude amongst teachers to displays is obvious; displays are easy to produce and do not require equipment for use, so it is not surprising that most teachers use displays more than any other instructional media.

The following pie chart shows that only a small slice of the pie 75 (16%) teachers in the sample were non-display users.

Figure 21. Educational display users



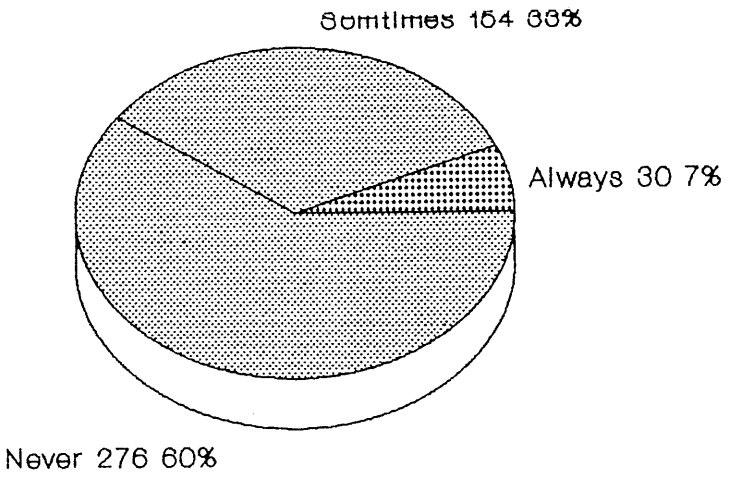
8.20.2. Overhead projector and its materials

The overhead projector does not have a substantial use among the teachers. It has come in eleventh place in the rank order distribution.

The following chart clearly shows that, out of the total 460 respondents, the majority (60%) of the teachers denied using overhead projectors.

However, only 30 teachers (7%) reported to be constant users of overhead projectors (see fig 22).

Figure 22. Overhead projector users



Valid cases = 460

The 276 (60%) teachers who reported to be the non-overhead projector users were distributed amongst all type of teachers: those with different qualifications and from different age groups (see table 66).

TABLE 66. The non-overhead projector users by age group

Age group	non- users	%
20 - 29	125	45.3
30 - 39	117	42.4
40 - 49	28	10.1
50 - Over	6	2.2
Total	276	100.0

The above table shows clearly that the non-media-users are more concentrated in the younger teacher categories rather than in the older categories. This, once again, supports the earlier argument that younger teachers tend to concentrate on subject content rather than presentation techniques.

Crosstabulating the overhead projector usage by teachers' qualifications revealed that astonishingly, 153 (55.4%) out of those not using overhead projectors are graduate teachers, whilst the non-graduate teachers were more frequent users (see table 67).

TABLE 67. the non-overhead users by qualification

Qualification	Non- users	%
Graduates	153	55.4
Non - graduates	123	44.6
Total	276	100.0

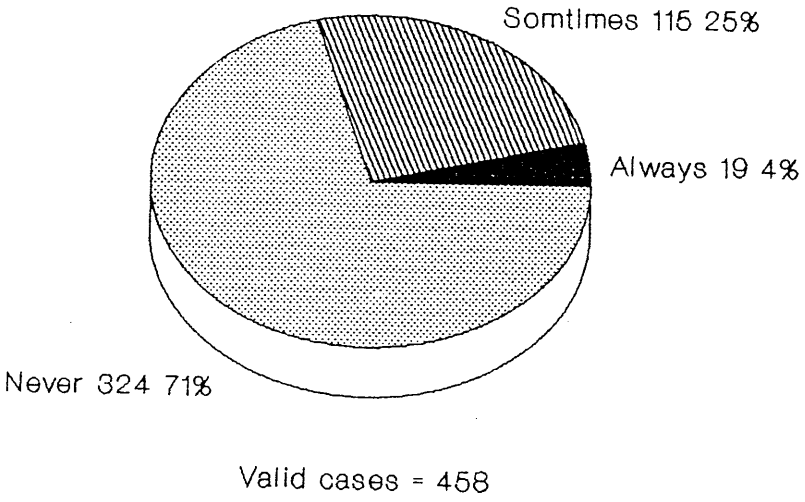
The 276 non-overhead projector users represent (60%) of total respondents to this question. This is a high percentage.

Experience shows that most teachers tend to worry about preparing materials and transparencies for overhead projector use. Even some of those teachers who claimed training in preparing materials did not in fact use the overhead projector.

8.20.3. The utilisation of the film strip:

Results showed that the film strip was less used in instruction than even the overhead projector; over 71% of the respondents to this question did not use the filmstrip in their teaching (see figure 22)

Figure 22. Filmstrip users

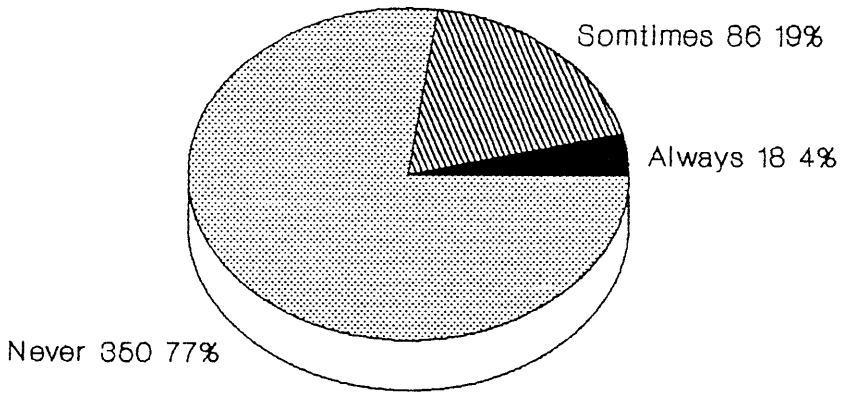


Once again, the lack of ready made films suitable for local needs as was gathered during the interviews, may be the reason for the lack of use of film strips by teachers. Preparing film strips is not easy. We also have to consider whether classrooms make the use of this medium easy.

8.20.4. The utilisation of film slides:

The outcome of the data analysis to this question revealed, as in figure 23, that only 104 (21.3%) teachers use film slides in their teaching, whilst the rest 350 (71.4%) signified that they do not use them. Of course, preparing film slide materials as with film strips requires a good background in photography. Few teachers have gained this background during pre-service preparation. Once again, even those teachers who did attend training courses in media production, usually lack the enthusiasm to produce their own material; especially when they are always expecting ready made films to always be available to them.

Figure 24. Film Slide users



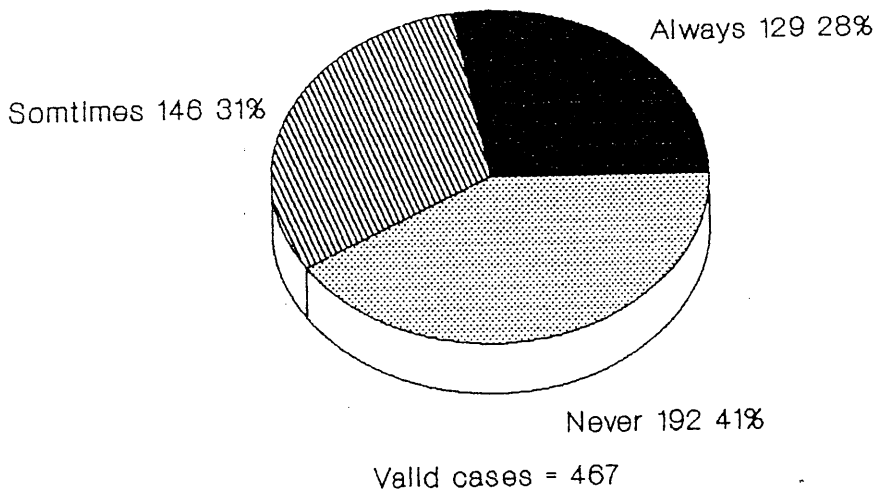
8.20.5. The utilisation of audio tapes:

Results showed that over half the teachers 275 (59%) out of 467, said that they use audio tapes in their instruction.

However, this is not unexpected as the hardware is inexpensive and rooms do not need to be specially adapted. Thus, as was the case with displays, teachers are keen to use appropriate media if the facilities are available.

The pie chart (figure 25) represents the data. However, it is good to see so many teachers making regular use of this resource.

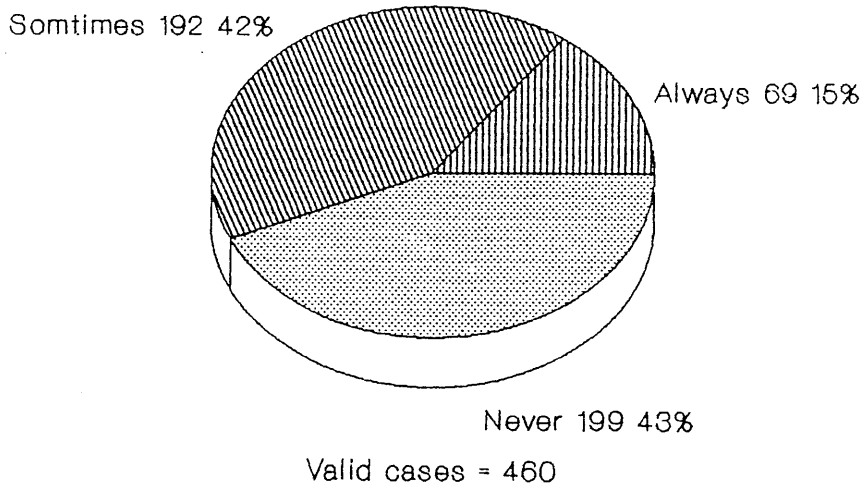
Figure 25. Audio tape users



8.20.6. The utilisation of the video-tape Recorder:

Teachers seemed to have a favourable attitude towards video tapes in instruction. The results showed that a total of 261 (57%) out of the 460 who responded to the question used video tapes; most of them (192) used them sometimes and 69 used them always (see figure 26)

Figure 26. Video Tape Users



More than half of the respondents stated that they used video in their teaching. This significant finding, suggested that schools are well equipped with video and television sets. Also this positive attitude towards video obviously can be

attributed to:-

(a) The role of the Educational Technology Centre.

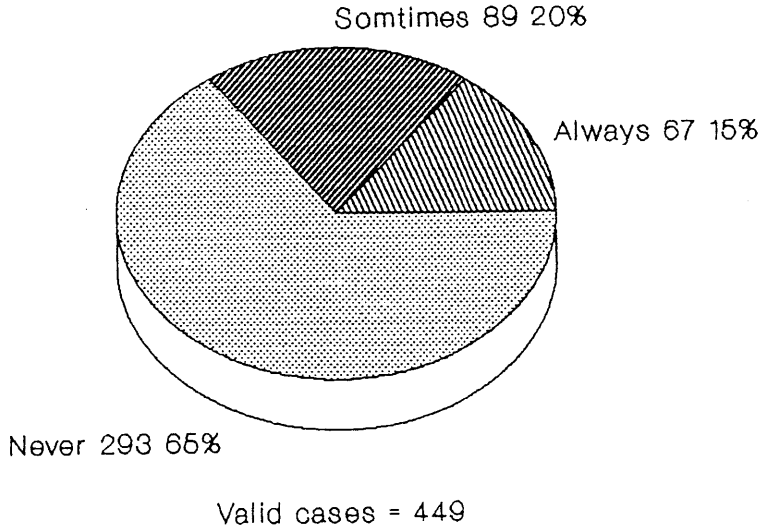
(b) The fact that utilising video tapes require little adaption of classrooms.

(c) Video is popular for use at home; a point that also applies to displays and audio tapes.

8.20.7. The utilisation of Programmed texts:

The majority of respondents, 293 (65.3%) indicated that they have never used programmed texts in their instruction. Even so, programmed texts are spreading in the curricula of primary and intermediate schools, especially in the teaching of foreign languages such as English and French (see figure 27). Again this technique is not really suitable for all subjects; thus one third of the teachers represents high usage.

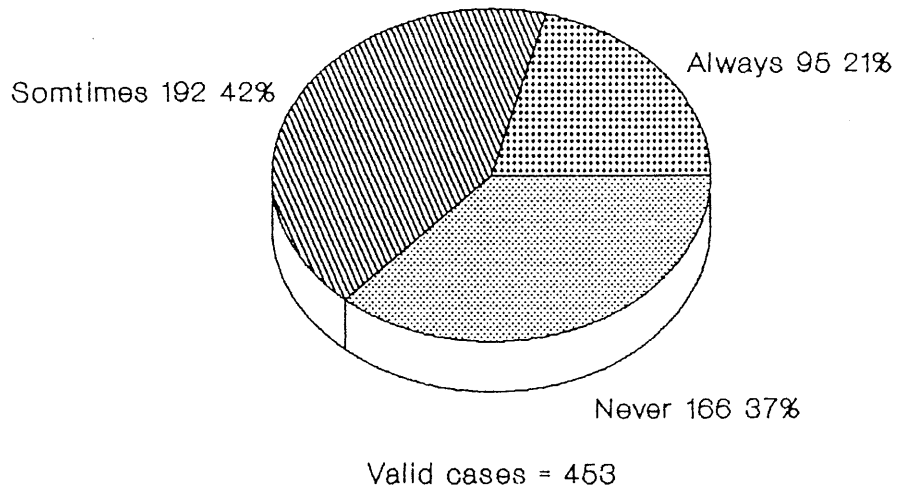
Figure 27. Programmed text users



8.20.8. The utilisation of Specimens:

Using specimens in teaching does not require a very big effort by the teachers in preparation. Thus, as was expected, the majority 287 (63.4%) of the respondents to this question reported using specimens (see figure 28).

Figure 28. Specimen Users

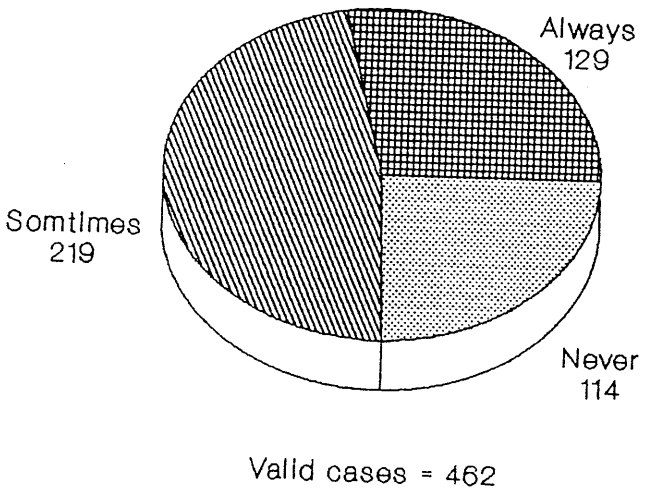


8.20.9. The utilisation of Models.

Models are three-dimensional representations of real objects; they can provide learning experiences real things cannot provide and can be made by teachers themselves or bought readymade.

Teachers reported that they used models in their instruction even more than they used specimens. More than 3/4 of the respondents, 348 (75.3 %) indicated that they were model users. Only 114 (24.7 %) respondents reported themselves as non-model users (see figure 29).

Figure 29. Model Users



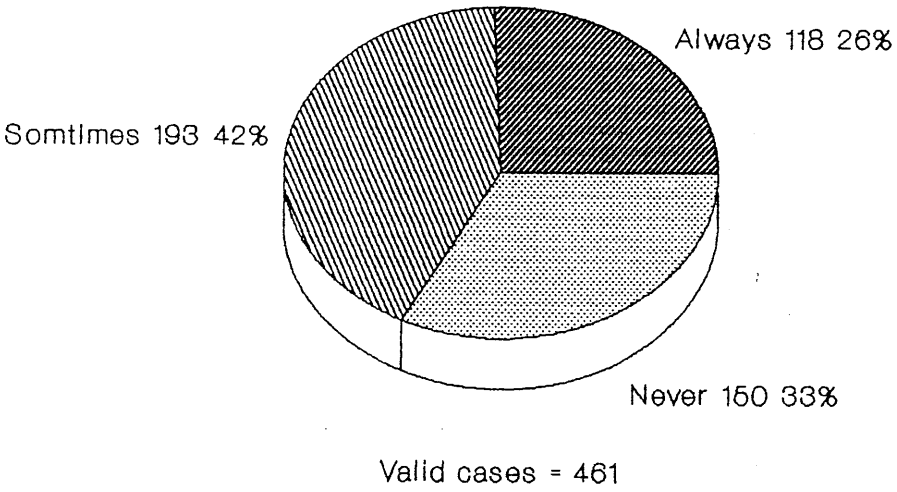
This evidence ties in with a previous research by the writer in a study of Educational Technology (1986) which showed that most of the teachers in Bahrain used non-projected media such as models, charts and specimens more than media which require machines such as overhead projectors, film strips and motion pictures.

8.20.10. The utilisation of Simulation

Simulation techniques proved to be a widely used medium of instruction in Bahraini schools. 311 teachers out of the 461 respondents, that is 67.5 % said that they use this medium.

Once again this technique does not require any hardware.

Figure 30. The utilisation of Simulation

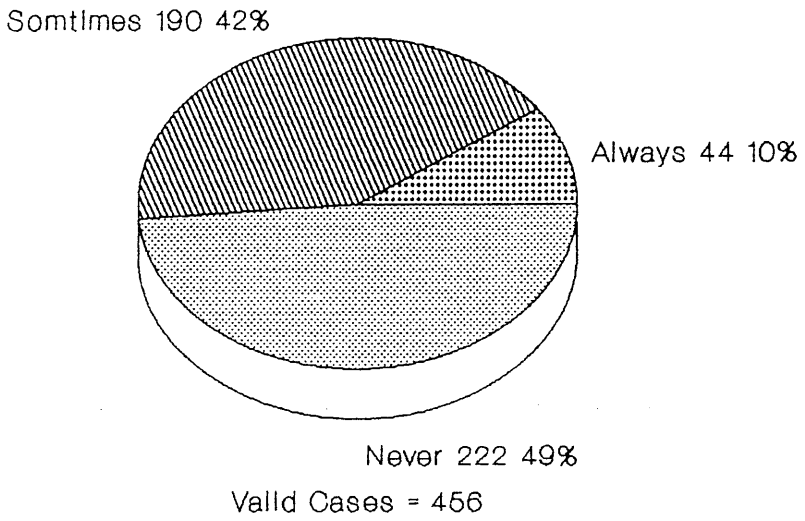


8.20.11. The utilisation of "Field trips"

Field trips are a very useful way of providing direct and purposeful experiences for students, but they require careful pre-planning and organization. More than half of the

respondents 234 (51%), claimed to use this technique in their teaching.

Figure 31. Field Trip Users



Schools are supported by the Ministry of Education in supplying transport for school trips. But obviously teachers still have to make great efforts in the planning and organisation, and such trips cause unavoidable disruption to the schools' teaching programme.

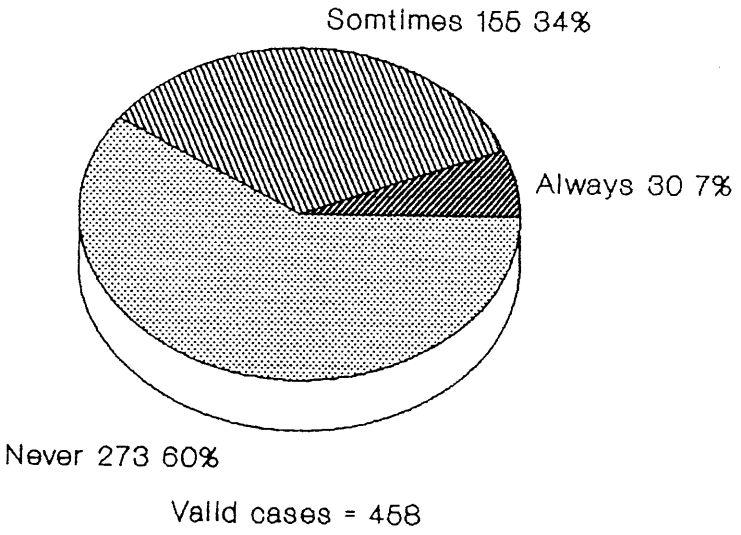
8.20.12. The utilisation of T.V. Programmes.

The findings of the use of television programmes are not very reliable in the writer's view. Based on the writer's

personal experience as an educational media tutor in the in-service teacher training centre suggested a much lower uptake. Using live T.V. Programmes does have problems of scheduling. However, it is believed that teachers are likely to confuse the use of broadcast television with using video tapes (possibly via home recording of programmes "off air").

Nevertheless, the results show that over 40 % of the respondents do use television programmes as instructional media (see figure 32). This mirrors the increasing popularity of television amongst people living in Bahrain.

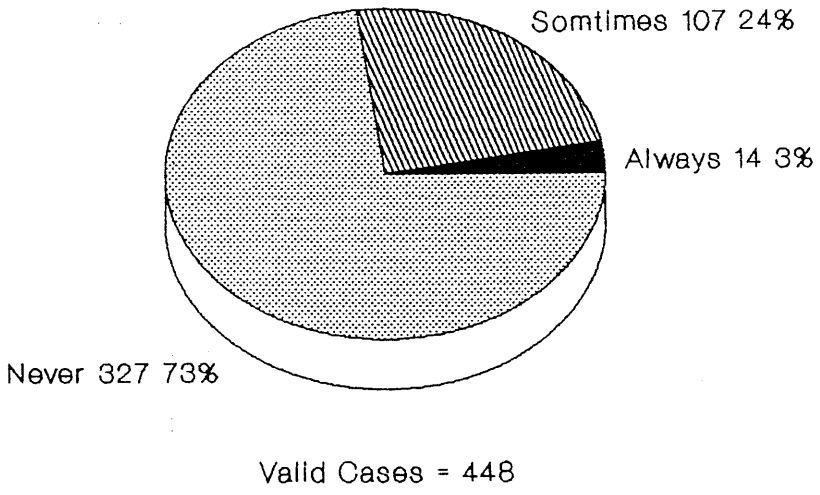
Figure 32. Television Programme Users



8.20.13. The utilisation of Radio Programmes:

The results for radio programme users are much more reliable than those of T.V. programmes; that is 121 (27%) of the respondents to this question used them in their instruction, 14 (3%) used them " Always " on a regular basis and 107 (24 %) used them occasionally. The majority, 327 (73%) said that they never used radio programmes (see figure 33).

Figure.33 Radio Programme users



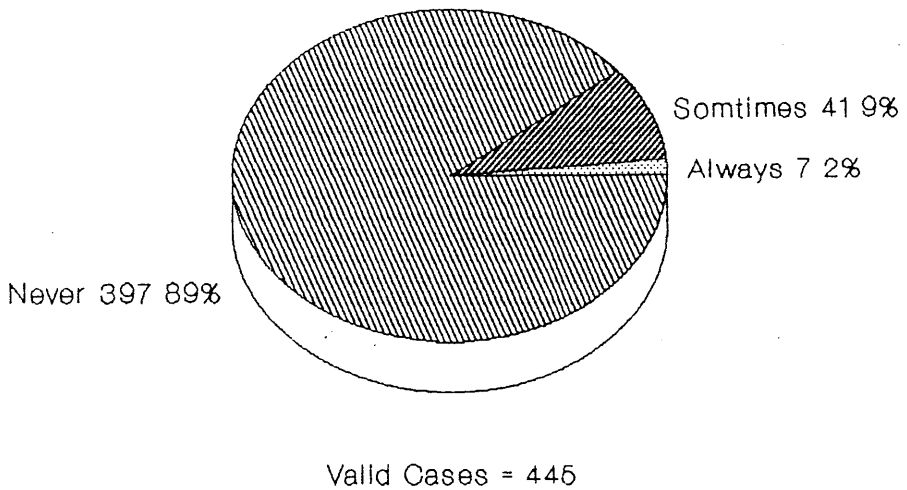
The reliability of the above results lies in the fact that there are almost no programmes on the public radio which could fit into the schools' general curricula. Also, as was the case in respect to T.V.programmes, there is always the problem of scheduling unless "off air" recording is used.

8.20.14. The utilisation of Computers in the classroom:

When the questionnaire was distributed in 1986/1987, computers had not been introduced to schools, this resulted as expected in a low number of respondents claiming to use computers in their teaching.

However, results showed that 48 teachers (11%) said they used computers, of which 7 (2 %) used them "Always" and the remaining 41 teachers (9 %) use them " Sometimes ". However, most of the 48 computer users were commercial subject teachers. Computers had been supplied to them first, being essential for their subject (see figure 34).

Figure 34. The Computer users

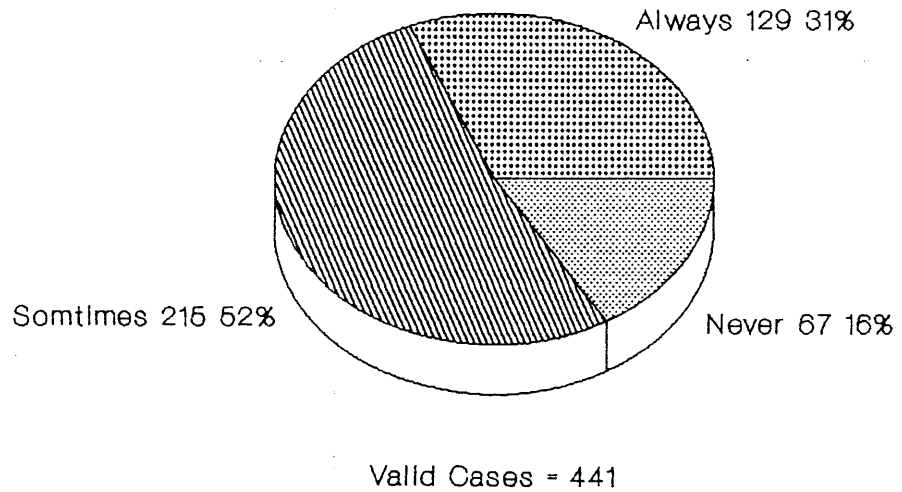


8.20.16. The use of other media:

Teachers were asked to note any other media they used such as chalk board, magazine & newspapers, cutouts etc.

The results shows that more than 3/4 of the respondents used these "Other media".

Figure 36. Other Media Users
(chalk board, cards, books, etc)

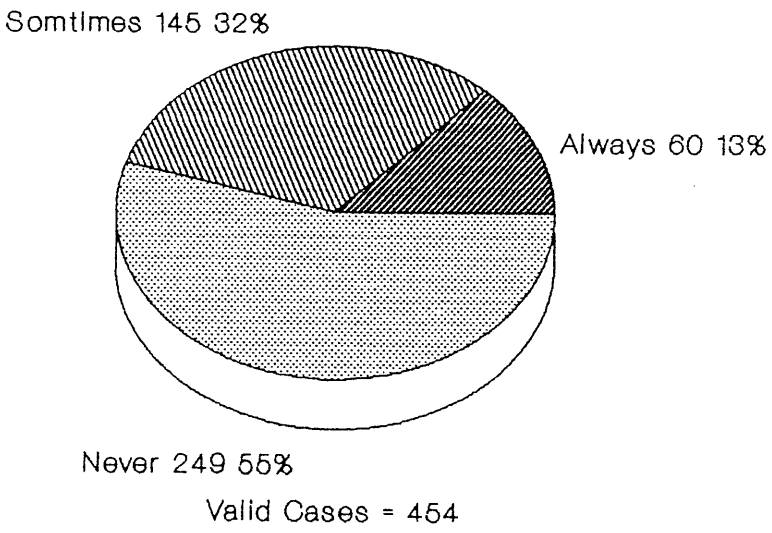


It is obvious that every teacher needs to illustrate his or her lesson on the chalk board and use pictures from text books and other printed materials. It is surprising that as many as 16% never used such aids.

8.20.15. The use of Educational Games:

A good number of teachers 205 (45%) claimed that they had used educational games, as a framework for learning activities (see figure 35).

Figure 35. Educational Games Users



Most of the teachers who indicated that they used games taught languages, sciences, mathematics, humanities, social subjects and music. A total of 183 teachers (40%) were from these subject categories.

8.21. Teachers' problems in using media:

" There are two kinds of fools: those who say, 'This is new and therefore better' and those who say, 'This is old and therefore good."
(William Ralph Inge in Knirk 1986, p.232)

Evaluating Educational Technology often includes an appraisal of the needs and future requirements that may assist an educational technologist to make an intelligent judgment.

To determine these needs and requirements, the problems of media utilisation must be considered; otherwise all the efforts in designing media and their production is wasted.

This question was intended to pin-point those obstacles which hinder teachers who wish to use educational media in their teaching. Teachers were provided with a list of four common problems and asked to add any other problems they may be facing. They indicated which of the problems concerned them.

The four possible common problems were :-

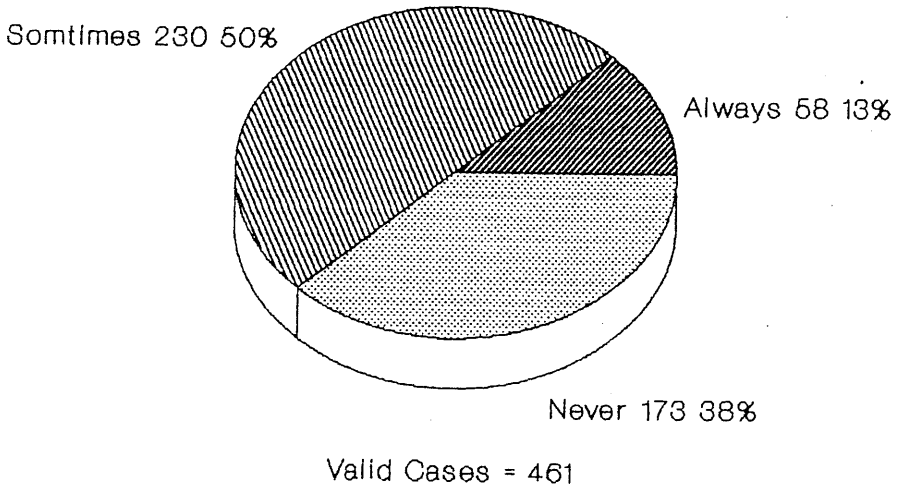
a) Media Selection.
b) Acquisition of teaching materials.
c) Acquisition of teaching equipment.
d) Lack of encouragement.
e) Other problems.

a) Media selection :

Results showed that only 173 (38%) of the respondents

claimed not to face media selection problems; whilst the majority of the teachers 288 (63 %) seem to face this problem.

Figure 37. Media Selection Problems

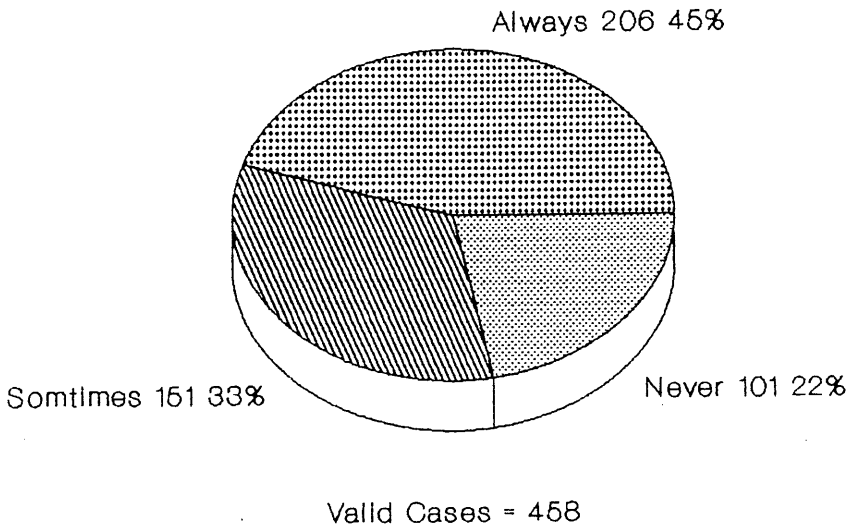


The above results in media selection problems justify the view of the large number of teachers (411) who valued media selection as an important perspective in educational technology (see page 221-222).

b) Acquisition of teaching materials:

A large number of teachers 357 (77.9 %) reported problems in acquiring teaching materials for their classroom needs, while only 101 (22 %) claimed not to face this problem.

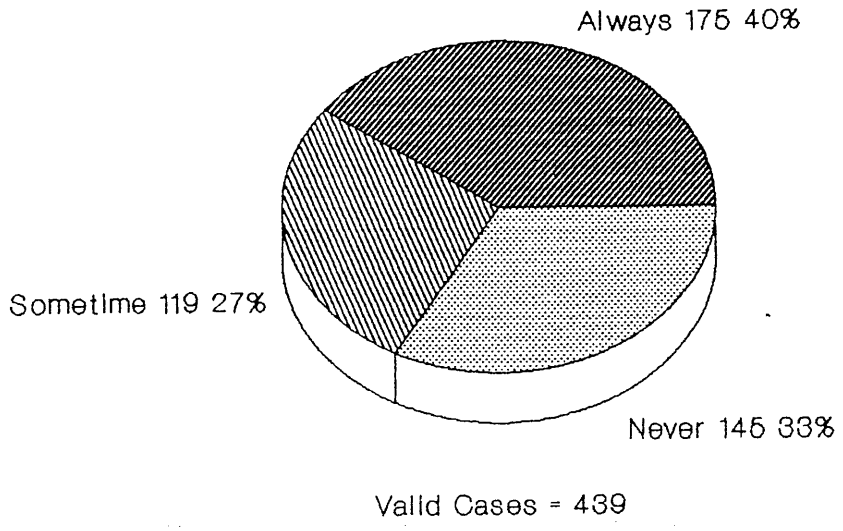
Figure 38. Problems in acquiring teaching materials



c) The acquisition of teaching equipment

Results on possible problems in the acquisition of teaching equipment showed that 145 (33%) of the respondents were happy about the availability of equipment in their schools, whilst there were another 119 (27 %) teachers who sometimes encountered difficulties in acquiring equipment, but 175 (40%) of them indicated that they were always confronted with the problem of a lack of equipment (see figure 39).

Figure 39. Problems in acquiring teaching equipment



A previous study by the researcher (1986) indicated that the availability of equipment occupied the top rank amongst the problems which faced teachers. The same study showed that schools lack the necessary materials as well.

Despite the efforts of the Educational Technology Centre to supply all the schools with a reasonable supply of equipment and a sufficient quantity of teaching materials, according to the recent policy of Ministry of Education in supporting schools, the schools still lack sufficient equipment to fulfill all teachers' needs.

It is interesting to note that the results from the earlier study of (1986) considered the Audio-Visual Centre as the third

source of media acquisition. Also most teachers in the same study viewed the Audio-visual Centre not being un-cooperative.

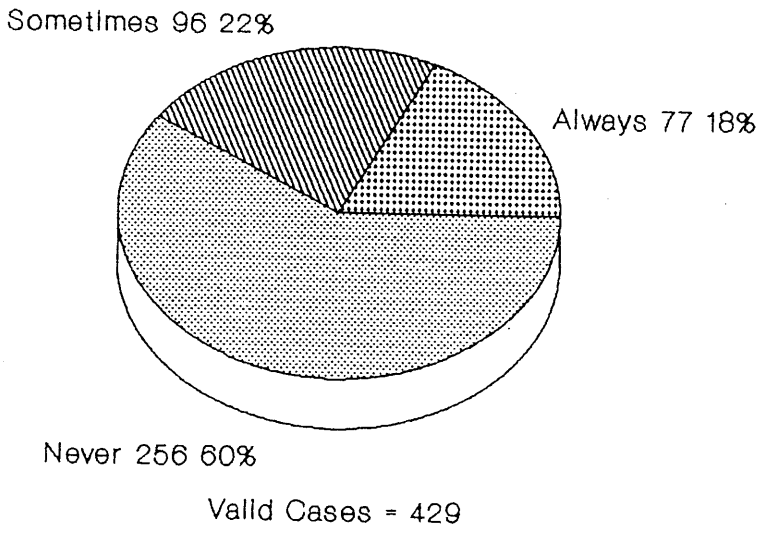
The current study confirms this concern amongst teachers with the audio-visual centre's lack of cooperation.

d) Lack of encouragement

Teachers here were asked to indicate weather they lack the necessary support from the authorities within and without the the school.

Only 173 (40 %) of the respondents reported a lack of encouragement and help from the school. Thus schools generally can be said to be supportive.

Figure 40. Problems of Encouragement from school administration



e) Other problems

Finally, teachers were asked to note any other problems that faced them in their efforts to utilise media for instruction.

The results showed that 148 (81%) of the teachers who responded to the question seemed to have "other problems", which can be grouped under the following headings:

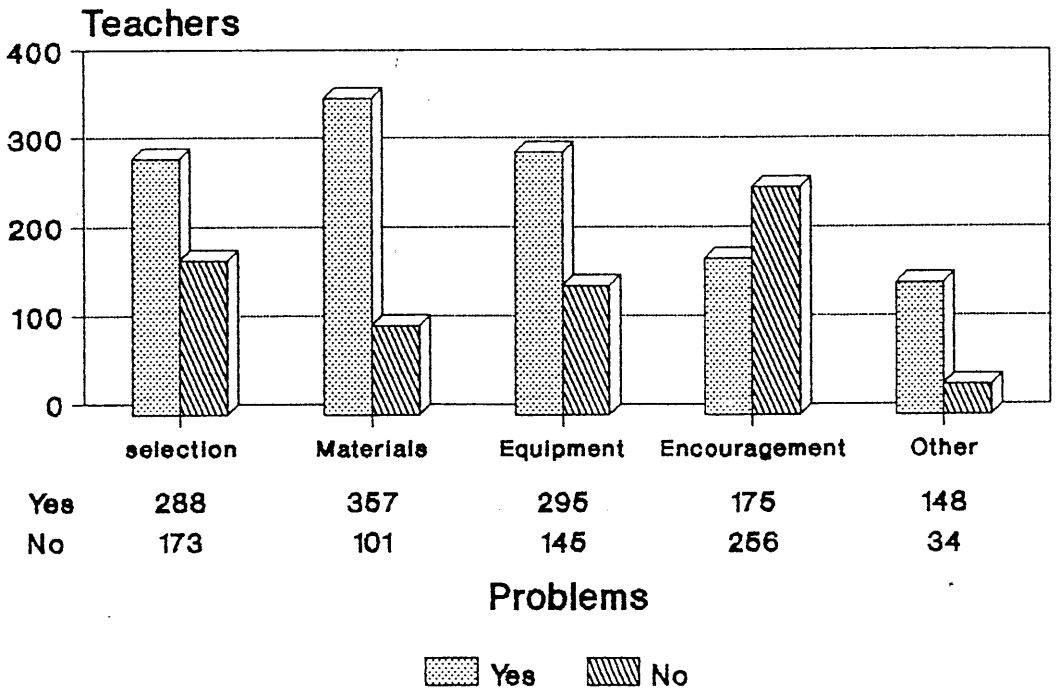
a) Lack of time for using media

b) Lack of skills to produce media

c) Personal Problems

The following diagram summaries the frequency of the categories of problem mentioned by the teachers.

Figure 41. Media Usage Problems



8.22. Help and Vocational Guidance Available in Schools

Teachers were questioned as to the extent the following personnel are available in their schools for further help in media usage:

a) Someone in charge of media supply.
b) Someone who helps teachers in producing audio-visual media.
c) Someone who offers help in operating audio-visual equipment.
d) Someone who offers guidance in the use of audio-visual media in general.
e) Someone in charge of classifying and indexing audio-visual materials.

An analysis of teachers' answers revealed that help in supplying media and in operating equipment is available for over half of the respondents, whilst assistance in media production, consultation matters and the media library service is only available for a smaller number of teachers as is illustrated in the following table.

TABLE 68. Help and Guidance available to the teachers

Variable	Available	%	Not available	%	Total
Media supply	241	53.2	212	46.8	453
Media production	214	44.4	268	55.6	482
Media utilisation	269	56.0	211	44.0	480
Consultation	178	37.5	297	62.5	475
Media library service	176	37.6	292	62.4	468

The previous results do not show any significant differences between teachers with "Yes" and those with "No", in the variables in general.

8.23. Other possible help

A different number of teachers responded to each element of the this question and the analysis of each refers to the number who responded to it.

Teachers were asked to indicate the extent to which a number of persons helped them with media utilisation. Six different individuals were listed, they were:

a) Senior subject teachers.

b) School headmasters.

c) Teacher colleagues.

d) Teacher in charge of the media in school.

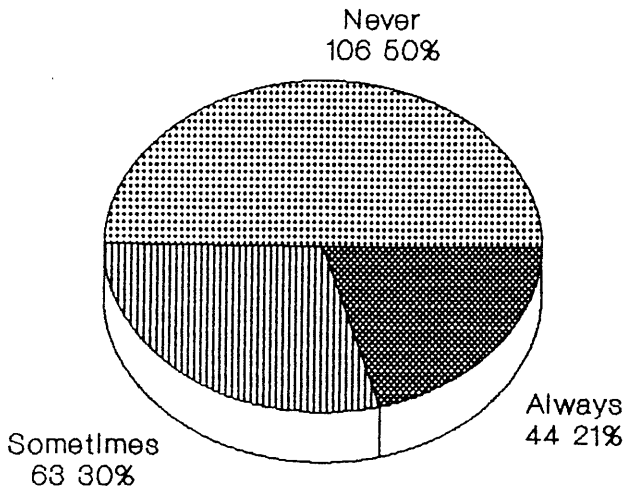
e) Media specialists in the Educational Technology Centre.

f) Subject inspectors.

a) Senior subject teachers:

The respondents were equally divided in their view as to the flexibility of senior teachers, 106 (50%) of the respondents felt that senior subject teachers were not difficult to consult at all, whilst the other half, 107 (50%) teachers, viewed senior teachers as difficult persons to consult, of whom 63 viewed them as sometimes difficult and 44 as always difficult.

Figure 42. Teachers' view of Senior Subject Teachers

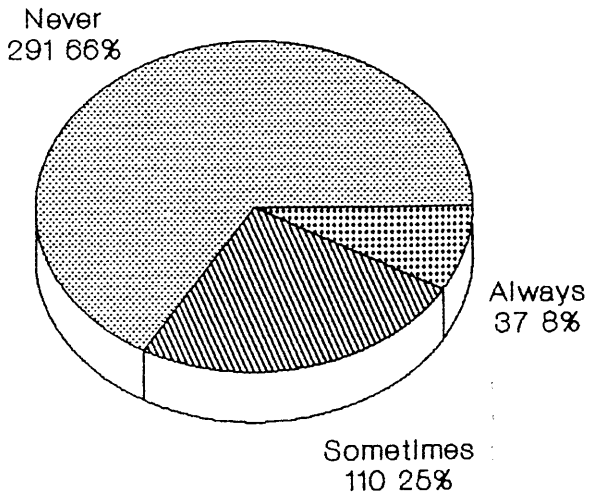


Valid Cases = 213

b) School Headmasters:

Most of the respondents, 291 (66%), viewed the school headmaster as a person who is not difficult to consult. A good number of them 110 (25 %) found him sometimes difficult and only 37 (6%) teachers considered him as always a difficult person to consult (see figure 43). This is an encouraging result considering the busy nature of the headmaster's job. However it may be that this response reflects the headmasters' general conduct rather than the help they give in a specific Educational Technology context.

Figure 43. School headmaster



Valid Cases = 213

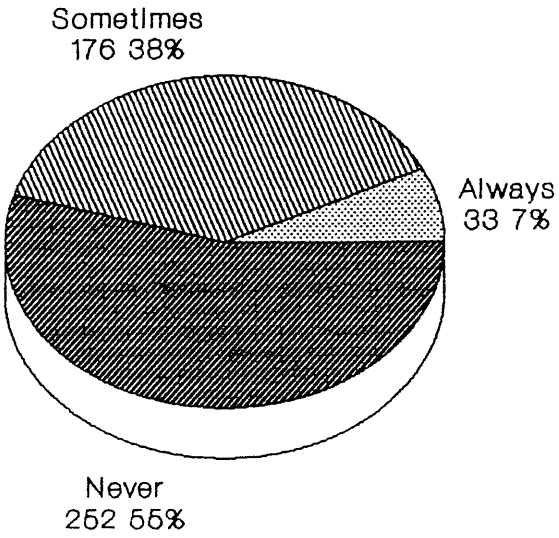
c) Teacher Colleagues:

Teachers' perspectives on their colleagues were almost divided equally; 252 (55 %) found their colleagues supportive. This also confirmed our finding that many teachers use media without the benefit of formal training. Thus, the 55% of the teachers viewed their colleagues as " informal trainers ".

On the other hand, 209 (45 %) teachers saw their colleagues as people who are difficult to refer to, among them were some 33 (7 %) who viewed their colleagues as persons who made any kind of dialogue impossible (see figure 44).

Clearly, there is room here for development of better relationships over professional matters amongst teachers in Bahrain. This would provide benefits beyond Educational Technology.

Figure 44. Teachers' colleagues



Valid Cases = 461

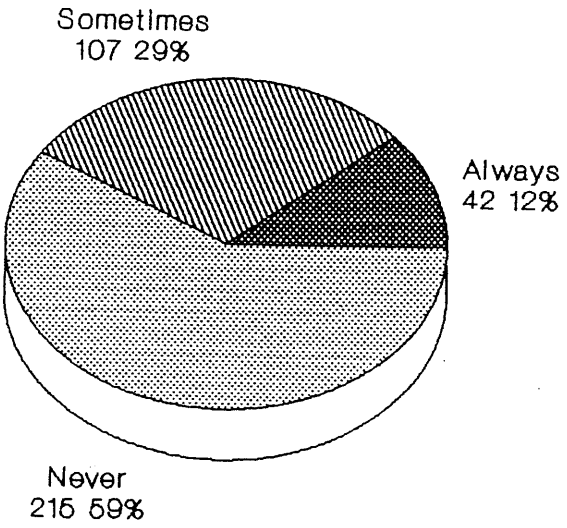
d) Teacher in charge of the media in school:

Generally, 90 per cent of the respondents were content with the help they obtained from the media person in their school.

However, most of the teachers 215 (59 %) pictured them as never being difficult persons, while 107 (29 %) saw them being sometimes difficult and a minority 42 (11%) who found them as always difficult (see figure 45). Again this is an encouraging result for Educational Technology and the cooperative problem-solving atmosphere it hopes to engender amongst teachers.

Figure 45.

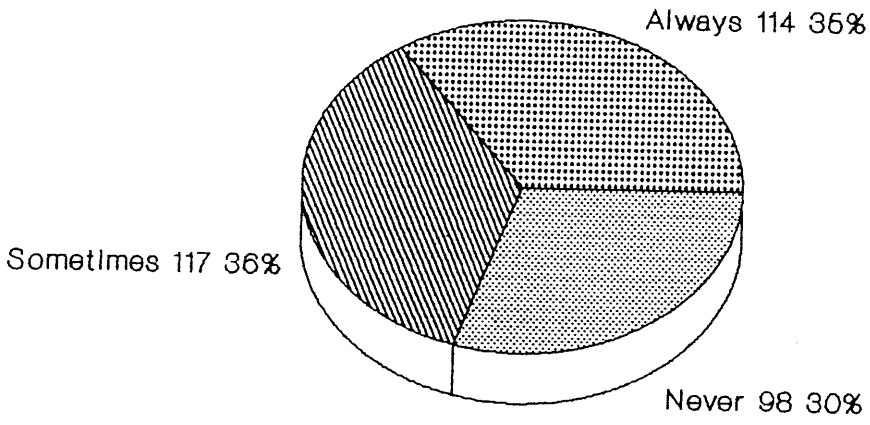
Teachers' views on those in charge of media in a school.



e) Media Specialists in Educational Technology Centres:

Almost a third of the respondent,s 114 (35 %) were not able to get any help from media specialists in the Educational Technology Centre. On the other hand, there were a total of 215 (65 %) respondents who reported that they were able to have some sort of help from the centre media specialist.

Figure 46. Media Specialists in the Educational Technology Centre.



Valid Cases = 329

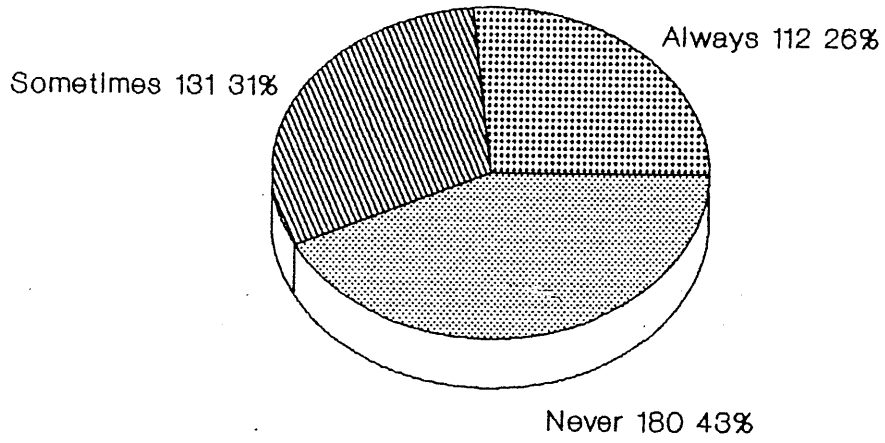
The above results may be due to the overall pressure on a small group of people. It is probably desirable to develop a system to partially insulate media specialists from routine problems. However they must have regular and detailed contact with classroom teachers.

f) Subject Inspectors:

Just under half of the teachers 180 (43 %), rated the subject inspector as a person they never find it difficult to consult, whilst the remaining 243 (57%) teachers found them sometimes difficult, and 112 (26 %) teachers viewed them as always difficult (see figure 47). The difficulty that teachers have with inspectors is that they are inspectors in the first

place and are not neutral advisors whose main aim is to help teachers.

Figure 47. Teachers' views on the Inspectors



The teachers' overall views of the extent of the help they obtain from different colleagues is illustrated in the following table.

TABLE 69. Teachers views to different educational personnels

Personneles	Difficult	%	Not difficult	%	Total
Senior teacher	107	50.0	106	50.0	213
School headmaster	147	34.0	291	66.0	438
Teachers' Colleagues	209	45.0	252	55.0	461
Schools' media in charge	149	41.0	215	59.0	364
Ed.Tech. Centre Specialist	231	70.0	98	30.0	329
Subject Inspector	243	57.5	180	42.5	423

The above table clearly shows that media specialists in the Educational Technology Centre were the least accessible, followed by subject inspectors. Whilst the most ready help came from school headmasters. These figures are somewhat unfair to the very limited number of specialists in the Educational Technology Centre. The 30% satisfactory rate is one that they should be proud of as it indicates a vast number of individual contacts. Thus, as expected various colleagues in school are the first group with whom a teacher seeking advice will contact, then follow the subject inspectors. Even so, a significant amount of help is given by the Educational Technology Centre, showing that its expertise is being widely diffused.

8.24. Teachers' reaction to certain difficulties in media usage:

This question was aimed to test teachers' responses towards some of the difficulties they may encounter when using media in their teaching. Five possible measures were given, as follows:

A - Seek help from more experienced teacher in school.

B - Try to solve the problem by his own efforts.

C - Postpone using media until finding a solution.

D - Ignore using media totally in that subject.

E - Consult Educational Technology Centre for help.

The following (table 70) illustrates the findings.

TABLE 70. Teachers' reaction to certain difficulties in media usage.

Options	Yes	%	No	%	Total	%
(A)	379	79.0	101	21.0	480	100.0
(B)	344	71.0	139	29.0	483	100.0
(C)	200	42.0	278	58.0	478	100.0
(D)	79	16.0	402	84.0	481	100.0
(E)	136	28.0	346	72.0	482	100.0

Once more it is clear from the above table that the number of respondents to each option in this question are not consistant. Accordingly the findings of this question refer to the valid number of teachers only.

The results reported show that, although 379 (79%) of the respondents to first statement indicate that they would seek help from other more experienced teachers in their school, at the same time there were 344 (71%) of them who would also try to solve the problem themselves without help.

However, the majority of the respondents (84%) did not "ignore using media" or "postpone teaching until finding a solution" (see table 70). These findings indicate that most Bahraini teachers hold positive attitudes towards the

implementation of audio-visual media in the classroom. This is encouraging for course planners in educational technology and for innovative curriculum designers.

8.25. Sources of information :

Teachers were asked to point out their preferred route for realising the new trends in educational media, by choosing the appropriate source out of the following options:

a) Educational Technology Centre.

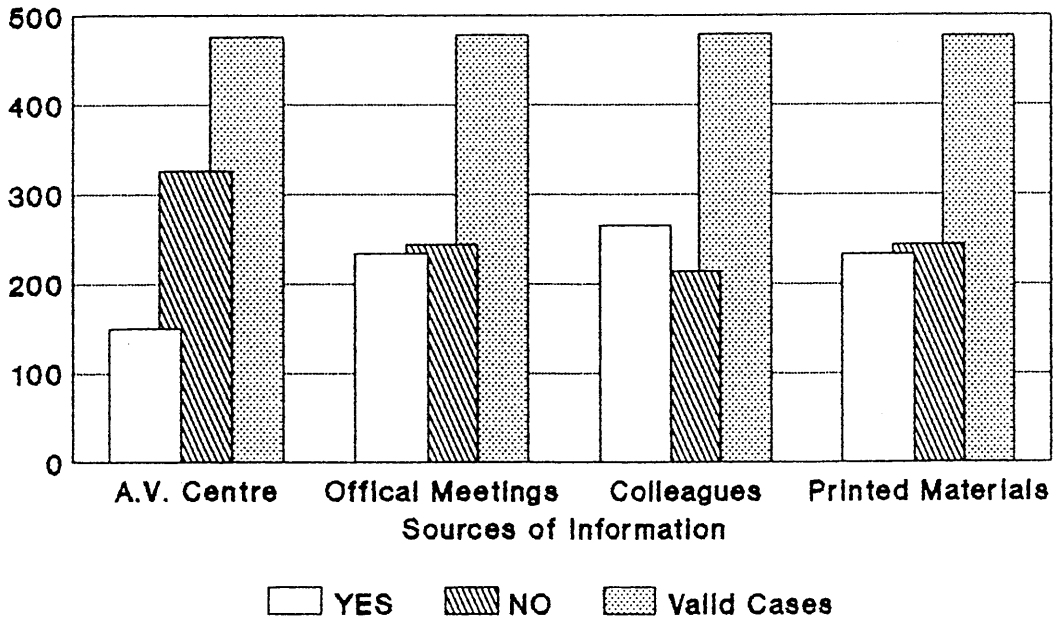
b) Regular meeting with senior teacher or advisor.

c) Other teachers in school.

d) Periodicals and publication in Educational Technology.

Summary of the results is illustrated in the following figure.

Figure 48. Source of Information about Educational Technology



The above results show that almost half of the respondents 265 (55%) depend on their colleagues for knowledge about new developments in Educational Technology, then on the regular meeting with senior teachers or advisors, and thirdly on periodicals and publications.

Surprisingly, teachers considered approaching the Educational Technology Centre as a last resort. However, this negative view of the Educational Technology Centre amongst teachers has been noticeable throughout various parts of the analysis (table 70).

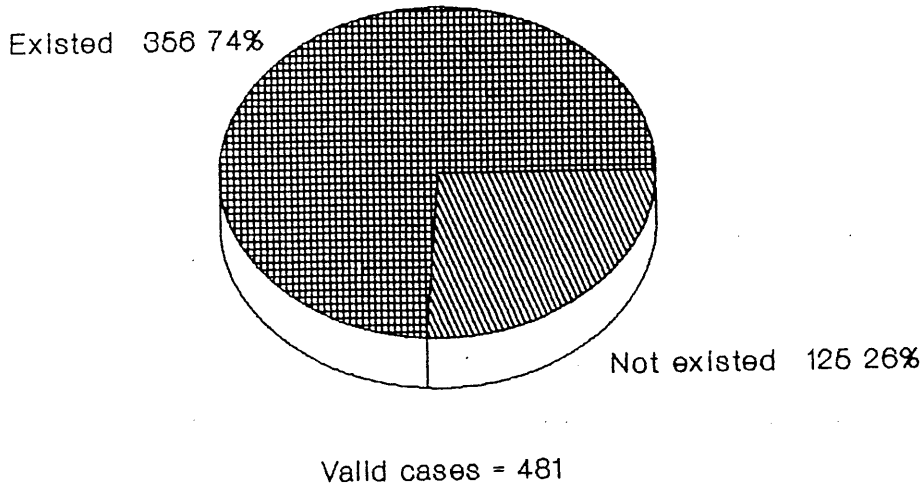
However, as was mentioned earlier, teachers are expecting much help from the Educational Technology Centre which, in turn, lacks sufficient specialists and technical staff to cope with the growing demands from schools for more equipment, materials and consultation. Once again, the 28 per cent satisfactory rate is an acceptable outcome.

8.26. Media utilisation:

In this question, the teachers were asked whether there is a general consciousness amongst them about the utilisation of media.

The results showed that nearly 3/4 of the teachers 356 (74%) said yes, there is such awareness among them, while only 125 (26%) denied it (Figure 49).

Figure 49. General consciousness amongst teachers of media utilisation.



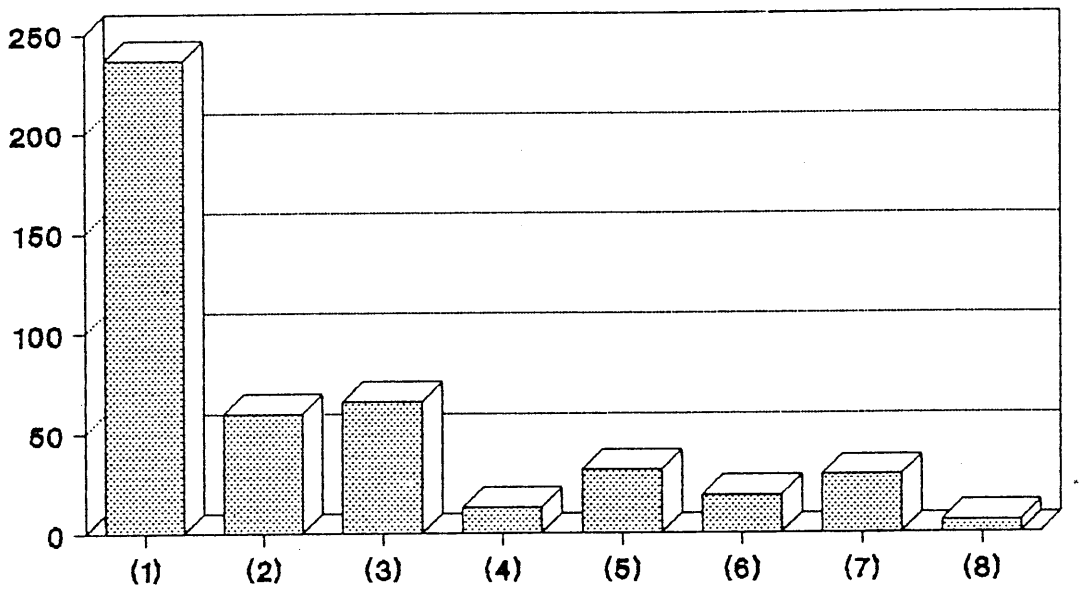
8.27. The prefered medium:

This question asked the teachers to list three instructional media which they used most during the last two years. They mentioned eight different media which are tabulated below. This shows that displays gained the first place followed by audio tapes and then three dimensional media (see table 71).

TABLE 71. Rank order for the most favoured medium

Rank	Media	Frequency	V. %	CUM. %
1	Displays	237	51.1	51.1
2	Audio Tapes	66	14.2	64.0
3	Three Dimensional	60	12.9	78.2
4	Motion Picture	32	6.9	81.0
5	Film Slides	29	6.3	87.9
6	Video Tapes	19	4.1	92.0
7	Lab. Demonstrations	13	2.8	98.3
8	Field trips	8	1.7	100.0
	Total	464	100.0	
Valid Cases = 464	Missing Cases = 26		Total Cases = 490	

Figure 50. The preferred Medium



8.28. Teachers' views about some training objectives in Educational Technology :

In this question teachers' familiarity with a number of educational objectives were related to their initial or the in-service training background in Educational Technology.

Teachers were provided with a list of nineteen different stated objectives (see annexe 16a) and asked to confirm whether they had been trained in these areas.

The intention behind this question was to determine their theoretical and practical background in the field of educational technology and consequently to verify further training needs.

However, results showed that, generally, the majority of the respondents had not been trained in 12 (63%) of the total nineteen objectives provided. They are to :

- Write a definition of Educational Technology.
- Define the major roles of Educational Technology.
- Apply Blooms' Taxonomy to the learning process.
- List the advantages and the disadvantages of group teaching.
- List the advantages and the disadvantages of individualised learning.
- Define programmed learning .
- List the advantages of teaching games.
- Operate filmstrip/slides projector.
- Operate 16mm motion picture projector.
- Carry out basic photographic techniques.
- Produce different types of diagrams.
- Draw stick and cartoon figures.

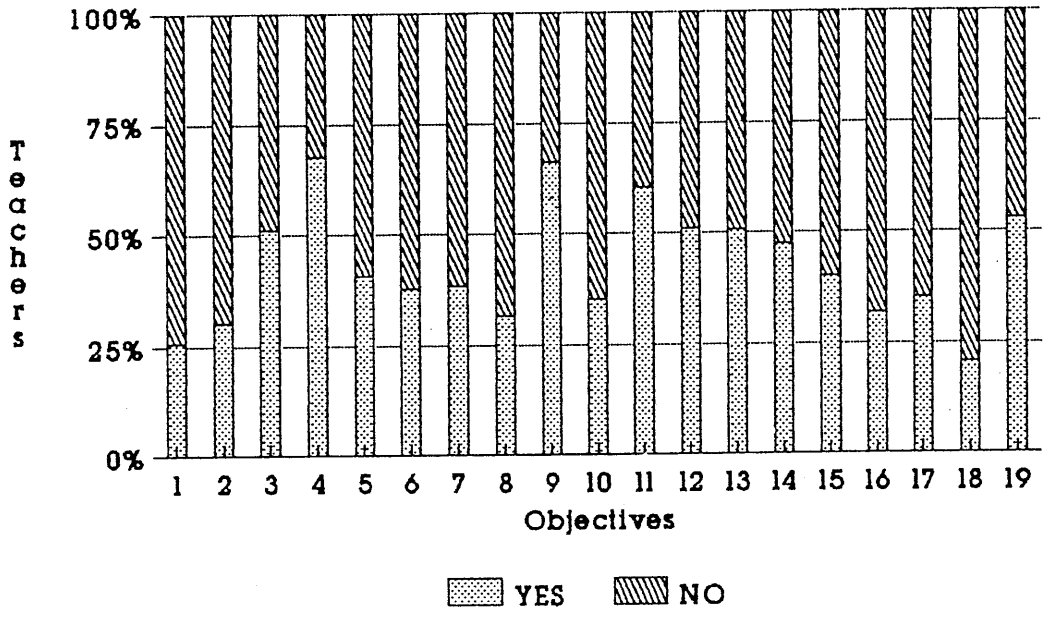
On the other hand, there were more teachers who reported to have been trained on the remaining following seven objectives. They are to :

- Write an objective in a behavioural terms.
- Design a lesson in terms of an objectives hierarchy.
- Select appropriate teaching media for a selected subject.
- Design a multiple choice test.

- Match teaching strategies to learners' abilities.
- Operate an overhead projector.
- Produce teaching materials for teaching.

Conventionally, it can be said that there are over 60 % of the respondents who have not studied almost all the objectives.

Figure 51. The Teachers' standpoint on Educational Objectives



8.29. Criteria for Media Selection :

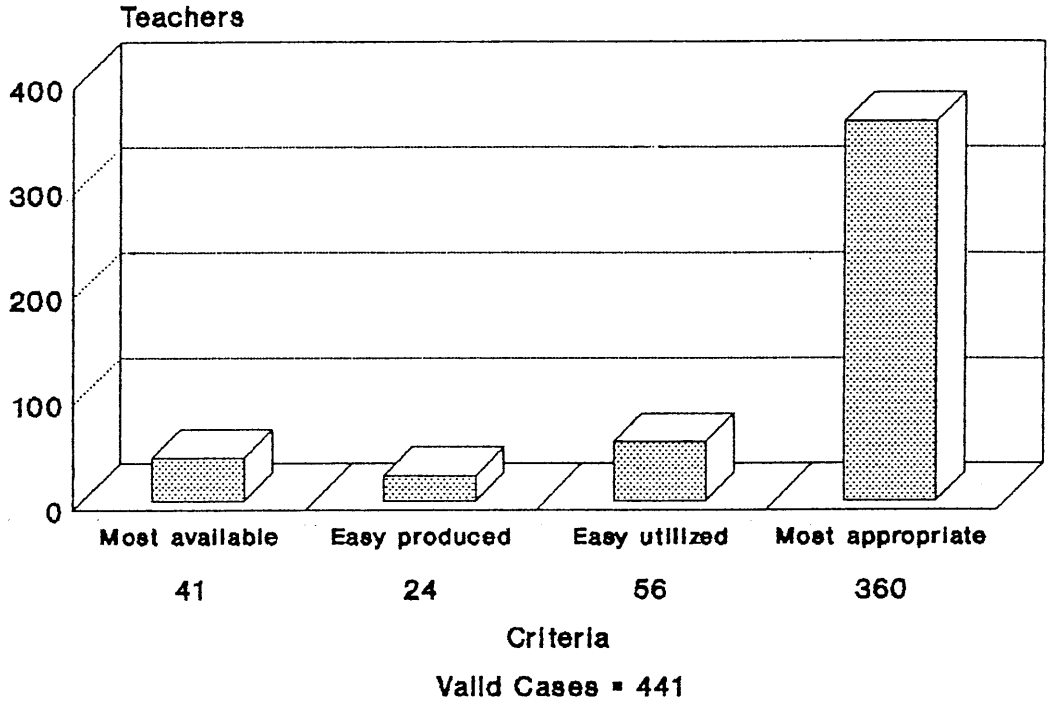
Teachers were asked in this question to choose one amongst four proposed criteria provided, related to the selection of media, as the most appropriate criterion to be considered when planning instruction. The four provided options were as follows:

- The easiest to utilise.
- The easiest to produce.
- The most available.
- The most appropriate for the objective.

Surprisingly, the majority of the respondents 360 (75%), chose option number four, that is "The most appropriate for the

objective". This answer indicates that their theoretical comprehension in Educational Technology is considerable.(fig.52)

Figure 52. Teachers' view to media selection criteria



8.30. Teachers' views on the Educational Technology Centre:

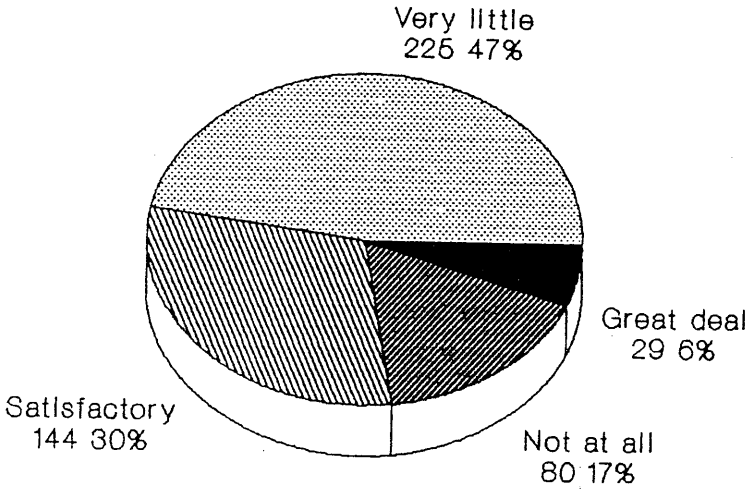
Teachers were asked to value the extent of the services presented to them by the educational technology centre of the Ministry of Education.

It is obvious from the chart (figure 53) that there are only 29 (6%) of the respondents who were fully satisfied with the services offered by the centre, whilst those teachers who

were just satisfied reached 144 (30 %). It is also noticable that the majority of the remaining respondents, 305 (62 %) manifested their dissatisfaction with the services obtained from the Educational Technology Centre.

The above judgments correspond well with the results of question 19 (P 277) and 21 (P 286), in which teachers showed their negative views towards the Educational Technology Centre media specialists and their services.

Figure 53. Teachers' views of the Educational Technology Centre



8.31. The teachers' suggestions:

In the last question, teachers were asked to provide suggestions that would enable the Educational Technology Centre to contribute more effectively to the diffusion of the philosophy and methods of educational technology.

Most of the respondents' suggestions were centered around the following headings:

A - The need for more equipment for schools.

B - The need for more materials for schools.

C - The need for more training provision.

D - The need for more guidance and assistance.

E - The need for more follow up and advisory help.

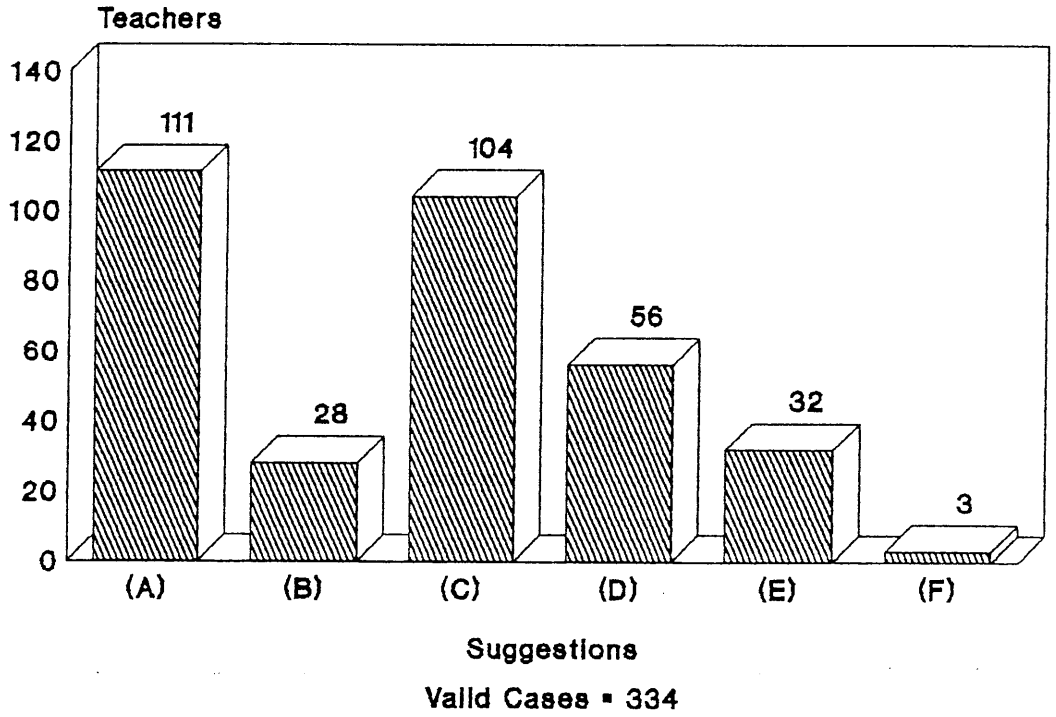
F - The need for advanced technology media in schools.

The following tables summarise the results.

TABLE 72. Rank order for teachers' suggestions

Rank	Options	Frequency	V. %	CUM %
1	(A)	111	33.0	33.0
2	(C)	104	31.0	64.0
3	(D)	56	17.0	81.0
4	(E)	32	9.5	90.9
5	(B)	28	8.5	99.0
6	(F)	3	1.0	100.0

Figure 54. Teachers' Suggestions for media development



The following is a summary of the findings obtained from the analysis of the questionnaire:-

1- The major qualification of the teachers is either a Bachelor degree or a Teacher Training Diploma.

2- The majority of the teachers graduated between 1970-1988.

3- Most Bahraini teachers are locally qualified (in Bahrain).

4- Nearly a third of the teachers are expatriates, but they work mainly in secondary schools.

5- Most Bahraini teachers are young .

6-There are more teachers at the primary stage than other stages.

7-There are more arts teachers than science or practical subject teachers.

8-Most of the teachers with higher qualifications (Masters) are amongst the younger (under 40) teachers.

9-The majority of the teachers have served between 10-19 years.

10-Nearly half the teachers have in-service training experience.

11-Private school teachers are less involved in in-service training courses than state school teachers.

12-Female teachers are more involved in in-service training than male teachers.

13-Teachers are divided into two halves, 48% of them viewed the training courses as not useful while the other 52% viewed them otherwise.

14-The majority of teachers are interested in more training in Educational Technology.

15-The majority of teachers who demand more training courses are younger.

16-There are no significant differences among male/female teachers regarding their need for more training courses.

17-The majority of teachers asked for more training in media production.

18-Private school teachers gained the highest score in the need for training in media production.

19-Most of the teachers requiring training in media production are amongst younger age teachers.

20-Teachers are divided into two halves in respect to the need for training in media utilisation.

21-The majority of the teachers are not in favour of training in media selection.

22-There are no significant differences between male and female teachers in their views of the need for media selection.

23-There are no significant differences amongst teachers of different age group in their answers regarding the need for training in media selection.

24-A majority of the teachers reported that they did not need training in media evaluation.

25-There are no significant differences amongst teachers in all age categories in their answers to the need for training in media evaluation.

26-There are no significant differences between male and female teachers in their answers to the need for training in media evaluation.

27-There are no significant differences amongst teachers from all types of school in their answers to the need for training in media evaluation.

28-There are no significant differences amongst teachers according to the subject they teach in their answers to media evaluation.

29-A majority of the teachers did not request any additional training in areas other than those suggested to them.

30-Teachers viewed specifying lesson objectives as very important.

31-There are no significant differences amongst teachers in their views of the importance of specifying lesson objectives

regardless of their age group, sex, qualification and school type.

32-The majority of teachers find specifying lesson content a very important matter.

33-There are no significant differences between male/female teachers in their answers to the importance of specifying lesson content.

34-There are more non-graduate teachers who view the specification of lesson content as very important than graduate teachers.

35-The majority of teachers regard selecting instructional strategies as very important.

36-The majority of the teachers regard media selection as a very important matter.

37-Both teachers who had attended training courses, and those who had not, viewed media selection as very important.

38-There are no significant differences in the views of teachers who had attended course and those who had not in their views of the importance of media selection.

39-The majority of the teachers see media designing and producing as very important.

40-Secondary school teachers view media designing and producing as less important than primary and intermediate school teachers.

41-The majority of the teachers considered the set-up and the preparation of media before use as very important .

42-There are more non-graduate teachers than graduates who view the satting up and preparation of media as very important.

43-The majority of the teachers rate the evaluation of teaching media as very important.

44-The majority of teachers categorise themselves as regular media users.

45-There are no significant differences between male and female teachers in categorising themselves as media users.

46-There are no significant differences between more experienced and the less experience teachers in categorising themselves as media users.

47-Over 50 % of the teachers indicated that they select from the following media:- Displays, Audio-tapes, Video-tapes, Specimens, Models, Dramatisation, Field trips and other media.

48-Under 50% of the teachers use the following media:- Overhead projector, Filmstrips, Film slides, Programmed Text, T.V. programmes, Radio programmes, Computers and Educational Games.

49-The usage of non-projected media (except video tapes and audio tapes) is more than projected media.

50-Displays proved to be the most popular media for most teachers while computers are the least popular.

51-The majority of teachers reported having problems with many issues related to Educational Technology, such as, media selection, acquisition of materials, acquisition of equipment plus other problems.

52-Only a few teachers reported a lack of encouragement and support from the school administration in educational

technology matters.

53-Over half the teachers reported their satisfaction about the help and support they get with media supply and in media utilisation.

54-Over half of the teachers were reported to be unhappy about the help available in media production, consultation and media library services.

55-The majority of the teachers showed their satisfaction with the help offered them from the school headmaster, the teacher in charge of media and also their colleagues.

56-Senior subject teachers are seen by only half of the sample as being helpful in the utilisation of Educational Technology.

57-Under half the teachers viewed both the Ministry Inspectors and Educational Technology Centre Specialist as being helpful.

58-The majority of the teachers showed their readiness to seek help from more experienced teachers in their schools but very few teachers suggested that they would approach the Educational Technology Centre for help.

59-The majority of the teachers said that they would neither ignore using media when confronted with problems in selecting media, nor would they postpone using them until finding a solution, but would try to solve the problem themselves.

60-The major source of information about educational technology for more than 50% of teachers proved to be teachers' colleagues, regular meetings and printed materials.

61-Most teachers regarded the Educational Technology Centre as a last resort to be approached.

62-Teachers, in general, are well aware of se of media in instruction.

63-Generally more teachers are in favour of using displays, audio tapes and three dimensional objects than other media.

64-Field trips are the least preferred media for teachers.

65-The majority of the respondents had been trained in only seven (37 %) of the total nineteen given objectives.

66-Generally, over 50% of the respondents needed to to be trained in most of the given nineteen objectives.

67-The majority of the teachers stated that they would select those media which appeared to be the most appropriate for their instructional objectives.

68-The teachers' theoretical comprehension in educational technology is not very great.

69-The majority of the teachers viewed the services offered by the Educational Technology Centre as insufficient.

70-Most of teachers when asked for suggestions produced statements highlighting the following points:- the need for more equipment, materials, training, assistance, follow up and advanced educational technology tools.

8.32. Test of the hypotheses

- The first hypothesis of the study was that: Educational Technology is not adequately implemented in the education system of Bahrain. Since the evidence obtained from the analysis of the interviews and the questionnaire supported this hypothetical construct then we accept this hypothesis. In

this we refer to questionnaire findings number :- 47, 48, 49, 50, 51, 54, 56, 57, 58, 60, 61, 63, 63, 65, 66, 68, 69 and 70.

- The second hypothesis assumed that schools lacked specialised personnel, equipment and materials. Since the evidence gathered from the analysis of the data supported this assumption, we accept this hypothesis that schools lack specialised personnel, equipment and materials. In connection with this we refer also to the interview with subject matter specialists and their view that there is a lack of both software and hardware and also of the training of personnel. Also we refer to the questionnaire findings number 37, 41, 48, 49, 54, 61, 69, and 70.
- The third hypothesis read : Many teachers are not acquainted with the latest development in Educational Technology and have no access to concepts, values and trends in media production and usage. Since the evidence contradicts this assumption then we reject this belief and accept the opposite. In doing so we refer to the questionnaire findings number 10, 14, 17, 18, 20, 30, 32, 35, 36, 37, 44, 47, 53, 58, 59, 62, 67, 68 and 70.
- Hypothesis four read: There is a lack of agreement on basic specification and criteria for the selection and usage of Educational Technology. Since the evidence supports this expectation then we accept the hypothesis. In doing so we refer to the questionnaire findings number 36, 48, 49, 50, 51, 63, and 64.
- Hypothesis number 5 read : Some teachers lack the understanding and the ability to apply innovation in

Educational Technology. Since findings from both interviews and questionnaire support this assumption then we accept the hypothesis. For example, interviewing educational technologists revealed that the concept of Educational Technology is not clear to most teachers. Also interviews with subject specialists revealed that the theoretical ground and justification for such innovations were not clearly formulated by either teachers or administrators. The following findings support the acceptance of the hypothesis: 14, 15, 16, 17, 18, 19 and 21.

- It was hypothesized that teachers lack the knowledge of self evaluation and feedback on their own use of media in the classroom. Since evidence from the data supported this assumption, we accept this proposition. For example, finding 24 showed that more teachers were unwilling to have training in media evaluation. Evidence from interviewing subject matter specialists also supported this point.
- It is hypothesised that Educational Technology is used infrequently because most teachers lack systematic lesson planning procedures. Evidence from the interviews, especially with educational technologists and subject matter specialists, proved that few teachers understand the utilisation of Educational Technology in an organized and systematic manner. Findings number 65 and 66 support the hypothesis. Accordingly we accept this hypothesis.
- Hypothesis number eight read : Pre-service and in-service training in educational technology are both insufficient and

not as effective as they might be. Since no solid evidence has been found to support the above hypothesis from either the interviews or the questionnaire, we accept the hypothesis.

- Hypothesis nine was that : Better arrangements for the use of resources by teachers is necessary. Evidence from interviews with senior administrators and subject matter specialists support this hypothesis and also findings number 21, 48, 49, 50, 51, 54, 57, 58, 60, 61, 63, 64, 66, 69 and 70. Accordingly we accept the above hypothesis.
- Hypothesis ten read: The central "Educational Technology Centre" requires further development in both its policy and practices. Since the evidence supports this assumption both from interviews and from the questionnaire then we accept this hypothesis. For example senior administrators indicated that the centre has inadequate technical and educational manpower. Interviews with educational technologists and subject matter specialists supported this belief. Accordingly, we accept the hypothesis that the Educational Technology Centre is in definite need of improving itself.
- Hypothesis eleven was that schools have insufficient services and financial and technical support provided by the educational technology centre. Since evidence supported this assumption we then accept the hypothesis. For example the findings on hypothesis number 10 also apply here.
- Hypothesis 12 states that recent educational equipment such as the video recorder and cameras are not fully exploited in education. All the evidence gathered was against this

assumption both from the interviews (especially that with senior administrators) and the questionnaire as in findings 47 and 49. Accordingly we reject this hypothesis.

- Hypothesis 14 read that: Resources are not systematically classified and indexed in the schools and in the Educational Technology Centre. No evidence has been found in the data to either reject or accept it, but the writer's personal observation show that there is no systematic classification and indexing of the resources either in schools or in the Educational Technology Centre. Accordingly we can accept the hypothesis.

-The last hypothesis was that the disparity in the implementation of educational technology between individual teachers may be attributed to :

a) personal characteristics such as sex, age, academic background , experience and training.
b) Subject taught.
c) Type of school.
d) Lack of resources.

Since evidence denied the hypothesis in respect to points a, b, c, then we reject the hypothesis . In this we refer to findings number 16, 22, 23, 25, 27, 28, 31, 33, 34, 37 and 45.

The data as a whole showed that traditional audio-visual instructional materials, despite their shortcomings, have established themselves as methods and techniques of instruction in Bahraini schools since 1973.

The writer believes it is now the time to be concerned with the latest and, possibly, the most important of todays' technology "The Computer" which certainly constitutes one of the most valuable devices at the disposal of teachers today.

The next chapter will discuss the potential of the computer for education in general, and for Bahraini schools in particular, and a strategy will be proposed based upon the findings of the survey.

CHAPTER NINE

9. The potential of computers

9. The Potential of computers

"In my vision, space-age objects, in the form of a small computer, will cross these cultural barriers to enter the private world of children everywhere" (Papert in Michayluk 1986)

In 1971 the National Conference of Professors of Educational Administration in Berkeley, California, produced the prophesy that, by 1985, the Computer would be a commonly used tool in education both for Computer-Assisted Learning (CAL) and for record keeping.

"Practically all aspects of the curriculum will have been programmed into machine-usable form by 1985...By 1985, the computer will also have assumed much of the burden of instructional classroom management,...The teacher will be able to place input such as pupil and instructional data into the schools' computer via a remote input-output console in each classroom. The same console will enable the teacher to retrieve data or generate more meaningful reports almost instantaneously. Other Computers will be reserved for pupils' use in drills, exercises and exploration experience" (NCPEA, quoted in Beswick 1980 P.32).

Most of yesterday's predictions have become today's reality. The computer has become, to use Papert's words, "a carrier of powerful ideas and the seeds of cultural change". However, these developments have so far taken place in a minority of schools/classrooms.

The effectiveness of the computer in its educational

applications is no longer conjectural as it was in the 1950s and 1960s, rather the computer has become increasingly relevant to education; it has the ability to carry out complicated mathematical manipulation, controlling and managing learning materials, films, filmstrips, slides, audio tapes and a wide variety of software materials (Heinich et al., 1982 P. 310). In addition, it has the ability to record, analyse and react to pupils' responses. Furthermore, it has also become a key tool for most administrative and decision making tasks.

Coulson, in an introduction to Computer-Assisted Learning, describes a modern computer that ".... has characteristics that closely parallel those needed in any educational system that wishes to provide highly individualised instruction". (Coulson in Tickton 1970 P.198-9). The development of computer technology offers educators the opportunity of applying and achieving individualised learning. That task is either very difficult or impossible for a single teacher to achieve when working with a class. This will be discussed in more detail later. Computers have the potential to solve many of the problems associated with the individualisation of learning.

The capabilities of the computer allow it to carry those burdens which were formally imposed on the teacher in relation to boring drilling exercises and the management of students' records etc. It has also the capacity to take a far from negligible part in an interactive situation: it can be used as a component in a complex activity in which all those taking part, including the machine, both send and receive information. This task could not

to be achieved by earlier individualized learning systems, such as the Keller's Plan " Personalised System of Instruction" (PSI) in 1964 (eg, Imrie et al., 1980 P.105) and that on teaching machines (eg, Pask after Edmonds 1980 P.97).

Above all, communication with a computer can stimulate and encourage rational and systematic ways of thinking and encourage reasoning ability in the pupil.

> " Any departure from precision is rejected by the computer..... observers who have watched the development of young pupils as they work with a computer, particularly in computer programming, note a tendency for orderly, logical thinking to be carried over into other areas of the student's work."
> (Heinich et al., 1982 P.312)

Pressure to teach about computers from parents and pressure to teach by computer from educators is increasing in a changing global society. Collis (1984 P.125-33), argues that half of the elementary schools in North America in 1984 had at least one micro computer. In another context Siann and Macleod (1986 P.133), argued that most primary schools in the U.K have at least one micro computer.

Michayluk (1986), concluded in his article that the reasons for the increasing demand for computer related education to two reasons:

1- The belief that, between 50 and 70 percent of all future jobs will be "Computer-related".
2- A significant number of students are excited and motivated by computers.

Michayluk (1986), described the effectiveness of the

computer in building up the self-esteem of youngsters. He extolled the virtues of the LOGO computer programme arguing that children who experienced LOGO learned more than a computerised game; "they learned powerful ideas, skills and heuristic methods as well".

However, lately the interest that was generated in the last decade in Computer Assisted Learning (CAL) has faded because of the increasing hostility of the financial climate, of evaluating difficulties of CAL, and the lack of relevant teacher training. (Gerda Siann and Hamish 1986).

Despite the above criticisms of CAL, interest in CAL continues. Gerda et al., (1986), concluded in regard to the application of computers for CAL in the primary school that, the computer using CAL fulfills no main purpose that cannot be fulfilled by any other media such as Programmed Learning, or Individualised Learning, but that particularly in the area of simulation the computer may provide more complex and adaptable learning environments.

9.1. The role of the computer in Education

The roles of computer in education have increased substantially and rapidly. Its applications are no longer limited to those of a 'Super-calculator', rather it is used in a variety of different ways. Some of its applications related to education are explored here to a greater extent.

9.1.1. Computers in Individualised Learning Systems:

The computer has proved its ability for playing various roles in individualised learning, together with direct teaching and dialogue with pupils, evaluation, managing study resources and maintaining administrative records.

Individualised learning requires that students go through the "checkpoints" in the educational process at varying times, via different routes; it also requires a heavy load of decision-making. The computer can assist in resolving these administrative difficulties by conducting analytical tests, scoring them and prescribing an appropriate next stage. This is one of main features of Computer-Managed Learning (CML).

In an individualised learning situation using Computer Assisted Learning (CAL), pupils front a computer keyboard and screen or video display unit (VDU). The computer may either be: (A) linked to a large time-sharing computer system, allowing the student to have access to a mainframe, where several users can work on various programmes at the same time and from different locations. An example of a time-share mainframe computer system is PLATO (Programmed Logic for Automatic Teaching Operation). This was developed at the University of Illinois by Donald Bitzer; is based on a large central system and is linked with many computer units in different local regions throughout the United States, all connected by a telephone network.

In addition to the keyboard mentioned earlier, some terminals may be connected with a touch-sensitive display

panel (Knirk & Gustafson 1986 P.149-51).

(B) It may be a small micro-computer with a built-in screen, such as those made by Apple, IBM and so on using built-in hard-Disc and / or some single or twin floppy discs. The break-down problems are always easier to deal with in single micro-computers compared to those of large time-sharing computers.

However, the computer in an individualised learning system using CAL can play either a "Tutorial" or a "Laboratory" role, or a combination of both (Ellington 1985 P.183).

An illustration of the first example, is that the individualised learning programme can be installed instantaneously in the computer memory and the learner directly interacts with the computer which is designed to respond to student reactions to the questions. This type of learning was first introduced through a branched programmed learning system in 1950s and 1960s. Information is introduced in as s small item accompanied by a question. The pupil is directed through an instructional series by carrying out an on-line dialogue with a computer through the input device, eg. keyboard, punched cards, electronic pen, mouse or any other techniques.

As was mentioned earlier, the "tutorial" style is derived directly from programmed learning and it is an implementation of branched programmed learning. However, a computer using the tutorial mode is capable of being much more sophisticated than the conventional teaching machine or programmed text, because of into greater flexibility and capability of handling data.
Furthermore, the computer can operate so rapidly in the analysis

of student responses, that large numbers of students can individually be assessed at different times during the same day. Yet, the nature of the computer, the type of computer programmes the extent of their sophistication, will determine the form of pupil responses in Computer-Aided Individualised Learning.

The computer in a "laboratory" role acts basically as a rich learning resource, since it has the capability to store and manipulate an enormous amount of data and information. When the information about the material or content is stored in its memory, the computer can keep records of the location and nature of the information for subsequent referral.

In the laboratory mode of CAL, concepts and new information can be learned to varying degrees, also the preservation of skills and the retention of concepts can be provided. In this mode, real-life or "hypothetical" situations of all types can be modelled on the computer thus permitting the effects of key variables to be studied by the student. Learning and teaching about real situations is not always possible, eg., some conventional practical demonstration may be difficult, extremely complicated, expensive or unacceptably time-consuming. In the laboratory mode, the learner confronts a modelled revision of the real life situation programmed on the computer, thus allowing realistic practice with those constraints and difficulties usually encountered in real-life circumstances.

The Laboratory mode of CAL is also sometimes known as a "Simulated Laboratory" (Percival & Ellington 1984 P.139), "Substitute laboratory" (Ellington 1885 P.183) and "discovery

mode of instruction" (Heinich et al, 1982 P. 320). Computer simulation can cover a wide variety of subjects and areas, such as medicine, engineering, geography, mathematics, physical sciences, economics and businesses. An example of a computer simulation in economics is HAMMURABI, which allows the student to play the role of economic decision maker for a small agrarian country in pre-Biblical times.(Heinich et al 1982 P.320).

Other utilisation possibilities of computers in CAL are described by different writers. For example, Heinich et al. (1982) emphasised a number of utilization possibilities, describing them in terms of the various instructional modes, tutorial drill and practice, discovery, simulation, and gaming mode.

Siann and Macleod (1986 P.133), after Lepper, emphasised four main tutorial techniques that computers can promote, they are, individualised drill and practice, motivational enhancement, educational simulation and the use of computer as educational tools.

Ellington (1985), revealed that the computer can be used for three types of instruction: mass instruction, individualised instruction and group learning.

Percival and Ellington (1984), highlighted the different roles of the computer in education. They listed, firstly, the role of the computer as a super-calculator for carrying out complicated and time-consuming calculations, such as data analysis tests in research studies. Secondly, they focused attention on the use of the computer as a media to teach about

computers and computer programming and, thirdly, they explored the use of the computer as a direct aid to the teaching /learning processes, through the two previously mentioned modes, "tutorial" and " laboratory ".

Percival and Ellington (1985), added yet another area in which computer can be vitally useful: using it in educational administration, including school administration, timetable planning, budgetary, teachers' payroll manipulation and the management of the instructional process as a whole through Computer-Managed Learning (CML). Lastly, they mention the use of the computer as a Database which they describe as one of the most important uses of the computer in modern society.

It is clear, that a different terminology is used by different writers to describe the potential of the computer and there is no universal agreement about its utilisation. Salisbury (1973) for example, listed some twenty-one different terms used by writers with almost the same meaning, such as Automated Teaching, Computer Assistance for Instruction, Computer Assisted Teacher, and Computer Managed Instruction.

However, most writers nowadays focus on two major concepts associated with the computer in education, - Computer Assisted Learning (CAL) and Computer Managed Learning (CML), and most applications fall into one of these two categories. We commonly identify the following important ways of using computers.

9.1.2. Utilisation possibilities of the computer in education:

a) Drill and Practice mode:

Increasing learner mastery and fluency in employing the skill that has already been learnt can be attempted by the computer through the drill and practice mode. In this mode, the computer can display enormous patience until mastery is achieved. This mode is very useful in foreign language teaching, vocabulary building and mathematics drills. It can also be used for reviewing individualised learning lessons.

This mode is described by Lawarence Parkus in TICTON (1970 P.323) as the simplest mode of CAL, for it provides the lowest interaction level between student and computer. The role of the computer here is to evaluate the student's understanding of the material which has been studied.

> " The overall function of the drill and practice mode is to provide maintenance of skills and retention of concepts."
>
> (Parkus in TICTON, 1970 P.323)

Teaching new concepts and information is the entire responsibility of the teacher in the drill and practice application of CAL.

b) Gaming mode:

Gaming is defined by Heinich as :

> " An activity in which players strive toward the attainment of a goal with prescribed rules."
>
> (Heinich et al 1982. P.290)

A game may or may not be educational. Educational games can be highly helpful especially in rehearsing drills.

Computer educational games can be applied also in management training and can be a useful in building up computer literacy in a pleasant way.

c) Computers as powerful word processors:

The latest developments in computer science have made it possible for professional educators and trainers with the aid of word processors to manipulate textual materials in an easy and efficient way.

An electronic word processor is a special programme designed to compose texts via a computer. The user can, through the computer keyboard, create texts and subsequently store the text in the computer's memory, which can be recalled for printing or revision, thus providing drafts of teaching materials. Revision can then be made easily allowing further revised copies to be published. The editing capabilities of the word processor enable instant correction and changes to the text being worked on virtually in a fraction of a second. We now proceed to full printed output quality via 'Desktop Publishing'.

However, editing is also useful for stored data other than "alpha/numeric" characters; i.e data on graphics, stored sounds etc. Through editing routines, a specialised range of tasks is possible; for example a particular sentence, line, or paragraph can easily be "Blocked" and then moved to another location in the text. Wrongly spelled words can also be simply identified and instantly corrected via a built-in dictionary.

Another potential of the word processor was highlighted by

Knirk and Gustafson (1986 P.252), that is the possibility of speeding up the typing of a text even by those less-proficient typists, if the computer is programmed in a way to accept a recognisable abbreviated text. He also promoted the availability of computer packages that will analyse the text with regard to its grammar and readability. The latter could be very effective for improving both the teaching of grammar and the production of good writing. Desktop Publishing can also be used by a teacher for the speedy creation of high quality learning materials.

Arabic versions of word processors are also available to serve the needs of Arabic speaking countries.

9.1.5. The use of Computer for special education:

Interest in the use of computers with pupils with special educational needs has grown over the last decade. Many attempts are being made to introduce Microcomputer applications for these disabled children. An example is " speech processing " technology which has developed noticeably in the recent years. For instance, IBM-Paris conducted several researches that led in 1982 to the development of a number of programmes in speech training using (IMB-PC) computers. The main purpose of these programmes is to enable the deaf child to control his voice pitch and intensity. In the period between 1979 to 1982 this programme experimented with a number of students in "Institut National de jeunes sourds" (INJS) in Paris. Generally, the experiment was very useful especially in training those children who suffer from "voice head" (Ali et al 1988 P.13). A number of

international institutions also applied the IBM-Paris programme, such as Tsukuba University in Japan in 1982-1985.

The programme was also carried out in Kuwait in 1986-1988, under the supervision of the Kuwait Institute for Scientific Research (KISR), Scientific Centre (IBM / KSC), and the Department of Special Education of the Ministry of Education. The project was financed by Kuwait Foundation for the Advancement of Science (KFAS).

The Kuwaiti experiment was with 8-12 year old pupils and involved the training of teachers. It continued over two terms.

The most important findings, as published in Instructional Technology Journal No. 19, June 1988 were:-

- Increasing interest was shown by deaf children in voice-activated games.
- The programme in voice pitch and intensity proved to be very useful in discriminating long and short phonemes.
- Except for those students who were capable of lip-reading, students with partial hearing gained more than those who were fully deaf.
- The programme succeeded in generating a favourable attitude by teachers towards its application..

9.2. The computer components

9.2.1. Hardware :-

No matter how big or how small the computer is, and regardless of the make, all computers have standard components. A computer system consists of three main parts; input, central

processor unit (cpu) and output. To understand how the various parts of a computer system function, it is best to give an outline of the role of each part.

A - INPUT:

Computer users can, through the keyboard or any other input device, (punch card reader or paper tape reader to recall magnetic ink character or optical character reader, etc.) write or modify any information in the cassette or disc programme. This can be called the input to the procedure and the input can be fed either in the form of instructions to the computer to call a certain programme or in the form of data on which the computer will operate. The instructions or data cannot be fed directly into a computers' CPU in their original form, they must be in a medium that is physically acceptable and recognisable by the computer. The most frequently used input device is the keyboard terminal, whereby instructions or data can be fed into a computer as coded patterns of holes in a punch card or tape, coded patterns of magnetic pulses on magnetic tape or discs, or patterns of bars or symbols. The latest input device which is currently being developed is by speech (Wright & Anderson 1987). There is also the use of the voice as an input tool, (as was explained in the section on special education) and the optical character device.

B- Central Processing Unit (CPU)

The CPU is the second major component of a computer, where

the processing of the data fed into the computer takes place. The CPU is regarded as the heart or the brain of the computer where the functions of storage, arithmetic and control are carried out.

Typically, CPUs differ according to the type and the size of the computer, but the distinctive point of all computers is their capacity to retain and manipulate large amounts of data at great speed. All the CPUs consists of three separate sub-systems. They are:-

1) Memory-Storage unit:

Within this memory, instruction and data are stored in the RAM (Random Access Memory). This type of data storage is temporary; it is later erased to make room for the next programme. The memory also contains another unit which permanently stores instructions that the computer will constantly need, such as the programming language and the internal commands; this unit is known as ROM (Read Only Memory).

However, for work that involves storing large quantities of data, the CPU store may not be large enough, in which case reference can be made to external or auxiliary storage usually called a backing store to hold additional data.

2) Arithmetical and Logical Unit:

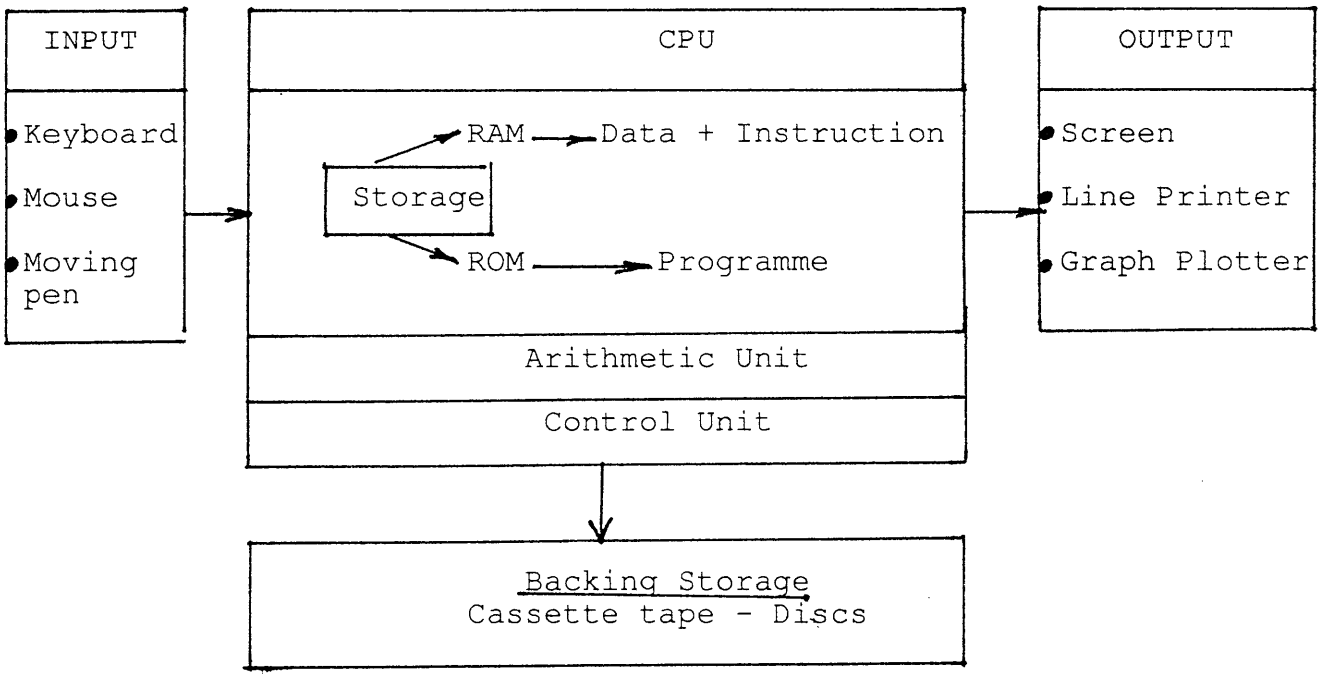
A further part of the CPU is the arithmetic and logical unit, which perform the necessary calculation for the standard arithmetical and logical operations and applies them to the coded signals that correspond to these instruction and data.

3) Control Unit:

The function of the unit is to exercise control over the job as a whole by decoding and executing instructions stored in the computer memory.

Figure 56, is a schematic drawing of basic computer components. It consists of a CPU surrounded by important devices known as 'peripherals', including input devices to transfer data and instructions to the system, output devices to obtain information for the system and a backing store to retain additional data.

Figure 55. A Basic Computer Components



9.2.2. Software:

A computer system not only comprises the physical components which form its hardware. For the computer to function efficiently it needs a co-ordinating programme to control the flow of performance through the CPU and of the peripherals and to verify each assignment. These co-ordinating programmes consist of the operating system and are commonly known as the computer software. Software consist of the sets of instructions that permit the use of the computer. In short, they are those programmes that dominate the computer operation.

Software production requires professional skills in programming; it is very complicated task even for those who have the programming knowledge to produce, document and validate high quality computer software. However, the development of software is commercially slower than the development of the machine itself. There are plenty of software programmes on the market, but the teacher has to be very careful in selecting the best programme which best suits his needs, because most of the software available on the market is of poor quality.

Percival and Ellington (1986), in this context noted:

"However, with a few honourable exceptions, much of the commercially available CAL software that has been produced to date is (they quote Megarry), of dismal quality, poorly documented, gimmicky and unimaginative, some of it actually dangerous in the sense that prolonged inexperienced use could lead to the perpetuation of maladaptive strategies and the

learning of errors" (Megarry . J in Percival and Ellington, 1986 P.154).

Heinich et al, (1982), in another context, explained that reviewers who have had the opportunity to appraise critically a portion of the flood of CAL programmes being offered in the marketplace dismiss 80 percent of them as "Junk".

Despite the programming skills required for producing computer-aided materials (software) which include, (to use Percival's & Ellington's words) "a feel for educational design, ability to write supportive documentation, and so on". Some of those who are involved in the production of computer assisted learning, claim that teachers themselves should be trained in programming techniques in order to be able to construct software for their own instructional requirements, (eg, Barker and Singh. 1983). Others, looked at CAL production as a very complicated task, requiring many divergent skills so that quality can only be obtained by a team effort (eg, Bork 1984, Nicolson & Scott 1986).

Nicolson & Scott added that the development of support technology, to permit individual teachers to promote software within their prevailing curriculum structure, is the key to a "higher quality of reasonable quality computer assisted learning production".

Teachers with limited programming experience can produce simple programmes using BASIC language, but there is now general agreement among educationists that teachers cannot be expected to produce good software when using BASIC.

However, teachers can now find a number of commercially produced languages, designed in a simple way that enables them to produce CAL tutorial style lessons easily. Examples of these are: ILS, PILOT and MICROTEXT (Nicolson & Scott 1986).

9.3. Computer applications in an Arabic environment

In the Arab countries of the Gulf, as well as in other Arab countries, the introduction of computer literacy and computer application in the field of business, commerce and information dissemination anticipated its introduction for educational purposes by more than a decade.

In Bahrain, for example, many companies utilised the computer in their businesses in the early 1970s, e.g travel agencies, petroleum company (BAPCO), Gulf Air, Banks and some other private firms. Today almost all commercial institutions in Bahrain are offering courses in the use of computers, both on a part time and/or fulltime basis, to a degree that it necessitates some degree of control from the Government over the way these courses are run (MEERA RAVI 1987 P.25).

Many of the private computer training institutions in Bahrain are amalgamated with one or more institutes in the U.K.; an example is Management Consultancy Group (MCG), which offers a diploma in computer studies which is recognised by the National Computer Centre (NCC) in the U.K.. MCG's Computer courses cover a wide range of subjects, from beginner's computer appreciation courses to advanced courses for training senior programmers.

Another example of a private computer training centre in Bahrain is the Almoayed Institute of Technology which graduated its first group of students in 1987. Almoayed is also well known for software development in the Gulf, in both Arabic and English.

Private institutes offering computer education do not seem to be very enthusiastic about Arabisation, despite the existence of the MAFITHA programme which can convert all popular Pc applications into Arabic.

> " The emphasis is still firmly on English which is seen as the definitive language of computer studies "
>
> (MEERA RAVI 1987 P.25)

9.3.1. Computer applications in the Universities

Most recently-established Arab universities in the Gulf States and in some other Arab countries were designed to include substantial computer centres, to aid the administrative requirements of the staff and for use on some academic courses such as the sciences and engineering. As the Universities developed, they offered more advanced courses, ultimately leading to degrees in computer science.

An example of a university which illustrate s the beginning of this development is the University of Qatar, which officially opend in 1985. It has a Prime 2250 Computer with 24 PST-100 work stations and seven Beehive work stations and the Women's College has a Wang VS100 with 20 data processing/word processing stations. The computer has been used for the administrative needs

of the university, including admissions, and registration and it was expected to handle all personnel, payroll and library automation requirements. However, the ultimate aim of the university, as was revealed by its vice-president in Middle East Education and Training (MEET), is to introduce a computer degree programme.

Until 1987, the educational role of the computer centre in Qatar University was to offer courses for engineering and science students.

Another University which in 1983 introduced a new four-year degree course in computers, entitled Computer and Communication Engineering, is the American University of Beirut (AUB). There were a total of 206 registered students on this course in 1987. This figure shows the growing recognition of computing as an option for University study. This recognition is largely due to the fact that the employment prospects for Arab computing graduates are very good (Tim Thornborough, 1987 P.23).

A BSc degree course in Computer Sciences was also started in 1986 at Beirut, for which 100 students have enrolled. IBM 4341 and IBM PCs and compatibles are used for most training in AUB.

An older computer programme can be found in the University of Bahrain (formerly the Gulf Polytechnic and University College-Bahrain). Three types of computer course are offered:

1- As a minor part of a degree in natural sciences.
2- As an introductory course for almost all the university students, regardless of their field of study.

3- As an integrated part of subjects such as mathematics and English language.(Al-Hawaj,A. Moussa,N 1988. P.6)

Computer courses in the University of Bahrain combine both hardware and software aspects, including languages like Basic, Fortran 77, Cobol, Pascal, Assembly and Ada, general systems programming, operating systems, data processing and databases etc. Hardware components include: digital logic, computer architecture, microprocessors and a variety of applications. The computer is also used as an aid in administrating the university.

The Centre is equipped with VAX 11/780 and 11/750 systems connected in network, a Wang VS80 system. IBM PC ATS and compatibles and a variety of CPLM-based 8-bit machines.

The University has a microcomputer laboratory equipped with 20 Apple II + computers each with 64k memory, connected with two 10 Megabyte CORVUS hard disks under the OMNINET network. Each of the 20 stations is equipped with a high resolution monochromatic monitor for use as a teacher's station for classroom instruction. The administration has a similar installation with 10 microcomputers in its local area network.

Another similar computer centre is the Kuwait University Computer Service Department (KUCS), which was established to meet administrative needs and to offer training to students of the Engineering College.

Kuwait University has adopted a long term project entitled the Al-Khawarizmi Personal Computer Literacy Programme (PCLP) (Yaghi H.M 1988 P.14). Al-Khawarizmi is aiming at propagating

computer literacy amongst students, the university faculty and other governmental and private institutions. The programme started in only one centre, then by May 1988 it spread to eleven centres. The programme included topics such as:

1- Disk operating system (Dos).

2- Word Processing in English.

3- Word Processing in Arabic.

4- Database Management.

5- Spread sheets.

6- Mapping and design.

7- Statistical analysis.

8- Programming.

The Director of the Al-Khawarizmi Programme reported in Instructional Technology Journal (Yaghi 1988) that 8,000 trainers graduated from these courses including nearly 2,000 from outside the university.

The Al-Khawarizmi project emphasises programmes produced in Arabic, such as ARABIC DISPLAY WRITE2, produced by IBM and ARABIC WORD, produced by Gulf Star, although English language programmes are also widely used.

Saudi Arabia is the only country in the region that has a separate college of computer sciences, in its supreme engineering institution, the University of Petroleum and Minerals (UPM). In this college five separate degree programmes are offered by its three departments.

A four-year programme leading to a BSc in one of the following computer related subjects :

- Computer Engineering
- Computer Sciences
- Information Systems
- Systems Engineering

King Saud University (KSU) in Riyadh also uses a computer for all admission and registration processes. As part of the admissions procedure, the computer is fed with the information necessary for admissions, then the computer works out the results, whether the student has achieved the requirements acceptable for admission.

The above examples are from rapidly developing and wealthy countries of the Gulf, but the picture is different in those less fortunate Arab countries such as Egypt, Jordan, Syria, and Tunisia where a large number of students exist and where there is a severe shortage of money to purchase equipment and resources. For example, there are thirteen universities in Egypt, with a total of over 600,000 students. Computer courses are offered at many of these universities, but concentrating on theory, sometimes with very little practical experience due to the lack of hardware.

However, practical training is possible through private companies such as ICL which runs on-site training courses during the summer vacations. Students have to pay their own tuition fees, which are normally considerable.

Some universities such as Cairo University and the American University of Cairo (AUC) are able to offer some practical programmes of study. In June 1987 AUC graduated its first B.Sc

group of students in computer engineering. Recent computer programmes at AUC, started in 1990, offer the following types of programme:

1- The Undergraduate courses

a) Career Certificate in Computers & Programming (one year full time programme)

b) Advanced Career Certificate in Computers & programming (two years full time programme)

c) Advanced Career Certificate in Information Systems and Computers. (two years full time programme)

2- The Postgraduate courses

a) Professional Development Certificate in Computer Systems and Applications (one year full time programme)

b) Post Graduate Career Certificate in the Application of Computers to Systems and Control. (one year-four courses).

In Jordan, two universities, namely Yarmouk University and Jordan university in Aman, both run BSc courses in computer sciences. Jordan has a shortage of professional staff especially at system-analyst level as reported in MEET (Thornborough 1987 P.23).

As in Egypt, the practical training in Jordan is done by private computer institutions. There were over 30 such training institutes existing in Jordan in 1987.

To conclude this section on the use of computers in Arab universities, two main points can be distinguished:

1- Universities in the Gulf States Arab countries are able to purchase highly sophisticated computer systems and can also hire professional expatriates to run the system and to train and teach the subject. There is, therefore, a golden opportunity for local people to obtain a better theoretical basis and to develop their vocational computer training so as to enable them to acquire the skills of working in both academic or commercial environments.

2- Universities in other Arab states are less fortunate due to their economic situation. They teach the theoretical side of computer studies, but are unable to provide suitable and adequate provision for the practical aspects of the computer sciences. In such countries, practical training is provided by the private sector.

9.3.2. Computers in schools

Although Computer Assisted Learning (CAL) started in the United States in the 1960s, schools in Arab countries, including those in the rapidly developing and wealthy countries of the Gulf, only started to introduce computers into the school curriculum in the late 1980s. For example, in Tunisia computer applications started as an experiment which combined the use of computer instruction in the English language and a strong emphasis on sciences and technology.

The experiment took place in one of the two elite government secondary schools in Tunisia, "Lycee Pilote de L' Ariana" in 1983 with 145 students. In 1987 the number rose to 435. (Carroll, B. 1987 P.29).

Whilst most secondary schools in Tunisia have one or two microcomputers for use in student clubs, the Lycee Pilote has four computer rooms equipped with over 50 computer units, including many BBC, 15 Apple Macintosh and four DEC Microcomputers.

Teachers use the computers for developing lesson plans and teaching materials, but obtaining enough English Language software for extensive classroom use remains one of the difficulties.

The computer rooms are used for both teaching computer science and for computer-based teaching of other subjects. In the higher grades the students are introduced to computer science and learn wordprocessing on Apple Macintosh machines, as well as manipulating computer graphics and learning to programme languages such as Basic and Pascal. In English language courses students work on the BBCs to review their vocabulary and grammar for one or two hours per week and also develop their mathematical skills. Teachers find the computer to be an excellent way of motivating the class, and students benefit by being able to work at their own pace. The success of the experiment encouraged the authorities to discuss the plans for the establishment of similar schools elsewhere in Tunisia.

In Bahrain, the Ministry of Education formed a committee in 1986, directed by the Assistant to the Dean for Engineering Affairs in the University of Bahrain, to study the best possible approach to introduce computers into Bahraini schools.

According to an interview with the Director of Curriculum for Bahrain in 1986, the Ministry has already started to supply some primary schools with computers for children to become familiar with them and to begin the preparatory phase.

In Jordan, computers in schools were introduced through a co-operation agreement between Jordan and United Kingdom, that Britain provides 5 Million sterling pounds over a three year project for computers to be used in a 200 secondary schools in Jordan. By January 1989, 160 secondary schools benefited from the project. It was estimated that some 75,000 pupils between the ages of 15 and 18 will benefit over the life of the project (Warg, P.1989 P.6 ; MEET V.11 No.1 1988 p.6).

Whilst Jordan started computer education through a loan scheme, Egypt benefits from a local investment programme. The Islamic International Bank for Development and Investment is financing the Ministry of Education's long-term national computer literacy campaign, which is intended to train staff from 12,500 secondary schools in Egypt to facilitate the introduction of computers into school management.

During 1986-87, a pilot project was carried out in 16 secondary schools. By 1988, 150 schools had joined the programme.(Wary, P. 1988 p.9)

Another attempt to introduce the computer to young students in Egypt was made in 1987 by a private company called Team Engineering and Management Consultants, who organised a computer camp in Cairo to offer practical training and education for 230 young men and children between the ages of eight and

twenty. Another camp "Bel Air" that caters for Arab females was also organised at the same time.

Students, divided into groups of twenty, spent four hours a day practicing computing. Some programmes were completely Arabised. The students use an Arabic language keyboard and Arabic programming language. In July 1987, the same company inaugurated a model school to show how computer studies can be an integral part of Arab Education. However, most of the students are non-Egyptian Arabs. This kind of training institution is an example of private profit-making by management-training establishments; a three week course, costs $ 900 per student.

Thus, we see that computing is rapidly establishing itself both in business and higher education throughout the Arabic-speaking world. Since using computers is both a skill in its own right and a tool for learning, this seems to be a sound justification for introducing the computer in a planned way into the schools of Bahrain.

9.4. The major principles in introducing the computers in schools:

There is an increasing desire amongst schools and teachers in Bahrain, as in other Arab countries, for the immediate introduction of computers, both as an aid to the instructional process and as a subject of study in schools. Our main concern here is with the use of the computers as an instructional medium.

Bahrain has a centralised system of educational administration where the machinery for initiating and implementing a programme of curriculum reform already exists.

Decisions about curriculum contexts and school policy are not made independently by the schools, but by a committee appointed by the Ministry of Education. This procedure is generally followed in other Gulf Arab states. Accordingly the methodology of curriculum reform adopted in these countries will inevitably overlap.

Often decisions, even those made by committees, are made in haste and under pressure. The students and the teachers in schools will be the real victims of errors that are made. The decision-making process that leads to the purchase and utilisation of computers must not be defective; computers must not be installed for wrong reasons and without adequate planning. It is thus extremely important to ensure that the quality of such decisions are the best possible in the circumstances.

Innovations have frequently been less successful than was hoped because the consequences of the measures taken and support needed had not been anticipated.

Decisions about what works and make sense, in relation to the local environment and social context, is of great importance when planning innovations. Each country has a unique environment, and the successful planner uses a selection of methods to meet his country's specific needs.

Another important factor which may hinder the introduction of computers into education is finance. The high capital investment in a computer system may lead to serious problems which can not be easily solved if the purchasing decisions are made inefficiently. There are many opportunist computer

consultants who are keen to sell "their" system. Some suppliers would try to sell any machine, rather than that best suited to the needs of the purchasers. These people are often not interested in improving the quality of teaching and learning or in assisting the teachers in widening the range of their resources, but merely in marketing and selling computer equipment. The purchase and selection of computers, then, must not only be governed by logistical, financial and internal political factors, but must also be controlled by soundly based, clearly specified psychological and pedagogical considerations as well.

Before purchase is undertaken, a proper specification of needs must be made; preferably with the aid of one or two independent consultants as well as knowledgeable local personnel.

The Ministry of Education in Bahrain is increasingly committed to the introduction of technological media in Bahraini schools. At this stage, it is very important for the authorities to consider all possible consequences of their purchasing policies.

Hooper (1972), relates the largest barrier to the introduction of technology into education is the resistence of the educational system itself.

> " Schools and colleges too often take on the outward appearance of innovation, but not its substance. The educational bureaucracy neutralize innovative ideas with apparent ease. Each new technology intent on transforming educational procedures soon finds itself the one that is being transformed. "
>
> (Hooper, 1972 P.411)

It is thus very important to ensure that the type of computer system we buy corresponds to our schools' curricular needs. When using the term "system", we refer to both hardware (machines) and software (programmes).

Against this background, the following pre-requisites should be a guideline for those who intend to utilise the computer in classrooms and should be noted if the successful introduction and utilisation of computers is to be accomplished. Also that these prerequisites should be broadly applicable to all the Gulf states whose situation is similar to that of Bahrain, and could be utilised by them with certain modifications.

9.4.1. The definition of global objectives for the utilization of computers.

There can be no attempt at the introduction of computers in depth without a clear definition of objectives or at least the formalization of implicit objectives.

If the computer is to substantially improve learning and teaching it must be embraced in a reformed system that results from a redesign of the conditions of learning that integrates the reform of all relevant aspects of education.

9.4.1.1. The reasons for defining objectives:

The use of instructional objectives is consistent with the concept of "accountability" in education (the balancing of money spent for education to the amount of student learning). Unfortunately, some educators have negative attitudes to accountability and have also become negative about objectives.

The negative attitudes to objectives are based on the misconception that using objectives leads to accountability in education. Certainly the use of objectives is consistent with accountability, but national and local economic considerations, rather than the use of objectives, probably lead to accountability-based educational systems. There are so many goals possible in any given learning situation that unless priorities are set, time and resources can easily be wasted. Thus, it is important to specify the objectives of the learning/teaching task.

> " The clearer we are about those ends and their nature the more adequate the planning can be ".
>
> (Hirst, 1975 P.9-21)

To conclude, the function of objectives, as clarified by Taba, in Kelly 1980, is to guide the designer making decisions on what to cover, what to emphasise, what content to select and which learning experiences to stress.

> " A further source of support for such an approach has always been the economic consideration that a clear statement of objectives is the quickest way to a proper evaluation of whether the money invested in education is being properly used and, indeed , such evaluation has also been advocated on educational grounds as a tool for the further and continued development of the curriculum.
>
> (Taba in Kelly 1980 P.15)

9.4.2. Selecting appropriate computer hardware and software

Some of the richer countries have acquired computer systems for their schools and have been led to trust that by this means,

they will have acquired the solution to all their educational difficulties. Purchasing computer hardware (machines) is a part of a computer assisted learning system. Learning can not proceed without the required software (programmes), to allow effective use of the computer system and the training of teachers. Thus as much time and effort needs to be spent in selecting and developing computer software as is spent on the hardware.

The selection of hardware and software are interrelated and should be dealt with concurrently but after establishing the aims and defining the desired objectives behind using computers in schools.

As far as selecting the right hardware is concerned, the appropriate type of machines should be purchased to suit the needs of those employing them.

> "Man-Machine identity is achieved not by attributing human attributes to the machine but by attributing mechanical limitation to man".
> (Mortimer Taube in Knirk et al 1986 P.189)

Particular software packages, whether data base or integrated programmes, will probably be specially made for particular users and obviously will be suitable for those specific users, or those countries whose social, political and educational context coincide with the perspective of the original producer (see the section on the use of video programmes to see how difficulties can arise). A given package is not necessarily applicable to every country; no country or set of circumstances

is entirely like any other. Situations in different countries vary, and unless the authorities have a detailed understanding and awareness of this matter, difficulties can be expected which may lead to the inefficient use of financial resources. These facts call for a careful selection of software, that best serve the desired needs of the computer users and are more cost-effective.

> " When there are two or more instructional strategies that result in the desired level of student learning, the least costly method should be selected". (Knirk et al 1986 P.199)

Education has now become an investment process which, through the preparation of human resources available, aims at increasing national income. Since the cost of training in educational technology in general and training in computers in particular, are rapidly increasing it has become necessary to conduct an accurate estimate of training costs as well as other foundation costs and attempt to measure the expected educational return.

However, cost effectiveness is not the only criterion that should be considered in software and hardware selection.

S. Curran and R. Curnow (1983), listed a number of factors that should be assessed and examined when choosing a computer hardware and software system. They are summarised as follows:-

9.4.2.1. Identification of manufacturing company

It is vital to be sure that the company who make the computer has a good reputation, in order to ensure after-sale

maintenance and servicing routine of the machines. Also to ensure the availability of any spare-parts when problems emerge.

9.4.2.2. The possible delivery time

It is also essential to be clear when and in what condition the system will be delivered; whether loose, needing assembly, or pre-fitted and ready to be run. These queries are essential to secure the right delivery time.

9.4.2.3. What kind of "after sales" maintenance can be obtained ?

The limitation of the support and advice that can be offered by the company or the retailer, are of a great value for any computer system user, especially for those novices in computer usage.

To what extent the company is ready to offer training programmes and maintenance arrangements and training for suitable local technicians is a key consideration.

9.4.2.4. The general features of the machine

It is relevant to examine the following points:-

- How powerful is the machine ?
- The general appearance of the machine.
- Does the computer have a separate visual display unit, keyboard and disc unit, or is it a one-piece machine ?
- The Central Processing Unit (C.P.U) architecture.
- The operating speed.
- The Random Access Memory (RAM) capacity.

- The keyboard type (Full alpha/numeric or more restricted)
- The measurement and type of the display area.
- The colour of the display unit and the video unit.
- The availability of brightness and contrast controls.
- The operating characteristics, its cursor arrangement, its scrolling abilities and its graphics capabilities.
- What are the backing storage options; is it cassette, floppy disk or hard disk ?.

9.4.2.5. The hardware options available.

- The possibility to expand the amount of RAM.
- The flexibility of upgrading the backing storage system.
- What peripherals are available?.

9.4.2.6. Type of interfaces and connection ports provided

- Are they standardised?.
- Are they adequate for connecting any additional devices?.
- The possibility of using the machine in a local area network.

It is equally important to obtain computer hardware that is compatable without the need for any amendment and updating of the existing system.

This point has to be noted when selecting software as well, for it is important to select software which allows users to continue to use the same software in any type of machine. Many software production and development companies have realised this shortcoming and have established the new discipline of software engineering.

An engineering approach is based on choosing software that is appropriate to meet specific objectives. Teachers being introduced to computers must begin with basic or primary software such as applications software, software aids (e.g. editors), suitable wordprocessors, data bases and subject software.

9.4.2.7 Computer maintenance problems

Setting up any form of electronic apparatus in Bahrain is most likely to fall victim to local problems such as lack of servicing, skilled technicians, systems analysts or a poor management system.

Computers, in particular, require much more servicing and care than any other educational equipment and a gap in human resources can represent impossible obstacles to those setting up a computer system. As far as Bahrain is concerned, human resources are failing to meet ever-increasing demands. There have always been complaints about the servicing and maintenance of audio-visual equipment.

Lastly, the development in computer technology in recent times is more rapid than it was posible to imagine at an earlier period. This makes planning difficult. It is essential for all planners to be up-to-date with recent developments so that large-scale investment today meet educator's needs tomorrow.

9.4.3. The role of training teachers in computer application

Insufficient interest in the use of educational technology in general and in the use of computers in particular could be

attributed to teachers' lack of understanding of and ability to use the computer, lack of software and hardware and lack of motivation. All these factors, except perhaps the availability of audio tapes, were reported in the utilisation of educational technology in Bahrain, in a previous study of educational technology by the researcher in 1985.

Hence, the identification of the role of training in educational technology and computers is of utmost importance, together with the availability of both software and hardware. There is also the need for evaluating computer training programmes, both "Summative" and "Formative" evaluation; the former provides a description of the value of training in computers immediately on completion of the course or after a short period of time; the latter provides feedback while the course is taking place.

9.5. A proposed strategy in training teachers to utilise computers in Bahrain

There are two critical points in gaining familiarity with computer systems. The first involves technical familiarity with the technology, and the second more challenging point concerns understanding computing and its potential within the curriculum.

In other words, teachers should be trained in two aspects:
(1) Training in the hardware features of the computer, "Man-Machine interface, or Human-computer interaction" or, what Gaines and Shaw call "Dialogue engineering " (Collerell et al 1988).

Common to each of these areas is training in a field

created by the very existence of computer technology, such as the art of interaction with computers in the same way as we interact with other persons. Teachers in this interaction need to express information, interpreting what the computer says.

Gaines and Shaw define this as :

> " Dialogue engineering is a new technology at the heart of personal computing and interacts strongly with all the other computing technologies. The acquisition and presentation of numerical data, the capability of the operating system to be presented and controlled simply and logically, the capability of the database to accept information in a form natural to people without distortion- all of these involve the psychology of people as much as they do the technology of the computer ".

(Gaines and Shaw in Collerell et al, 1988 P.20)

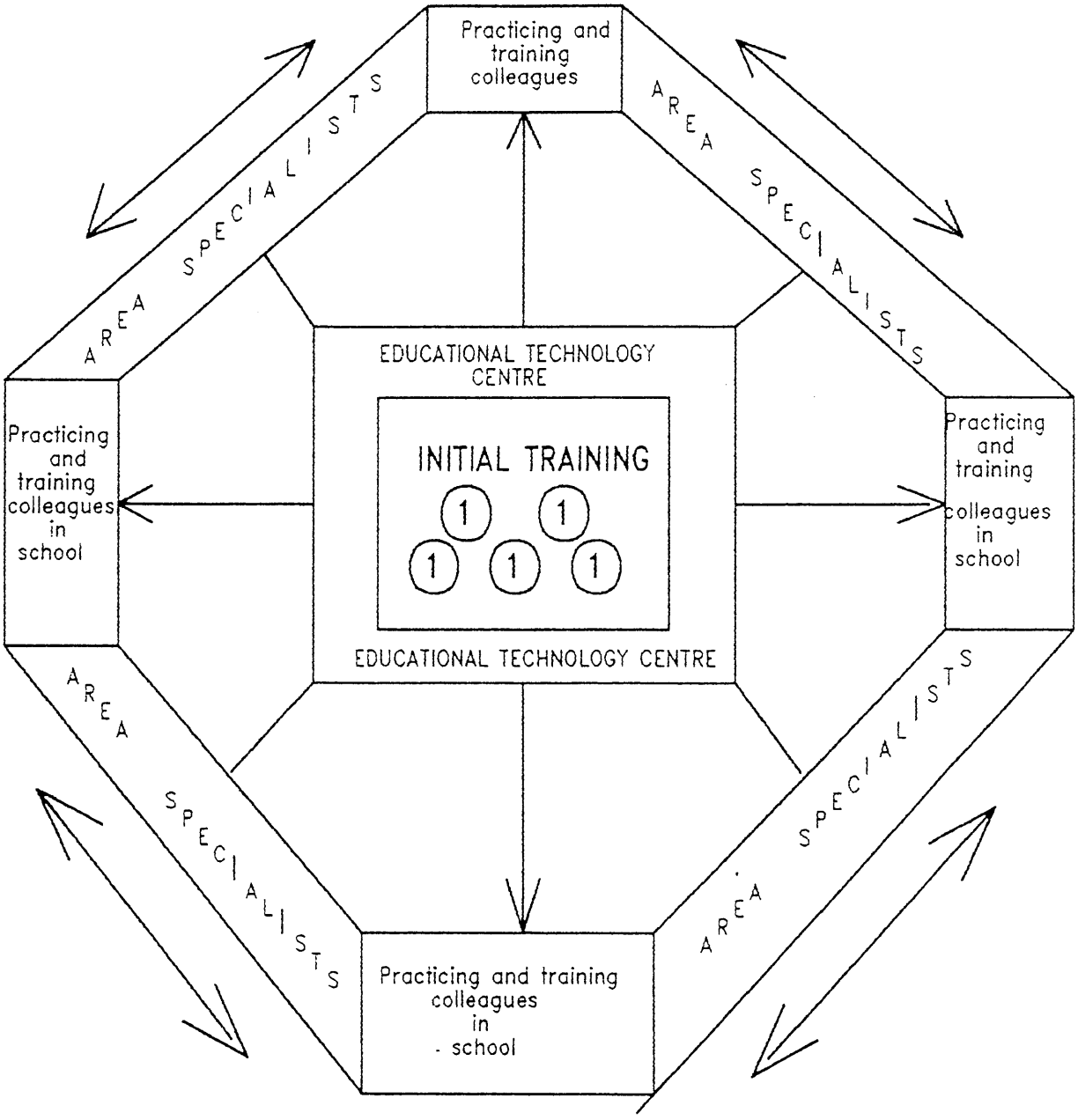
For this type of training the writer suggests that the Educational Technology Centre can organise a training programme for an equal number of teachers at all levels of education. For example, 10 teachers from primary, 10 from intermediate and 10 from secondary schools.

The Centre, at present lacks computer training specialists. In this context it can acquire a number of trainers, either from the University of Bahrain or from the well-established private sector institutions to train the first group of teachers.

It is suggested that the training of the initial group of teachers should be given by the area specialist (P 359) in the Educational Technology Centre as suggested earlier for the initial group of teachers. These teachers would return to their schools practising the training they have had and gradually each

one would train a small number of his/her colleagues (see figure 56).

Figure. 56. Proposed training strategy for the application of the Computer.



It is advisable at this stage to use simple ready-made software written in a clear style. This software will offer guidance to the teachers in producing their teaching materials. The following are some examples of effective software :-

1- Word processing - with particular emphasis on creating teaching materials, e.g. work sheets.
2- Using commercial programmes, and also a simple programme adapter, e.g. translation of English to Arabic text.
3- Use of data bases - based on commercial packages.
4- Use of simple accounts packages.

For the second required area of knowledge in computer applications "Knowledge of computing", the writer suggests that it is sensible at the exploratory stage to avoid complex higher-level programming languages and begin with "user-friendly systems" or "expert systems" which ease the difficulties that the users face in interacting with the computer in creating a simple programme. Thus the use of this "user-friendly software" can have a number of implications, including learning and understanding about the computer and computing.

A regular one-day activity could also be organised monthly by the area specialists for teachers to identify and try any new software materials produced in education. The teachers themselves should be encouraged to identify and "try out" materials with classes so that "Programme evaluation" can be built up. This will enable teachers who come to adopt computers, to gain access to systems that are known to work in Bahrain.

Lastly, pre-service training of teachers in Bahrain should include adequate initial computer training programmes to encourage teachers and attract them to use the computer in their teaching. It is advisable to have in the Educational Technology Centre a competent programmer who can design and/or verify programmes to make them suitable for use in Bahrain.

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CHAPTER TEN

10. Conclusion

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10.1. Introduction

The basic assumption which has motivated this study is the belief that the quality and adequacy of educational technology usage are conditioned by a variety of factors. Some of these are personal, such as views and attitudes held by teachers about their role in instruction which can be strongly influenced by the ideas and attitudes to which they were exposed during their period of professional education. Teachers are also conditioned by other factors such as the availability of audio-visual materials (software) and equipment (hardware) and the adequacy of accommodation together with the extent and type of support they get. This support can be either internal or external to the school. Furthermore, cultural background has a substantial influence on the understanding of the quality and adequacy of educational technology.

The present study was designed to :-

- Identify the use of Educational Technology in Bahrain.
- Determine the problems of media usage.
- Determine teachers' abilities, background and views on educational technology.
- Develop a policy for professional development.
- View the roles, responsibilities and mechanisms for internal school structure and management control.
- Suggest a suitable pattern for teacher support services in educational technology. Overall, the study was hoping to obtain

information which would lead to the development of better education through an appropriate use of educational technology. Further, the study was designed to gain information for the elaboration of a systematic strategy for the implementation of educational technology, both at the training stage and in the classroom.

The purpose of the study was also to identify the principal ideas and attitudes which give the programmes of professional education in educational technology in Bahrain their main orientation, and to evaluate this orientation against a frame of reference suggested by contemporary needs for educational technology.

Another purpose of this study was to portray the typical school teacher, as moulded by his or her background and the initial and pre-service training, so that an evaluation or judgement could be made of the adequacy of the training to deliver the curriculum effectively.

There is evidence throughout this study that the system of pre-service as well as in-service education and training of teachers has had a considerable effect. There is now need to expand this to meet more advanced criteria e.g. to improve teachers ability to select appropriate software.

Bahrain has a highly centralised educational system with major decisions being taken by the government. Thus, the teacher freedom typical of British schools is not to be expected - but one could expect better uptake of centrally provided services.

The elusive term "Educational Technology" which is

relatively new in the educational literature and thought of Arab countries, has to be clearly understood. There are different and conflicting views as to its characteristics and until the present moment, there is still no universal agreement about its meaning. It is argued that the greater influence on todays' understanding of the term "educational technology" is derived from the work of John Dewey who made the first and most positive indirect contribution to educational technology. Many other writers in this field such as Charters, Hoban, Finn and Edgar Dale are all promoters of Dewey's philosophy.

The study argues that from the basis of Finn's definition, Educational Technology is considered today as a "Systems approach" whereby knowledge is applied in a systematic and scientific way to achieve a particular purpose. The chapter concluded that the most suitable definition of Educational Technology is the one by the National Council for Educational Technology in Britain (NCET) that is :-

> "The development, application and evaluation of systems, techniques and aids to improve the process of human learning".
>
> (Beswick, Norman 1980 p. 39)

The study further proceeded to discuss the development of Educational Technology in Bahrain, and concluded that educational technology has been largely disregarded in the initial education and training of teachers in Bahrain.
Basically what is presented is the application of the approach often referred to as "Audio-Visual Aids".

Chapter four expressed the dilemma of educational Technology in Bahrain and showed that its development has not taken place as an evolution of an existing system and thus has not "taken" effectively.

The researcher argues that the major obstacles to the introduction of Educational Technology into education are shortcomings in the educational system itself, particularly due to the failure of curriculum planning to take "on board" the potential contribution of Educational Technology to the delivery of the curriculum. This has resulted in a lack of incentives for teachers to modify their teaching methods. The chapter further argued that the educational process takes on the superficial image of Educational Technology but not its essence. Allied to this is the consequential failure of teacher training and in-service programmes to achieve the desired output.

Chapter five discussed the method which was adopted in the field study, the nature of the study, the major objectives of the field study, the major hypotheses of the field study and the study instruments. It was revealed that three types of interview form covering the field of educational technology were designed for three different categories of people in managerial roles. They were :-

1- Eleven Subject matter specialists.

2- Ten Educational Technologists.

3- Two Senior administrators.

The interviews were analysed before the design of the questionnaire was undertaken so that the face validity of the questionnaire could be increased.

Results obtained from these interviews are discussed in chapter eight.

The major data collection instrument in this study was the questionnaire. A sample of 568 teachers representing approximately 11.5 % of the school teachers in Bahrain was chosen. They came from 42 different schools representing approximately 31.5 % of the total number of schools in Bahrain. The total number of respondents was 490 providing a response rate of 86%. However, before the questionnaire was distributed it was pre-tested on a small "opportunity sample" of 30 teacher trainers from the University of Bahrain to test its validity before revision.

Chapter six, however, explained that a single questionnaire was designed for teachers in all type of schools, primary, intermediate and secondary. Its purpose was to elicit information related to the present practice of educational technology in schools, the problems associated with the availability of materials and equipment, facilities, training courses in educational technology and many other related matters. Such a questionnaire could be used at all level as we were looking for an approach to teaching/learning which runs across subjects.

The analysis of the biographical data showed that schools are divided into male and female schools as co-education is not

practiced in Bahrain for cultural reasons. Most primary teachers and a good number of intermediate school teachers are non-graduates with a teaching certificate and some in-service teacher training. Most teachers at these stages are Bahraini teachers unlike secondary stage education where the majority of teachers are non-Bahrainis.

Generally, it was noticed that schools lack Bahraini male teachers especially at the primary stage. But recently the Ministry of Education, in cooperation of the University of Bahrain, is administering a new programme aiming at qualifying all primary school teachers to a B.Ed. degree level. It is expected that by the end of 1990 all primary stage teachers will be professionally qualified. At present the non-Bahraini teachers represent 23.3 % of the teaching force.

Intermediate school teachers are better qualified than primary school teachers. A minimum requirement for teaching at the intermediate stage is a Bachelor degree in Education, or its equivalent. Again most intermediate school teachers are involved in a re-training in-service programme in the University of Bahrain sponsored by the Ministry of Education.

In 1987-88, most of the teachers at this stage of education (53.2%) were non-Bahraini expatriates teachers.

Bahraini secondary school teachers, especially those with no teacher training are encouraged by the Ministry of Education to study in the University of Bahrain to obtain a Post-graduate diploma in education.

Chapter seven was devoted to the analysis of the interviews which were divided into three sections for convenience. The first section consisted of an analysis of the views of senior administrators. This part showed that senior administrators unanimously supported all the efforts of the Ministry of Education relating to Educational Technology. They seemed content about the availability of equipment in the schools at the present time, although they admitted a lack of services by the Educational Technology Centre. It was understood that the Ministry of Education is developing a new scheme to introduce computers into the school curriculum. Senior administrators did not support the idea of Educational Television "on air", but the use of pre-recorded programmes was emphasised. Generally they were satisfied with the status of Educational Technology in the schools.

The second group of interviews was with academic and non academic staff working in educational technology and refered to as "Educational Technologists". These interviews revealed that many teachers and some administrators still do not understand the notion of Educational Technology. Teachers showed more interest and skill in the production side of media rather than in the rationale behind using media in the classroom. In their interviews, previous exercises in teacher training programmes were criticised, and the present role of the Educational Technology Centre was considered as inadequate. Also the lack of Educational Technology specialists in evaluation and follow-up was highlighted.

A number of points were suggested by the educational technologists such as:

- The need for the cooperation of all personnel concerned in the development of educational technology.
- The importance of the resource centre library in schools and that more efforts should be devoted by the Educational Technology Centre in leading a campaign to implant the modern concept of Educational Technology.

Educational technologists expressed two views on the introduction of the computer. Some suggested its introduction into secondary schools as a first step, while others supported the use of the computer for documentation and retrieval purposes only. Surprisingly, none of them viewed the introduction of the computer as an urgent requirement.

Generally, educational technologists were not very happy about the standing of educational technology in schools, as they felt that teachers were using audio-visual aids and did not appreciate that educational technology aims to incorporate such aids into a total teaching strategy.

The third section analysed the views of the subject matter specialists interviewed. This showed that not all of them were certain about educational technology's potential and its necessity for all subjects. They were dejected about the poor use of media in schools. Subject specialists also blamed the Centre of Educational Technology for the lack of equipment in schools.

The analysis of the questionnaire in chapter eight clarified that ten types of school that were involved in the questionnaire

including both male and female schools. However, there are more female teachers than males in Bahraini schools.

The biographical data also showed that Bahrain is a small island of approximately 670 square Kilometers and no problems of remoteness exist, which is helpful in planning in-service training programmes.

The chapter ended with a summary of the important findings of the questionnaire followed by a section on the extent to which the initial hypotheses were valid. The outcome of this chapter lead to a suggestion for the introduction of the computer in the schools of Bahrain.

Chapter nine then examined some of the subtle features of the computer and its possible contribution to education. A review of the history of the development of the computer in commerce and education revealed its use in business in most of the Arab countries including Bahrain long before it became an interest of educationists in the region.

The chapter included a technical description of the computer components and its function and ended with an argument about the major principles of introducing computers into schools; it suggested that Arab countries in general and Bahrain in particular should be very careful at the decision-making stage as there are many vital considerations to be kept in mind when purchasing equipment. These considerations are finance, logistics, educational objectives, the proper selection strategy for hardware and software, the training of teachers and the maintenance of the equipment.

This last chapter is thus concerned with general conclusions and recommendations which might solve some of the problems of Educational Technology in Bahrain. This can only be achieved by making a coherent plan, the core of which will be a programme of inservice education.

10.2. A plan for developing educational technology in Bahrain

The major conciusion of my researches is that although the majority of teachers are in no way opposed to educational technology, they are unclear about what it involves and lack the knowledge and skills to use educational technology effectively.

Evidence showed that teachers in Bahrain are aware of educational technology concepts and the new requirements for their implementation, but are unable to convert this awareness into practice. They have not developed the capability required to implement the philosophy behind Educational Technology. They use the skills of educational technology, such as the production of materials, the utilisation of media, specifying lesson objectives, lesson plans and lesson content. These skills are, however, used to supplement existing teaching methods; they do not imply a radical new approach to teaching. There is, for example, no interest in media selection or media evaluation. The teachers merely use the skills they have learnt while training to teach and which can easily be observed by their headmaster, or visiting inspectors.

Furthermore, the Educational Technology Centre is seen by teachers to pursue unhelpful policies. The centre does not provide them with the materials, advice and facilities that they

need. Accordingly, they are reluctant to consult the Centre, preferring to seek help from their colleagues within the school. However, the Educational Technology Centre is hard-pressed, with the schools demanding facilities beyond its capability to supply them. This reduces the initiative of the teachers who wish to develop educational technology in a systematic way.

The Educational Technology Centre will not be effective unless it can solve its staffing difficulties and change its management system. Although schools in Bahrain lack the equipment and materials that would enable teachers to use media effectively, the most difficult problems are ideological and organisational. Teachers do not understand the educational foundations of educational technology; educational administrators have not created the organisational structures that would enable this understanding to come about. This is particularly important because the role of the Centre will be enhanced with the growing use of the computer in schools. From the analysis of teacher responses and looking for the best way that computers might be developed in education in Bahrain, it is obvious that planners can be misled into adopting a computer system that proves harmful to the economy as well as to the educational system of the country. It is essential, therefore, for the Centre to have a safficient staff with the experience to develop computer education wisely.

10.2.1. A strategy for the development of educational technology in Bahraini schools

It is impossible for educational technolgy in schools to be effective without an adequate professional teaching staff. At present Bahrain has no clear training strategy in educational technology. The schools, which serve approximately 100,000 students have only a few teachers who are enthusiastic about educational technology and they, most of the time, lack the facilities to fulfill their ambitions.

The Educational Technology Centre in Bahrain could establish a training division within its structure with the following aims and objectives:

10.2.2. The Aims

- To prepare qualified teachers capable of contributing effectively to the comprehensive development of educational technology in the schools.
- To adopt training strategies which should be employed in such a way in terms of their content, approach, means and administration, that will guarantee the optimal use of media resources.
- To use educational technology to effect a fundamental change in the structure of education through a systematic approach.

10.2.3. The additional objectives of the centre:

- To serve as an agent for change and a medium for continuous professional staff development.

- To implement a systematic approach to learning and instruction.
- To undertake and co-ordinate research on educational technology in order to establish selection criteria for materials and equipment.
- To identify the materials and equipment that could eventually be produced in Bahrain and those which should be imported.
- To encourage diverse learning styles and a relaxed atmosphere within which multi-media instruction is an enjoyable experience.
- To play a central role in ensuring facilities and materials for the schools involved in training.
- To organise the importation, storage and distribution of materials which cannot be produced locally.
- To control the specification of equipment and its selection to ensure that it corresponds with the requirements of local curricula and teaching methods.
- To ensure a better adaptation of the materials to local needs and conditions.
- To encourage materials exchange between Bahrain and other neighbouring countries of the gulf.
- To set up repair and maintenance systems.

10.2.4. The form and function of the training centre

Fulfilling the above objectives necessitates a sufficient number of staff to cover all aspects of Educational Technology: specialists in the theory of Educational Technology, technicians, graphic designers etc. A large amount of expensive equipment in

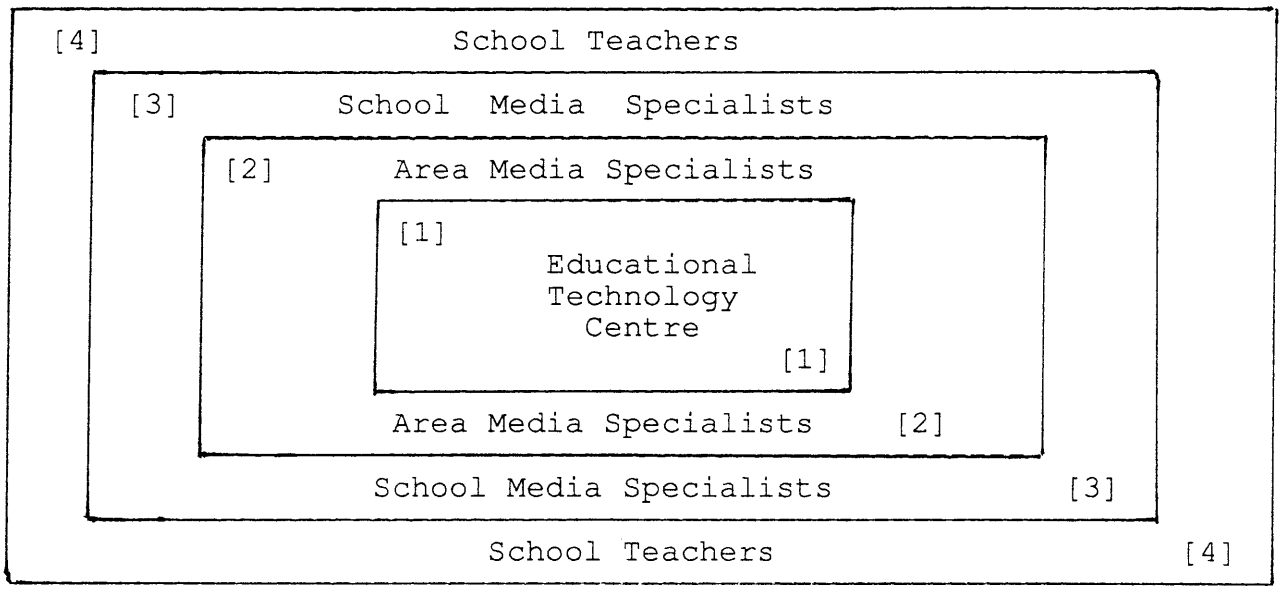
the Educational Technology Centre in Bahrain remains unused; there has been too little human investment to match that in equipment. But let no-one undermine the valiant efforts of the small number of Educational Technology staff to meet the teachers' varied needs. Obviously a large investment in materials, equipment and personnel is needed. Also the Centre needs to be well directed, the equipment well maintained, and the cataloguing and lending of materials well organised.

Thus, we have a number of possible ways in which Educational Technology can be re-organised. They are :

(i) To place the support effort entirely in the schools. In this alternative the Educational Technology Centre Team organises regular training courses for school teachers and stimulates them to develop the use of audio visual media in the school, rather than in the Educational Technology Centre. This model denies the teachers the specialist expertise and equipment that is available in the Centre. Some facilities e.g. CCTV are only required occasionally.

(ii) To develop a layered organisational support which partially insulates the Centre from day to day pressures.(figure 47)

Figure 47. The management of Educational Technology in Schools.



This latter possibility might consist of the following layers:

1- The Educational Technology Centre, staffed with a variety of media advisors, media producers and technicians. The main function of this Centre would be :

- Materials production.
- Training school teachers, school media specialists and area specialists.
- Support the over-all aspects of Educational Technology.
- Liaise with subject advisors and Ministry Inspectors.

2- The second layer in the structure would consist of Area Specialists, who should be responsible for the implementation of Educational Technology in a group of schools forming a consortium. The main role of the Area specialist would be:

- To supply the schools in his consortia through school

media specialists with the equipment and materials available in the Educational Technology Centre.

- To support school media specialists in his consortia by advising on in-school training, and following up the media activities of the teachers.
- To liaise with subject specialists and Ministry inspectors and the Educational Technology Centre concerning all aspects of supporting and evaluating the utilisation of media in his consortia.

3- The third layer, comprising school media specialists, school librarians and senior subject teachers. In this combination, the media specialists and school librarians control all the audio visual stock in the school by gathering together all materials available within the school and indexing them, so that at least the teachers could easily retrieve the material available. The media specialist would also be in close contact with the senior subject teachers in his school in order to understand the specific needs of teachers in educational technology and try to solve those needs with the co-operation of all those concerned. Of course there must be regular and direct contact between media specialists in the school and the subject teachers who are situated in the fourth layer of the organisational cell.

Thus we can see that the success of this approach depends on the allocation of specific roles to all those involved in executing the curriculum. This, in turn, implies that there will be different types of training for the personnel in

each layer of the system from the Centre's own staff to the ordinary teacher in school.

10.2.5 The Education and Training of the Centre staff

However magnificient its building and ample its resources an inadequate and unqualified staff will stop the Centre providing a proper service. Improving the staff results in increased productivity, thus saving a large amount of money. This increased productivity may arise out of a mixture of increased effectiveness and enhanced staff commitment.

Insufficient interest in the use of educational innovation and resource technology can be attributed to a lack of staff understanding and ability to use innovation, and the unavailability of the staff who have such un understanding.

The Educational Technology Centre started in 1973 with only four staff members, none of them had any professional qualifications in educational technology. At present, although the number of staff has risen to about 15, the majority remain unqualified. The following are some details about their qualifications and experience.

No.	Personnel	Duties	Qualifcations	Years of exper.
1	Head of Centre	Administration	M.Ed.(Ed. Tech.)	16
1	Advisor	Advisory serv.	M.Ed.(Ed. Tech.)	7
1	Educational Technologist	Teacher training co-ordinator	M.Ed.(Ed.Tech.)	3
1	Educational Technologist	in charge of Design and production of media.	M.Ed.(Ed.Tech.)	17

1	In charge of photography and slide production	Produce slide programme and photographs	T.T.Dip.(Art)	17
2	Artists	Design and producee art work	B.A.	6
1	Calligrapher	Art and calligraphy	Secondary School Certificate	13
1	Video Camera operator	T.V.Production	B.A.	8
1	Film Editor	T.V.Production	B.Sc.	7
1	Studio Director	T.V.Production	B.Sc.	9
3	Clerical staff	Printing material and correspondence	Secondary School Certificate	More than 9
3	Cleaners		Intermediate education	10

The above table indicates that the Educational Technology Centre has an inadequate number of staff to make possible the development of the proposed structure. Thus a training strategy is vital at this stage to produce more educational technologists, technicians, and to retrain the existing staff. Patently, such training can not be carried out by the Centre alone; the University of Bahrain must be involved.

10.2.6. Training Educational Technology Specialists

Educational technology specialists, in the modern sense of the term, have to be prepared at three levels: academic, professional and technical. The weight given to each of these levels naturally differs according to the training population the staff is intended to serve. Academic preparation involves

providing the specialists with a solid knowledge of the psychology of educational technology, the role of communication in educational technology and of resource administration.

Professional preparation implies practising teaching with learners. Technical preparation is related to the use and application of media resources in an instructional situation. In this sense, a staff has to be able to operate machines and draw and prepare different teaching materials. However, for the very few existing staff of the Centre a training programme is proposed, to be organised by the University of Bahrain, in collaboration with the Educational Technology Centre and to be held in both the University of Bahrain for the concaptionalisation, selection and evaluation of educational technology, and in the Educational Technology Centre for materials production and other practical aspects. It would be essential to launch the initiative with a joint inservice and curriculum development programme over a period of six mounths so that the two institutions could come to work together and begin to understand the necessity of ensuring that the content of the inservice courses that they provide meet the specific needs of the schools. Inservice education and curriculum development must be seen as being inseperable.

It is important for the educational technologists in the Centre to have a higher qualification in educational technology. To meet their needs, a part-time Diploma course over a period of two years should be organised by the Centre and the University for a number of the present staff and some of the new staff

needed by the Centre.

While these members of staff are involved with their training, the Centre needs to build a new team by employing graduates and offering some of them a one year fulltime scholarship to study educational technology at a higher level at an overseas university. Others will join the two year part time Diploma course. Such training needs to be given to ten graduates each year for three years in order to build a specialised team of thirty, capable of re-training a maximum of five thousend teachers in Bahrain over a period of five years.

10.2.7. Further staff development

In addition to the award-bearing courses mentioned above the centre would also offer regular in-service training to its staff to keep them up-to-date with the changes, modifications and innovations in educational technology, so that they would be aware of recent developments and trends. Training the staff enhances the training process, especially when training culminates in an assesment of trainees' progress and rewarding achievement. The content of the programme would differ according to the needs motivating it: it could be for training in the use of a new approaches, or instruments; it could be in response to a need for the staff to know about new policies, new administrative organisations or new knowledge in the field. In the case of a new approach, the programme could focus on the identification of the approach and the justification for its adoption.

10.2.8. Training of technicians

Some improvement might be gained if the director of the Centre, who is a qualified educational technologist, were to encourage and organise an on-going staff-development programme for his technical staff for them to become more Educational Technology orientated. For example, by organising continuous on the job short courses for the graphic artists and the technicians. An intensive few days course could be planned to train them in particular Educational Technology related topics, such as lesson objectives, media selection criteria, evaluation in general and media evaluation in particular. These courses could be run by the University of Bahrain.

The aim of educating the technical staff is to enable them to gain a better understand the teachers' needs and to assist the educational technologists in training new staff members. This would provide a gradual build-up of qualified personnel while at the same time encourageing new technical staff to join the Centre.

10.2.9. Training inspectors, subject specialistsa and others

However, for a change of direction to take place, those in control of teaching in Bahrain's centralised system must themselves be thoroughly conversant with Educational Technology. Thus, a staff development programme is needed for Inspectors, subject specialists and curriculum developers.

The Director could invite subject specialists and Ministry inspectors to attend specially selected continuous short courses

in both the practical and theoritical sides of Educational Technology. The major aim of training the subject specialists and the Ministry inspectors would be to produce a knowledgeable team to assist classroom teachers in the application of Educational Technology. They need not to be able to produce materials themselves or to manipulate a variety of equipment but, with their wider knowledge of Educational Technology, to actively support the teachers' efforts.

10.2.10. Training of Area media Specialsts

Bahrain can be divided into 10 major areas where all schools are located (see p.152). Accordingly each area would need one Area Media Specialist, except for Manama and Muharraq where most schools are situated. They would require six specialists, four in Manama and two in Muharraq. Thus, 14 Area specialists would be required to cover all schools. Each Area specialist will be responsible for all types of school in his designated area.

There was a total of 147 schools in 1987-88, it is assumed that the number of schools at present is just over 150. Thus each area specialist will be responsible for about 11 schools.

To meet the training needs of the area media specialists they should take the Diploma in Educational Technology course provided by the University of Bahrain. Selected teachers should be given a year's leave to take this course to qualify them to become area media specialists. It is important that they take the same course as the Centre's educational technology staff because the area media specialists will be the Centre's "field officers."

10.2.11. In-service Training for media specialists in school and teachers in general

The Centre would offer in cooperation with the University in-service courses in media usage, the selection and evaluation of media and other educational technology-related activities for both media specialists in school and the ordinary teachers.

An introductory course would include the use of media in the classroom, the theory and practice of selecting, designing and producing materials. The course might also include the theoretical aspects of modern educational technology for learning and instruction and the communication of the results of research in education to the teachers.

The general aims of the course could be summarised as follows:

- To introduce various AV equipment operations and media production techniques.
- To introduce various instructional approaches to media utilisation.
- To demonstrate a wide variety of teaching methods and media.
- To convert teaching objectives into teaching media, methods and styles.

Given an adequate staff, the Centre could ensure that all practising teachers in Bahrain were over a period of time re-trained in the three aspects outlined above (academic, professional and technical). Thus, two levels of in-service training might be provided:

(1) Short periods of training for the ordinary teacher: Here the

three levels (academic, professional and technical) could be studied each for a short period. The emphasis given being decided in the light of the actual needs of the particpants: primary, intermediate or secondary.

As was noted earlier most teachers have developed an antipathy towards the educational Technology Centre which does not appear to fulfill their needs. For the Centre to be truly supportive it has to be utilitarian by ensuring regular contact with school teachers. The short periods of training suggested above should therfore comprise of in-school activities which would be attractive and convenient to all teachers at different levels and which would be managed under the structure proposed earlier (see p.359). Some of these activities could be held in the evening. Teachers might not welcome this initially but, if the programme was seen to enhance their professionalism, the initial resistance would soon evaporate.

Thus, the Centre should stimulate teachers' interest and make them aware that it was sparing no effort to help them. It is of vital importance that teachers should be inspired to use the facilities voluntarily and on a regular basis in order for them to fully understand the help and support the centre could provide. Any in-service programme that aimed to help teachers develop both their intellectual and practical skills in the use of media would be attractive to teachers. Once again the area specialists would play a vital role in organising these activities in collaboration with the Educational Technology Centre.

2) Continuous training for media specialists in schools.

For teachers who are going to act as educational technology specialists in schools, the Centre should provide a school-based Certificate course in the use of educational technology in schools. The course should comprise of a number of tasks set by the Centre but carried out in school. Examples would be to monitor the introduction of computers into their school or to evaluate the use of audio-visual materials in specific subjects. The course would involve the members experiencing periodical lectures and discussions at the Centre but, more significantly, it would necessitate the staff or the Centre visiting the schools. The content of the course and the tasks to be set should be worked out jointly between the centre staff and the teachers.

It is these media specialist teachers who would provide the leadership in curriculum development. The Centre should initiate, in cooperation with the Directorate of Curriculum Planning, a systematic plan to assure the development of locally produced materials. It should also provide opportunities for teachers to participate in the selection of ready-made materials. Almost certainly these are likely to include a wide collection of both audio and visual materials, usually a selection of filmstrips, film slides, 16mm films and a variety of video tapes. Other visual materials would include overhead projector transparencies, work-cards, language flash-cards, pictures, posters, charts, maps and realia of different categories.

It is necessary for the Centre to adopt a suitable retrieval system and to publish a catalogue of its stock and provide each

school with a copy of its catalogue to encourage the users to explore these materials in a relaxed manner. In addition to this, each school should plan for a continual build-up of materials for its own use. It is suggested that each school be made responsible for developing, collecting or acquiring its own collection of frequently used materials. The major advantage of this arrangement would be that schools would become self-sufficient and this would ease the pressure on the Educational Technology Centre.

In order to accomplish this, the schools must have a range of reprographic equipment such as projectors, epidiascope and photocopier to augment their facilities for the production of materials. This would be in addition to equipment for the utilisation of the materials in the classroom, such as film projectors, overhead projectors, etc,.

Obviously, the above suggestions can not be effectively implemented without the support of the Ministry of Education, in collaboration with the Educational Technology Centre. Togather they should intensify their efforts to fulfill these demands by carrying out a carefully phased implementation plan.

10.2.12. Curriculum and media evaluation

The staff of the Centre, area media specialists, school media specialists and teachers should all be made aware of the importance of evaluation. It is helpful to think of evaluation as the systematic gathering of information for the purpose of making decisions about whether a particular programme or method

is worth while or not. In doing this, we need to make value-judgements, empirical investigations and measurements.

However, teachers in schools as well as educational technology centres need to adopt an on-going evaluation to allow for the continuous appraisal of the effectiveness of any programme of Educational Technology in the Bahraini system of education.

Since the main objective is to encourage in the effective use of media in the classroom, its operation, process and product must be evaluated. Thus a system of good evaluation tools must be created. It is envisaged that these methods would provide useful information which would inform plans for further development.

If Educational Technology is to be applied in a rational way it requires long-range decisions to be taken at the state level about the allocation of funds, the provision of in-service training, the purchase of equipment and the supply of technologists all of which must be properly planned. Innovation and evaluation should, therefore, play a prominent role in both the Diploma course organised by the University and the Certificate course organised by the Centre. Even more significant, teachers should be encouraged to be innovators and to evaluate the innovation they make.

What I have suggested above is an overall strategy to train Bahraini personnel at every level from the staff of the Centre and inspectors and administrators to the ordinary teacher in school. The two keys to this strategy are: the Diploma course provided by the University and Centre for present and future

Centre staff and the area media specialists; the comprehehsive programme of inservice training and curriculum development for all teachers, with a Certificate course being provided by the Centre for the media specialists in the schools. The first step to be taken is for the University and Centre staff to work together on a curriculum development project over a period of six months, possibly concerned with the introduction of computers into schools. It is out of such co-operation that a realistic content for the Diploma and Certificate courses and the inservice programme can be worked out. It is to such co-operation that I would wish to give priority on my return to Bahrain.

GLOSSARY

GLOSSARY OF EDUCATIONALA TECHNOLOGY TERMS

Branched Programme	An instructional technique usally in the form of a programmed text where the student's next step of instruction is determined by his response to the previous step.
Compatibilty	The ability of one component to interface mechnically and electronically with another.
Computer Assisted Learning (C.A.L.)	Units of instruction or major segments of the curriculum stored in a computer where the student can interact through a typewiter keyboard, or a video disply unit with the material.
Computer Managed learning (C.M.L.)	A concept in education that is nased on the student's characteristics file, responses and progress, which is fed into a computer, it then prescribes lessons, provides for automated testing and predicts completion and graaduction dates.
E.T.V.	Educational Television. Non-Commercial broadcast television consisting primarily of Educational and informative programming.
Film Strip	A series of still shots which are in permanent sequence and can not be rearranged or revised. Commercial source usually supply single frame filmstrips (about half the frams image area of 35mm slides) .
Flannel (Felt) Board	A presentation board consisting of a flannel or felt surface to which objects backed with flannel, felt, or sandpaper will adhere.
Graphics	Of or relating to the written or printed word or the symbols or devices used in writing or printing to represent sound or convey meaning.
Hardware	Equipment and electronic and mechanical components that comprise the production-playback facilities within a learning resources centre.

Iconic	A pictorial representation or image symbol representing the actual item.
Individualised learning	Tayloring an instructional unit to meet a specific student's needs. This can be as a result of pretesting or feedback later in a course.
Instruction Guide	Suggestion for good utilixation of an audio-visual programme; it normally includes a description of content and preparatory, participating and follow-up questions and activities.
Instructional System	An integrated combination of resources students, instructors, materials, equipment and facilities), techniques, and procedures performing efficiently the functions required to achievs spcified learning objectives.
Linear Programme	An instructional technique that is characterized by short steps of instruction which link togather closed responses, and a maximum amount of overt activity.
Media, Medium	The communications channel by which material is presented to students.
T.V.Monitor	A televiewer or television receiver or computer screen disply used in conjunction with television recording equipment to aid the production personnel in evaluating the series. A televiewer(usually large size) used in classrooms or studios for audience viewing.
Multi-Media Teaching System	An instructional system that incorporates all or various instructional methods and media.
Over head projector	A projector which accepts transparent and translucent film or other plastic materials and projects the information prepared on them onto screen. The main advantage of this projector is that it can be used in a normally lighted classroom and teacher can face the classroom while using it.
Opaque (episcope) projector	A projector that can enlarge information from paper, pages from a book, or other nontranslucent or nontransparent materials.

Programmed Learning	A (student centered) method of instruction which presents the information in planned steps or increments, with the appropriate answer acts as reinforcement to the student response and as motivation for further study or learning activity. The student is guided step-by-step to the sucessful completion of the assigned task or training exercies. Programms may be liner or branched.
Retrieval system	A system that locates information and presents it to the learner . The most frequently used retrieval system in a learning centre are computer based and manual card cataloguing system.
Slide Film	A small photographic transparency designed for projection, normally mounted on a 2 x 2 mount. Slide mount mask openings range from the single frame size, (15.9mm x 22.9 mm) to the super slide which has a mask opening of (35 x 35 mm).
Software	Tangible stimulus items, for example, a recorded lesson on tape is software wheras the tape recorder playback unit is considered hardware.
School Learning Resources Unit	A designated centralised area or focal point within an educational facility (school) which combines printed and non-printed (audio-visual) instructional materials and services and usually suitably designed study place.
Teaching Machine	Any device or series of devices which are used to teach an individual or group of students in place of an instructor.
Technical Staff	A person or persons responsible for the photography, graphic art work, and sound recording in producing audio-visual materials. Such persons may also maintain the equipment (hardware).
Translucent	Admitting and diffusing light so that objects beyond cannot be clearly distinguished.

Transparency	Through common usage, the term transparency is now generally accepted in educational contexts as referring to the 9 1/2 x 7 1/2 aperture transparency used on overhead projectors. (can sometimes refers to the 35 mm photographic film slides)

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ANNEXES

ANNEXE 1. No. of Students and Classrooms in all Public Schools by level specialization Sex & Grade: 1987/88

Level		Sex	1st		2nd		3rd		4th		5th		6th		Total	
			Students	Classrooms	Students	Classrooms	Students	Classrooms	Students	Classrooms	Students	Classrooms	Students	Classrooms	Students	Classrooms
Primary		Male	4900	142	4555	140	4624	138	4445	127	4421	128	4071	120	37016	795
		Female	4751	136	4530	133	4522	130	4457	128	4420	127	3893	110	26573	764
Intermediate		Male	3862	116	3562	99	3521	103	–	–	–	–	–	–	10945	318
		Female	3820	108	3192	91	3189	95	–	–	–	–	–	–	10201	294
Secondary	Scientific	Male	762	24	565	19	620	21	–	–	–	–	–	–	1947	64
		Female	1127	34	932	27	822	24	–	–	–	–	–	–	2881	85
	Literary	Male	475	14	310	10	304	9	–	–	–	–	–	–	1089	33
		Female	1027	27	860	24	739	23	–	–	–	–	–	–	2626	74
	Commercial	Male	334	11	522	20	686	24	–	–	–	–	–	–	1542	55
		Female	623	22	630	22	740	25	–	–	–	–	–	–	1993	69
	Technical*	Male	1310	45	1018	38	858	31	–	–	–	–	–	–	3186	114
	Nursing	Male	—	—	—	—	17	1	–	–	–	–	–	–	17	1
		Female	—	—	50	2	55	2	–	–	–	–	–	–	105	4
	Agriculture & Livestock Resources	Male	28	1	29	1	27	1	–	–	–	–	–	–	84	3
		Female	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Hotel	Male	28	1	25	1	20	1	–	–	–	–	–	–	73	3
		Female	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Textile & Clothing	Male	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		Female	52	2	54	2	63	3	–	–	–	–	–	–	170	7
	Printing	Male	35	1	38	1	29	1	–	–	–	–	–	–	102	3
		Female	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Religious Education	Primary	Male	–	–	–	–	–	–	20	1	37	1	29	1	86	3
	Intermediate		37	1	13	1	15	1	–	–	–	–	–	–	65	3
	Secondary		17	1	7	1	9	1	–	–	–	–	–	–	33	3
Total		Male													46185	1398
		Female													44549	1297
		Total													90734	2695

* Technical Secondary = (Formal + Vocational)

ANNEXE 2A Enrolment Ratio in all levels of Education by level, Age Group and Sex 1984/85

Level–Age Group / Particulars	Sex	Secondary Level 15–17 years		Intermediate Level 12–14 years		Primary Level 6–11 years	
		Total Population	Bahraini	Total Population	Bahraini	Total Population	Bahraini
Population	Male	12415	10054	12508	9989	26763	20689
	Female	11912	10014	11384	9953	24116	20481
	Total	24327	20068	23892	19942	50879	41170
Students	Male	7268	7026	10141	9875	25343	23863
	Female	6815	6604	8777	8500	24355	23228
	Total	14083	13630	18918	18315	49696	47091
Gross Enrolment Ratio	Male	58.5	70	81.1	98.3	94.7	115.3
	Female	57.2	65.9	77.1	85.4	101.	113.4
	Total	57.9	67.9	79.2	91.8	97.7	114.4

ANNEXE 2B **Students/Teacher Ratio by Type of School and Sex: 1984/85**

Type of School	Students/Teacher Ratio			No. of Students			No. of Teachers		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
Primary	21	18	26	41235	20283	20952	1925	1121	804
Primary/Intermediate	19	19	18	17740	7044	10696	948	365	583
Intermediate	17	19	16	8572	4830	3742	491	258	233
Intermediate/Secondary	7	7	—	975	975	—	143	143	—
General, Commercial & Health Sciences	12	14	11	9117	5505	3612	733	403	330
Commercial Secondary	11	10	13	2521	1310	1211	233	137	96
Industrial Secondary	8	—	8	2413	—	2413	311	—	311
Religious Institute	7	—	7	126	—	126	19	—	19
Total	17	16	18	82699	39947	42752	4803	2427	2376

* Include (187) female teacher in Boys School

ANNEXE 3 **The Study Plan for Primary Education 1985/86**

Classes / Subjects	1st	2nd	3rd	4th	5th	6th
Religious Education	3	3	3	3	2	2
Arabic Language	10	10	9	8	8	8
English Language	–	–	–	5	6	6
Mathematics	6	6	6	5	5	5
Sciences & Technology	2	2	2	3	3	3
Social Subjects	1	1	2	3	3	3
Family Education*	–	–	1	1	1	1
Art Education	2	2	2	2	2	2
Physical Education	2	2	2	2	2	2
Songs & Music	1	1	1	1	1	1
Total	27	27	27	33	33	33

* Family Education: in girls' schools only. The period for boys' schools is allocated for Handicraft temporary within the Art Education.

The Study Plan for Intermediate Education

Classes / Subjects	1st	2nd	3rd	Total
Religious Education	2	2	2	6
Arabic Language	7	7	7	21
English Language	7	7	7	21
Mathematics	5	5	5	15
Social Subjects (History, Geography & Civics)	3	3	3	9
Sciences	4	4	4	12
Practical Studies	4*	4*	4*	12
Physical Education	2	2	2	6
Art Education	2	2	2	6
Total	36	36	36	108

* In Girls' Schools, Practical Studies are allocated two lessons only, and the other two are used for Home Economics.

ANNEXE 4A

The Study Plan for the Literary Section of General Secondary Education

Subjects compulsory for all streams	Classes		
	1st	2nd	3rd
Religious Education	2	2	2
Arabic Language	7	8	8
English Language	9	9	8
Social Subjects	6	7	8
Mathematics	3	–	–
General Sciences	2	–	–
Physical Education	2	2	2
Statistics & Probability or French Language	3	–	–

Subjects for particular streams

Streams	Subjects	Classes	
		2nd	3rd
Languages	English Language	2	2
	French Language	4	4
Home Economics	Home Economics	6	6
Fine Arts	Fine Arts	6	6
Economics and Office Practice	Economics	2	2
	Office Practice	2	2
	Commerce	2	–
	Typing	–	2

Optional subjects: Each student opts for one of the following subjects each year studied for three periods a week: Typing, Home Economics, Fine Arts, General Sciences, Mathematics, French Language, Technical Drawing, Cars, Electronics, Electricity and Music

Number of compulsory subject periods per week	34	34	34
Number of optional subject periods per week	3	3	3
Number of activity periods per week	1	1	1
Total	38	38	38

ANNEXE 4B.

The Study Plan for the Scientific Section of General Secondary Education

Subjects compulsory for all streams	Classes		
	1st	2nd	3rd
Religious Education	2	2	2
Arabic Language	7	5	5
English Language	9	8	7
Social Subjects	2	–	–
Mathematics	6	6	6
Physics	2	2	2
Chemistry	2	2	2
Biology	2	2	2
Physical Education	2	2	2

Subjects for particular streams

Streams	Subjects	Classes	
		2nd	3rd
Mathematics & Physics	Mathematics	2	3
	Physics	3	3
Chemistry & Biology	Chemistry	3	3
	Biology	2	2

Optional subjects: Each student opts for one of the following subjects each year studied for three periods a week: Typing, Fine Arts, French Language, Technical Drawing, Cars, Electronics, Electricity, Social subjects, Music and Home Economics.

Number of compulsory subject periods per week	34	34	34
Number of optional subject periods per week	3	3	3
Number of activity periods per week	1	1	1
Total	38	38	38

ANNEXE 5A The Study Plan for Commercial Secondary Education

Subjects in Common	Classes			
			3rd	
	1st	2nd	Accounting Stream	Secretarial Stream
Religious Education	2	2	2	2
Arabic Language	6	5	5	5
English Language	8	8	6	6
Arabic Typing	4	3	–	4
English Typing	–	4	–	4
Economics	–	–	2	2
Labour & Commercial Law	–	–	1	1
Bank Accounting	–	–	4	–
Secretarial Practice in English	–	–	–	4
Secretarial Practice in Arabic	–	–	–	–
English for Special Purposes	–	–	3	3
Financial Mathematics	–	–	3	1
Accounting in English	–	2	4	–
Accounting in Arabic	–	–	2	–
Physical Education	2	2	2	2

Subjects compulsory for one semester only of the year

Subjects	Classes		
	1st	2nd	3rd
Financial Mathematics	5	5	–
Principles of Commerce	4	–	–
Social Subjects	3	3	–
Accounting & Book-keeping	5	5	–
Office Practice	4	3	–
General Sciences	3	–	–

ANNEXE 5B.

Optional Subjects :

Each student opts for one of the following subjects each year studied for three periods a week.

Sales management, Insurance, Travel agents, Calculator

Number of Compulsory subjects periods per week	34	34	34
Number of general and commercial optional subjects periods per week	1	3	3
Number of activity periods per week	3	1	1
Total	38	38	38

ANNEXE 6 **The Study Plan for Technical Secondary Education**

Subjects	Classes		
	1st	2nd	3rd
General Academic Subjects			
Arabic Language & Religious Education	2	–	–
English Language	4	4	4
Sciences (Physics and Chemistry)	2	2	2
Mathematics	3	2	2
Total	11	8	8
Technical Academic Subjects			
Technical and Engineering Drawing	3	3	3
Applied Mechanics	–	2	2
Principles of Technology	3	4	4
Total	6	9	9
Workshops*	18	18	18
Physical Education	1	1	1
Total	36	36	36

*Three days per week

Curricula Plan for Formal Vocational Training Centres

Subjects	Classes	
	1st	2nd
Arabic Language & Religious Education	1	–
English Language	3	3
Technical Mathematics	1	1
Technical and Engineering Drawing	3	4
Principles of Technology	3	3
Workshops	24	24
Physical Education	1	1
Total	36	36

ANNEXE 7. **The Study Plan for Health Sciences Secondary Education**

Subjects	Classes		
	1st	2nd	3rd
Religious Education	2	2	2
Arabic Language	7	5	4
English Language	8	8	5
Humanities (Sociology & Psychology)	4	–	–
Mathematics	2	2	–
Physics	2	2	–
Chemistry	2	2	–
Biology	2	2	–
Physical Education	2	2	2
Health Sciences & Nursing	6	18	24
Total	37	37	37

Curricula Plan for Hotel Secondary Education

Subjects	Classes		
	1st	2nd	3rd
Religious Education	2	2	2
Arabic Language	5	5	4
English Language	5	5	5
French Language	3	3	3
Physical Education	1	1	1
Typing	3	–	1
Mathematics	2	–	–
General Sciences	–	2	–
Principles of Book-keeping	3	–	–
Humanities (Sociology & Psychology)	2	–	–
Geography & Tourism	–	–	2
Hotel Sciences	14	21	21
Total	40	39	39

ANNEXE 8. **The Study Plan for Textile and Clothing Secondary Education**

Common Subjects	Classes		
	1st	2nd	3rd
Religious Education	2	2	2
Arabic Language	6	5	5
English Language	5	5	5
Social Subjects & Humanities	2	2	2
Mathematics	2	–	–
Physical Education	2	2	2
Technical Drawing	2	3	3
Textile Technology	4	4	3
Measurement & Costs	–	2	2
Vocational Training	9	9	10
Total	34	34	34

Optional Subjects: Each student opts for one of the following subjects each year studied for three periods a week: Typing, Home Economics, Fine Arts, French Language, Music.

Number of compulsory subject periods per week	34	34	34
Number of optional subject periods per week	3	3	3

ANNEXE 9. The Study Plan for Agriculture & Livestock Resources Secondary Education

Subjects	Classes		
	1st	2nd	3rd
Religious Education	2	2	2
Arabic Language	6	5	5
English Language	7	6	6
Biology	3	3	3
Physics	2	2	–
Chemistry	2	3	2
Mathematics	2	2	–
Physical Education	2	2	2
Geography	2	2	1
Fishery Resources	2	3	4
Plant Cultivation	5	5	8
Livestock-breeding	2	3	3
Statistics & Marketing	–	–	2
Total	37	38	38

ANNEXE 10. **The Study Plan for Printing Secondary Education**

Subjects	Classes				
			3rd		
	1st	2nd	Typesetting & Designing	Camera Operation & Plate Making	Printing and Finishing
Religious Education	2	2	2	2	2
Arabic Language	6	5	5	5	5
English Language	6	6	6	6	6
Social Subjects	2	2	–	–	–
Mathematics	2	2	–	–	–
Biology	2	–	–	–	–
Physics & Chemistry	4	2	2	2	2
Physical Education	2	2	2	2	2
Typing (Arabic & English)	2	2	2	2	2
Total	28	23	19	19	19

Printing Subjects	*T P	T P	T P	T P	T P
Typesetting & Designing	1 3	1 4	2 18	– –	– –
Camera Operation & Plate Making	1 2	1 4	– –	2 18	– –
Printing & Finishing	13 15	– –	– –	– –	2 18
Total	11	16	20	20	20

Number of compulsory subject periods	39	39	39	39	39
Number of optional subject periods	3	3	3	3	3
Total	42	42	42	42	42

*T = Theoretical P = Practical

ANNEXE II. The Study Plan for Religious Education

Subjects	Primary			Intermediate			Secondary			Total
	4	5	6	1	2	3	1	2	3	
Religious Subjects										
Holy Quran	3	3	3	3	3	3	2	1	1	22
Tafsir	–	–	–	1	1	1	2	3	3	11
Al-Hadith	–	–	–	2	2	2	2	2	2	12
Al-Tawhid	1	1	1	1	1	1	1	1	2	10
Al-Fugh	3	3	3	4	4	4	4	4	4	33
Al-Tajweed	–	–	–	1	1	–	–	–	–	2
Total	7	7	7	12	12	11	11	11	11	89
Arabic Language	11	10	10	10	10	11	12	12	12	98
English Language	5	5	5	4	4	4	5	5	5	42
Mathematics	5	5	5	4	4	4	2	–	–	29
Social Subjects	2	3	3	3	3	3	3	3	3	26
Sociology	–	–	–	–	–	–	–	1	–	1
Economics	–	–	–	–	–	–	–	1	–	1
Psychology	–	–	–	–	–	–	–	1	–	1
Philosophy	–	–	–	–	–	–	–	–	1	1
Logic	–	–	–	–	–	–	–	1	1	2
Art Education	2	1	1	–	–	–	–	–	–	4
Sciences	2	3	3	2	2	2	2	–	–	16
Physical Education	2	2	2	2	1	1	1	1	1	12
Total	36	36	36	36	36	36	36	36	36	324

ANNEXE 12A.

Bahraini Students in Higher Education at Universities and Institutes of Arab Countries by country Assistance Pattern, Specialization and Sex : 1984/85

Specialization \ Country	Sex	Total			Other Arab			Egypt			Libya & Morocco			Lebanon			Jordan			Syria		
		Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship
Medical Science and Health Related	Male	4	—	12	—	—	—	4	—	12	—	—	—	—	—	—	—	—	—	—	—	—
	Female	7	—	9	—	—	—	7	—	9	—	—	—	—	—	—	—	—	—	—	—	—
Engineering	Male	3	—	1	—	—	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	Female	3	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mathematics and Computer Science	Male	4	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	8	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Natural Sciences	Male	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Commercial & Business Administration	Male	21	—	3	—	—	—	21	—	3	—	—	—	—	—	—	—	—	—	—	—	—
	Female	14	1	1	—	—	—	14	1	1	—	—	—	—	—	—	—	—	—	—	—	—
Law and Sharah	Male	11	4	15	—	—	—	11	4	15	—	—	—	—	—	—	—	—	—	—	—	—
	Female	6	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Humanities & Theology	Male	—	1	1	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
	Female	1	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Social and Behaviour Science	Male	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mass Communication and Documentation	Male	1	—	3	—	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	2	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Education Science & Teacher Training	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Animal Husbandry and Agriculture	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fine and Applied Arts	Male	—	7	7	—	—	—	—	7	7	—	—	—	—	—	—	—	—	—	—	—	—
	Female	1	2	5	—	—	—	1	2	5	—	—	—	—	—	—	—	—	—	—	—	—
Home Economic	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Physical Education	Male	—	—	9	—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	4	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	Male	46	12	51	—	—	—	46	12	51	—	—	—	—	—	—	—	—	—	—	—	—
	Female	42	3	22	—	—	—	42	3	22	—	—	—	—	—	—	—	—	—	—	—	—
	Total	88	15	73	—	—	—	88	15	73	—	—	—	—	—	—	—	—	—	—	—	—

ANNEXE 12B. (Contd.) Bahraini Students in Higher Education at Universities and Institutes of Abroad Countries by country Assistance Pattern, Specialization and Sex : 1984/85

Specialization \ Country	Sex	Total			Pakistan			India			France			England			Canada			U.S.A.		
		Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship	Private	Fellowship	Scholarship
Medical Science and Health Related	Male	21	—	12	—	—	3	21	—	9	—	—	—	—	—	—	—	—	—	—	—	—
	Female	19	1	8	—	1	1	19	—	7	—	—	—	—	—	—	—	—	—	—	—	—
Engineering	Male	72	3	37	—	1	—	21	2	—	—	—	—	5	—	27	20	—	7	26	—	3
	Female	17	—	3	—	—	—	5	—	—	—	—	—	—	—	—	5	—	3	7	—	—
Mathematics and Computer Science	Male	27	—	—	—	—	—	13	—	—	—	—	—	—	—	—	14	—	—	—	—	—
	Female	18	—	9	—	—	—	9	—	—	—	—	—	—	—	—	9	—	9	—	—	—
Natural Sciences	Male	17	1	2	—	—	—	17	1	—	—	—	—	—	—	—	—	—	1	—	—	1
	Female	8	—	7	—	—	—	8	—	—	—	—	—	—	—	—	—	—	7	—	—	—
Commercial & Business Administration	Male	91	—	1	—	—	—	19	—	—	—	—	—	7	—	—	40	—	—	25	—	1
	Female	29	—	—	—	—	—	16	—	—	—	—	—	2	—	—	3	—	—	8	—	—
Law and Sharah	Male	5	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	3	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—
Humanities & Theology	Male	55	—	6	—	—	—	12	—	—	—	—	5	4	—	—	17	—	1	22	—	—
	Female	19	—	13	—	—	—	4	—	—	—	—	13	—	—	—	9	—	—	6	—	—
Social and Behaviour Science	Male	3	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mass Communication and Documentation	Male	21	—	—	—	—	—	9	—	—	—	—	—	5	—	—	—	—	—	7	—	—
	Female	7	—	—	—	—	—	4	—	—	—	—	—	1	—	—	—	—	—	2	—	—
Education Science & Teacher Training	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Animal Husbandry and Agriculture	Male	2	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fine and Applied Arts	Male	12	—	4	—	—	—	7	—	—	—	—	4	2	—	—	—	—	—	3	—	—
	Female	5	—	2	—	—	—	4	—	—	—	—	2	—	—	—	—	—	—	1	—	—
Home Economic	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Physical Education	Male	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Female	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	Male	326	4	62	—	1	3	129	3	9	—	—	9	23	—	27	91	—	9	83	—	5
	Female	123	1	45	—	1	1	70	—	7	—	—	18	3	—	—	26	—	19	24	—	—
	Total	449	5	107	—	2	4	199	3	16	—	—	27	26	—	27	117	—	28	107	—	5

دولة البحرين
وزارة التربية والتعليم
مكتب الوزير

ANNEXE 13

قرار وزاري

في : ١٩٧٧/١٠/٦م الرقم : ٢٣١/١٦٨-١/٧٧

وزير التربية والتعليم ،

بعد الاطلاع على توصيات لجنة التأهيل التربوي ، وبناء على ما عرضه علينا وكيل الوزارة المساعد للتخطيط والمناهج والعلاقات الثقافية ،

تقرر :

مادة ١ - تغيير اسم مركز التأهيل التربوي الى " المركز التربوي للتأهيل والتدريب " وتوسعة نطاق مهماته لتشمل :

أ - استمرار عقد الدورات التأهيلية اللازمة لمديري ومعلمي المرحلتين الابتدائية والاعدادية .

ب - تولي المسئوليات والمهمات المتعلقة بتحديد الحاجات التدريبية للمديرين والمدرسين والقيادات التربوية الاخرى بالتنسيق مع الجهات المعنية الاخرى بالوزارة .

ج - تنظيم الدورات الانعاشية اللازمة للمعلمين وغيرهم من العاملين في المجال التعليمي .

د - تنظيم الدورات التجديدية للمشرفين والمعلمين وغيرهم من القيادات التربوية الذين يناط بهم القيام بادوار جديدة تتعلق بالبرنامج التعليمي في المدرسة أو ما يستجد من جديد في المناهج والمقررات الدراسية .

هـ - تنظيم الندوات والحلقات الدراسية في المجال التربوي بالتنسيق مع الادارات المعنية الاخرى .

مادة ٢ - الغاء مراقبة التدريب بادارة التخطيط التربوي وتحويل مهماتها الى المركز التربوي للتأهيل والتدريب .

مادة ٣ - تعزيز المركز التربوي للتأهيل والتدريب وتزويده بما يلزمه من كوادر ادارية وفنية ولوازم اخرى لتمكنه من القيام بمهماته ومسئولياته الجديدة .

مادة ٤ - على من يعنيهم القرار تنفيذه ، ابتداء من تاريخه .

وزير التربية والتعليم

ح/ك

ANNEXE 14A Interview questions for subject specialists

Dear colleague

The purpose of this interview is collecting data to investigate the implementation of educational technology in the system of education of Bahrain for PhD thesis.

It will be highly appreciated to have the reaction and opinion of those persons responsible for the application of the curriculum in schools, to the purpose of this study.

The researcher would like to assure you that no name will be mentioned in the final draft of this study.

The questions

1- Do you think that the use of Educational Technology is important in the classroom teaching.?

1.1- If the answer is (yes) please explain.?

2- Do you think that Educational Technology materials are properly utilized in the schools.?

2.1- If the answer is (no) please state reasons.?

3- What are the problems that face most teachers in the utilization of Educational Technology in instruction.?

4- What kind of guidance is needed to solve these problems.?

5- Do you see that improving the Educational Technology services in the schools would result in encouraging teachers to use media and to improve teaching performance.?

5.1- If the answer is (yes) please explain.?

6- Do you suggest the introduction of computers into schools.?

6.1- If (yes), how do you suggest it to be introduced.?

7- Do you have any other suggestion to improve the utilization of Educational Technology in schools.?

Thank you for your cooperation

M.J.AL-Moosawi
University of Bahrain

صحيفة مقابلة لاستطلاع آراء أخصائيوا المواد
التعليمية بوزارة التربية والتعـــليم ANNEXE 14B
يناير ١٩٨٧

المـــادة : .....

زملائي الأفاضل/ ان الهدف من هذه المقابله هي جمع معلومات من الأخوه والأخوات القائمون على متابعة العملية التعليمية في مدارس دولة البحرين لأحل الحصول على آرائهم ومقترحاتهم القيمة والتي سوف تؤخذ بكل تقدير واعتبار في رسالة دكتوراه يعدها الباحث في جامعة ويلز عن التقنيات التربوية وتوظيفها في مدارس البحرين .

فيرجوا الباحث الأخوة الزملاء أعطاء آرائهم المريحة على بنود هذه المقابلة وكما يجب التأكد ان أسماء الأشخاص سوف لن تذكر في معالجة نتائج البحث .

١ ـ هل تعتقدان توظيف الوسائل التعليمية لها دور فعال في تحسين العملية التربوية .
١ـ١ ـ نعم ، كيف ؟

٢ ـ هل تعتقد انها موظف توظيفا جيدا في المدارس التي تزورها ؟

٢ـ١ ـ اذا كانت الأجابة (بلا) فهل تتفضل باعطاء الأسباب ؟

٣ ـ ماهي المشكلات الرئيسية في نظرك والتي تحول دون توظيف المعلم لكثير من الوسائل التعليمية أثناء التدريس .

٤ ـ ماهي الحلول والأجراءت التي تقترحها لحل هذه المشكلة ؟

٥ ـ هل ترى ان تطوير خدمات الوسائل التعليمية في المدارس سوف يؤدى الى تطوير مستوى اداء المعلم في استخدام الوسائل التعليمية ؟

٥ـ١ ـ كيف ؟

٦ ـ هل تقترح ادخال الكمبيوتر في التعليم ؟

٦ـ١ ـ اذا كانت الأجابة (بنعم) ففي أي المجالات تقترح ادخاله ؟

٧ ـ هل لديك مقترحات أو آراء أخرى لتطوير توظيف الوسائل التعليمية في المدارس ؟

.....
.....

وشكرا على تعاونكم ...

محمد الموسوي
(جامعة البحرين)

ANNEXE 14C Interview questions

For Senior Administrators in the Ministry of Education - Bahrain

Sir,

I would be grateful if you answer these questions which are part of a data collection procedure to investigate the implementation of Educational Technology in the educational system of Bahrain.

The questions

1- Do you think it is worthwhile to apply educational technology (as understood today) in the educational system in Bahrain.?

1.1- If the answer is (yes) what sort of strategies would you apply to be sure that such methodology in educational technology is actually utilized accurately in the system.?

1.2- If the answer is (no) would you give reasons.?

2- What sort of problems have been or are today in the application of media schools in general.?

3- Are there any plans in the near future for the improvement of Educational Technology in the schools.?

3.1- If the answer is (yes) would you kindly mention them.?

4- What percentage of total educational budget is aimed to educational Technology and its state of affairs.

5- Are you supporting the idea of introducing educational television in Bahrain.?

6- What are the Ministry efforts to introduce computer to assist learning.?

Thank you for your co-operation

M.J.AL-MOOSAWI

ANNEXE 14D

صحيفة مقابلة لاستطلاع آراء المسئولين
وكبار الموظفين في وزارة التربية والتعليم
يناير ١٩٨٧

مسمى الوظيفة : .....

الأستاذ الفاضل / لوتكرمتم سيادتكم بالتفضل والأجابة على بنود هذه الصحيفة والتي هي جزء من بحث أكاديمي في التقنيات التربوية يقوم به الباحث في جامعة ويلز (ابريستوث) مبتعثا من قبل جامعة البحرين .

ولايخفي على سيادتكم أن الآراء التي ستتفضلون بها هي المصدر الرئيسي والموثوق به دائما في البحوث التربوية ، لذا أقدم شكري الجزيل سلفا على تلك الآراء والمعلومات القيمة التي سوف تبديها لبناء هذا البحث .

١ - هل تعتقد انه من المجدي الآن وبعد مرور أكثر من عشر سنوات على انشاء مركز الوسائل التعليمية تطبيق التقنيات التربوية بمفهومه الحديث في نظام التعلم في البحرين .

١-١ - اذا كانت الأجابة (نعم) فما هي الأستراتيجية المقترحه للتأكد من تطبيق التقنيات التربوية في نظام التعليم في البحرين ؟

١-١ - اذا كانت الأجابة (لا) فهل تتفضل ببيان الأسباب ؟

٢ - ما هي المشكلات التي سيواجهها المعلمون عند تطبيق التقنيات التربوية أو الوسائل التعليمية في رأيكم ؟

٣ - هل هناك خطة مستقبلية لتطوير خدمات التقنيات التربوية في المدارس ؟

٣-١ - اذا كانت الأجابة (نعم) فهل تتفضل بتعريفها ؟

٤ - كم هي النسبة المئوية لحصة التقنيات التربوية من ميزانية التعليم في البحرين ؟

٥ - هل تدعم فكرة التلفزيون في البحرين ؟

٦ - ماهي جهود الوزارة لادخال الكمبيوتر في التعليم ؟

وشكرا على تعاونكم ...

محمد الموسوي
(جامعة البحرين)

ANNEXE 14E Interview questions

For teaching and non-teaching staff in Educational Technology.

Dear colleagues,

The present interview is a part of data collection procedure for Phd theses in Education, it aims to investigate the implementation of Educational Technology in the schools .

The researcher would appreciate to have the opinion of those personnel directly and indirectly involved in teaching and training in this area.

I hope that you will be able to provide this information in order to ensure a better results.

The questions

1- Do you agree that the concept of Educational Technology is still ambiguous for most of the teachers.?

1.1- If the answer is (yes) what are the reasons for this ambiguity in your opinion.?

2- Do you believe that it is necessary for the teachers to accommodate Educational Technology concept.?

2.1- If the answer is (yes) what are the requirements for its application.?

2.2- If the answer is (no) what are your justification.?

3- Do you support the idea of mass production of audio - visual media by the Centre For Educational Technology, or do think that individual teacher should produce their own teaching materials.?

4- Do you support the idea of applying educational television in Bahrain.?

5- Do you support the introduction of Computer in the schools. ?

6- What is the possible role for the computer in the system of education in Bahrain.?

Thank you for your co-operation
M.J.AL-MOOSAWI

ANNEXE 14E Interview que

For teaching and non-teaching staff in

Dear colleagues,

The present interview is a part of da
for Phd theses in Education, it aim
implementation of Educational Technology ir

The researcher would appreciate to hav
personnel directly and indirectly invol
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I hope that you will be able to provide
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The questions

1- Do you agree that the concept of Educati
still ambiguous for most of the teachers.

1.1- If the answer is (yes) what are t
ambiguity in your opinion.?

2- Do you believe that it is necessary for
accommodate Educational Technology concep

2.1- If the answer is (yes) what are the r
application.?

2.2- If the answer is (no) what are your

3- Do you support the idea of mass production
media by the Centre For Educational Techno
that individual teacher should produce the
materials.?

4- Do you support the idea of applying educatio
Bahrain.?

5- Do you support the introduction of Computer
education in Bahrain.?

6- What is the possible role for the computer ir

Thank you for you
M.J.AL-M

صحيفة مقابلة للمختصين الأكاديميين وغير الأكاديميين في التقنيات التربوية في دولة البحرين. ANNEXE 14F

مسمى الوظيفة : .....

زملائي الأساتذة أخصائيوا التقنيات التربوية . أن هذه المقابله هي جزء من أساليب جمع المعلومات لدراستي الأكاديمية لتحضير رسالة دكتوراه في التقنيات التربوية في جامعة ويلز (ابريستوث) .

ان الباحث يدرس ظاهرة احجام المدرسين عن تطبيق وتوظيف الأمكانيات الكبيرة للتقنيات التربوية في عملية التعليم في البحرين رغم مرور أكثر من عشر سنوات على انشاء مركز الوسائل التعليمية بوزارة التربية .

ان الآراء والمقترحات التي سوف تبديها ستكون عظيمة الفائدة لمعرفة أسباب هذه المشكلة وكيفية معالجتها .

فكلي رجاء في معرفة آرائك ومقدماتك القيمة من خلال الأجابة على بنود هذه الصحيفة .

١ - هل توافق أن مفهوم التقنيات التربوية لايزال غير واضح في أذهان الكثير من المعلمين ؟ .

١-١ - اذا كانت الأجابة (بنعم) . فما هو سبب هذا الألتباس في نظرك ؟

٢ - هل تعتقد انه من الضروري للمعلمين والمعلمات تطبيق استخدام تكنولوجيا التعليم بمفهومه الحديث ؟

٢-٢ - اذا كانت الأجابة (بنعم) ما هي الأجراءات المطلوب اتخاذها بهذا الشأن ؟

٢-٢ - اذا كانت الأجابة (بلا) هل لك من تبرير لذلك ؟

٣ - هل تدعم فكرة تشجيع المعلمين والمعلمات على الأعتماد الذاتي في انتاج المواد التعليمية أم تدعم فكرة الأنتاج المكثف للمواد التعليمية من خلال مركز التقنيات التربوية وتوزيعها على المدارس ليوظفها المعلمون ؟

٤ - هل تؤيد فكرة تطبيق التلفزيون التعليمي في البحرين ؟
اذا كانت الأجابة (لا) فما هي الأسباب ؟

٥ - هل تؤيد ادخال الكمبيوتر في التعليم ؟

٦ - ما هو الدور الذي يمكن أن يطبق الكمبيوتر في نظام التعليم في البحرين في اعتقادك ؟

وشكرا على تعاونكم ...

محمد الموسوي
(جامعة البحرين)

(ANNEXE 15A)

No.of teachers female who answered the questionnire by schools

Name of school	Type	* T.N.T	** N.Q.D	*** N.Q.C	Location
Manama	S	60	20	15	Manama
Muharraq	S	35	15	11	Muharraq
Kawlah	S	54	20	16	Manama
West Rifaa	S	68	20	15	Rifaa
Jidhafs	S	62	20	14	Jid hafs
AL- Estiqlal	I.S	58	15	11	Muharraq
Umm Salama	I	32	15	12	Manama
Ayesha	I	33	12	09	Manama
Isa Town	I	47	15	13	Isa Town
Halema	I	38	12	11	Manama
Hamed Town	I	40	10	07	H. Town
Zanoobiya	I	30	10	09	Muharraq
Kortoba	I.P	38	15	14	Manama
AL- Diar	I.P	41	18	15	Muharraq
Sitra	I.P	61	15	08	Sitra
Aali	I.P	32	10	05	Central
Fatema AL-Zahra	P	26	10	07	Manama
AL-Adawya	p	28	12	10	Manama
Umm ayman	P	24	20	12	Manama
Al-mutanabi	P	31	12	10	Manama
Zubayda	P	33	16	12	Muharraq
Barbar	P	22	20	16	Northern
Al-Sehla	P	27	10	08	Jidhafs
Asma thatanntakeen	P	21	15	10	Hidd
Isa Town	P	43	15	15	Isa Town
Private (mixed)	p	51	30	22	Isa Town
Total		1035	402	307	

(ANNEXE 15B)

No.of males teachers who answered the questionnire by schools

Name of school	Type	* T.N.T	** N.Q.D	*** N.Q.C	Location
Shaikh Abbul Aziz	S	53	20	18	Manama
Al- Hoora	S	50	20	15	Manama
Manama Technical	S	81	15	13	Manama
Muharraq Technical	S	84	15	12	Muharra
Abo Baker	I	31	11	11	Manama
A. R. Al-Nassir	I	37	11	11	Muharraq
West Rifaa	IP	41	12	12	Rifaa
Hidd	IP	23	10	10	Hidd
Hamed Town	IP	27	11	11	H.Town
Imam Ali	P	21	08	08	Manama
Al-Jazeera	P	9	05	05	Manama
Al-Mamoon	P	29	10	10	Manama
Al-Yarmook	P	33	10	09	Sitra
Isa Town	P	37	12	12	Isa Town
Hamed Town	P	32	10	08	H. Town
Barbar	P	25	10	10	Northern
Toobli	P	27	10	08	Central
Total Males		640	200	183	
Total Females		1035	402	307	
Grand Total		1675	602	490	

* = Total number of teachers in the school
** = Number of questionnaires distributed
*** = Number of questionnaires collected
S = Secondary school
I.S = Intermediate /Secondary school(combined)
I = Intermediate school
I.P = Intermediatet /Primary school (combined)
p = Primary school

ANNEXE 16A

The questionnaire

Section one: General Information

1- Type of school:

State schools	- Primary only	[ ]
	- Primary /Intermediate (combined)	[ ]
	- Intermediate only	[ ]
	- Intermediate /Secondary (combined)	[ ]
	- Secondary school only	[ ]
Private schools	- Primary	[ ]
	- Intermediate	[ ]
	- Secondary	[ ]

2- Qualifications:

Degree	Year	Country	
- M.Ed.	.....	.....	[ ]
- M.A.,M.Sc.	.....	.....	[ ]
- B.Ed.	.....	.....	[ ]
- B.A.,B.Sc.	.....	.....	[ ]
- T.T.Dip.	.....	.....	[ ]
- P.G.D.E	.....	.....	[ ]
- G. Secondary	.....	.....	[ ]
- Other.....	.....	.....	[ ]
- other.....	.....	.....	[ ]

3 - Subject you teach in:

Primary [ ] Intermediate [ ] Secondary [ ]

- Arabic , Islamic Religion [ ]
- English, French Language [ ]
- Humanities, Social Subjects [ ]
- Math.,Statistics & Geometry [ ]
- Physics , Chemistry ,Biology [ ]
- General Sciences, Sciences [ ]
- Practical Studies [ ]
- Arabic Typing,English Typing [ ]
- Labour & commercial law [ ]
- Secretarial Practice [ ]
- Accounting,Bank Accounting [ ]
- Economics, Office Practice [ ]
- Machine Drawing [ ]
- Applied Mechanic,Workshop [ ]
- Technology [ ]
- Fine Arts, Drawing [ ]

- Songs and Music [ ]
- Physical Education [ ]

4 - Age group :
- 20 ----- Over [ ]
- 30 ----- Over [ ]
- 40 ----- Over [ ]
- 50 ----- Over [ ]

5 - Sex : Male [ ] Female [ ]

6 - Years of experience in teaching :

- 0 ----- Over [ ]
- 10 ----- Over [ ]
- 20 ----- Over [ ]
- 30 ----- Over [ ]

Section Two
---

7 - Have you ever been given a course in the production and the utilization of teaching media?

Yes [ ] | No [ ]

8 - If the answer of the previous question was (yes) was it :

- Not useful at all [ ]
- useful to some extent [ ]
- Average [ ]
- useful to a grate extent [ ]
- Excellent [ ]

9 - Do you feel that you need further training in the production and utilization of teaching media?

Yes [ ] | No [ ] |

10 - If the answer of the previous question was(yes) please indicate the areas in which you need further training ?

- Training in the production of teaching media [ ]
- Training in the utilization of teaching media [ ]
- Training in the selection of teaching media [ ]
- Training in the evaluation of teaching media [ ]
- Other areas, please indicate..... [ ]

11- Specify the degree of importance you give to the following points in the lessons preparation.

	Not important	little important	grate important
- Specifying the lesson objectives	[ ]	[ ]	[ ]
- Specifying the lesson contents	[ ]	[ ]	[ ]
- Selecting the lesson strategies	[ ]	[ ]	[ ]
- Selecting the teaching media	[ ]	[ ]	[ ]
- Designing and producing teaching media	[ ]	[ ]	[ ]
- The preparation and organising for the utilization of teaching media	[ ]	[ ]	[ ]
- The evaluation of teaching media	[ ]	[ ]	[ ]

12- In which of the following categories do you categorize yourself in the usage of teaching media ?

Please select one only.

a) - Non user [ ]
b) - Below average user [ ]
c) - Average user [ ]
d) - Above average user [ ]
e) - Constantly user [ ]

13- If you categorized yourself in the levels, (a),(b),(c) or (d), please indicate to what extent do you use teaching media in your teaching?

	Never	Sometimes	Always
- Teaching displays	[ ]	[ ]	[ ]
- O.H.P.transparencies and materials	[ ]	[ ]	[ ]
- Film stripes	[ ]	[ ]	[ ]
- Film slides	[ ]	[ ]	[ ]
- Audio tapes	[ ]	[ ]	[ ]
- Video tapes	[ ]	[ ]	[ ]
- Programmed text	[ ]	[ ]	[ ]
- Specimens	[ ]	[ ]	[ ]
- Models	[ ]	[ ]	[ ]
- Dramatization	[ ]	[ ]	[ ]
- Field trips	[ ]	[ ]	[ ]
- Television programmes	[ ]	[ ]	[ ]
- Radio programmes	[ ]	[ ]	[ ]
- Computer as teaching media	[ ]	[ ]	[ ]
- Teaching games	[ ]	[ ]	[ ]
- Other teaching media	[ ]	[ ]	[ ]

14- You may face the following difficulties in your usage of teaching media, please specify to what extent you facing them by crossing the appropriate box.

	Always	Sometime	Never
- Selecting the suitable media.	[ ]	[ ]	[ ]
- The acquisition of teaching materials (transparencies,Films).	[ ]	[ ]	[ ]
- The acquisition of teaching equipment.	[ ]	[ ]	[ ]
- Lack of encouragement and support from the school authorities.	[ ]	[ ]	[ ]
- Other difficulties, please determine	[ ]	[ ]	[ ]

15- Is there any person in your school responsible for the following tasks:-

	Yes	No
- Supplying teachers with materials and equipment.	[ ]	[ ]
- Assists in the production of teaching materials.	[ ]	[ ]
- Assists in the operation of teaching equipment .	[ ]	[ ]
- Consultation in teaching media.	[ ]	[ ]
- Bibliographical and indexing services for the teaching materials and equipment .	[ ]	[ ]

16- Indicate which of the following personnel you find to be very difficult, difficult or not difficult to consult when to use teaching media ?

	Very diff.	diff.	Not diff.
- Senior subject teacher.	[ ]	[ ]	[ ]
- School headmaster.	[ ]	[ ]	[ ]
- My colleague teachers.	[ ]	[ ]	[ ]
- Teaching media in charge in the school (if any).	[ ]	[ ]	[ ]
- Media specialist in Educational Technology Centre.	[ ]	[ ]	[ ]
- Subject director(subject specialist)	[ ]	[ ]	[ ]

17- If you come across any difficulties related to the teaching media and its utilization , what do you do to solve that problem ?

Please cross the appropriate box.	Yes	No
- Seek help from other more experienced teacher .	[ ]	[ ]
- Solve the problem depending on self effort.	[ ]	[ ]
- Try to postpone teaching that particular lesson until establishing a solution.	[ ]	[ ]
- Ignore using media,and teach without them.	[ ]	[ ]
- Consult Educational Technology Centre .	[ ]	[ ]

18- Which of the following resources do you refer to, in realizing the new trends in teaching media.?

Please cross the appropriate box.	Yes	No
- Educational Technology Centre.	[ ]	[ ]
- The regular meeting with the senior teacher or the subject advisor.	[ ]	[ ]
- Other teachers in the school.	[ ]	[ ]
- Periodicals and publications in teaching media	[ ]	[ ]

19 - Is there general consciousness among the teachers to the utilization of teaching media in the school ?

Please cross the pertinent box. Yes [ ] No [ ]

20- List three teaching media you used more than any other, in the last two years ?

1.....

2.....

3.....

21- Consider the following teaching objectives. Cross those objectives which coincides with the objectives, you studied or trained on .

	Yes	No
- To write a definition of Educational Technology.	[ ]	[ ]
- To define the major roles of Educational Technology	[ ]	[ ]
- To write an objective in a behavioural terms.	[ ]	[ ]
- To design a lesson in terms of objectives hierarchy.	[ ]	[ ]
- To apply Blooms' Taxonomy in the learning process.	[ ]	[ ]
- To list the advantages and the disadvantages of Group teaching.	[ ]	[ ]
- To list the advantages and the disadvantages of Individualized learning.	[ ]	[ ]
- To define programmed learning .	[ ]	[ ]
- To select appropriate teaching media for a selected subject.	[ ]	[ ]
- To list the advantages of teaching games.	[ ]	[ ]
- To design a multiple choice test.	[ ]	[ ]

- To mach teaching strategies to learners' abilities.	[ ]	[ ]
- To operate an over head projector.	[ ]	[ ]
- To operate filmstrips\slides projector.	[ ]	[ ]
- To operate 16mm motion picture projector.	[ ]	[ ]
- To carry out basic photographic techniques.	[ ]	[ ]
- To produce different types of diagrammes.	[ ]	[ ]
- To draw stick and cartoon figures.	[ ]	[ ]
- To produce teaching materials for teaching.	[ ]	[ ]

22- Which of the following principles is the most important in the media selection stage, in your view.?

Please cross one only

- The easiest to utilize. [ ]
- The easiest to produce. [ ]
- The most available one. [ ]
- The most appropriate for the lesson. [ ]

23- To what extent do you believe that Educational Technology Centre, of the Ministry of Education, offers you and your school its services.?

Please cross one only

- To a great extent [ ]
- To a satisfactory extent [ ]
- To some extent [ ]
- Not offering at all [ ]

24- What are the suggestions you wish that Educational Technology Centre,would offer the teachers or the schools in order to ease the utilization of teaching media.?

1.....
2.....
3.....
4.....
5.....

Thank you for your co-operation

M.J.AL-Moosawi
University of Bahrain

Questionnaires' objectives

Teachers' questionnaire intended to :

1-Investigate the Educational Technology usage in Bahrain schools.

2-Gather some information about teachers' professional background in handling Educational Technology.

3-Investigate the problems associated with the usage of Educational Technology in the instructional situation.

4-Acquire information about teachers' attitudes towards the value of Educational Technology in teaching.

5-Estimate the teachers' needs for training in Educational Technology.

6-Understand the frequent process of the evaluation and assessment of teachers in Educational Technology.

7-Recognize the area encompassed by various kinds of problems facing teachers, such as lack of materials, equipment, supports and funds.

8-Develop a basic knowledge for providing statistical evidence that Educational Technology is not adequately employed in the educational system of Bahrain.

ANNEXE 16B

استبيان لاستطلاع آراء المدرسين والمدرسات
حول واقع تكنولوجيا التعليم
في مدارس دولة البحرين

الى الزملاء المعلمين والمعلمات المحترمين ...

تهدف هذه الدراسة الى التعرف على واقع التقنيات التربوية في المدارس الحكومية والمدارس الخاصة التي تشرف عليها الدولة للوقوف على المشكلات التي يواجهها القائمون بالتدريس في هذه المدارس حول مدى توافر هذه التقنيات وامكانيات اعدادها محليا وطريقة توظيفها في المجال التدريب توظيفا نظاميا كذلك دراسة تلك المعوقات لأجل تحسين مستقبل العملية التربوية بعامة والممارسات التدريسية بوجه خاص .

وأحب أن أنوه للأخوة والأخوات بالمدارس بأن هذه الدراسة هي جزء من بحث أكاديمي لأعداد رسالة دكتوراه في مجال التربية من جامعة ويلز.

رجائي من المعلمين والمعلمات اجابة محتوى هذا الأستبيان بكل موضوعية من خلال خبراتهم وتجاربهم في مجال التدريس .

وأحب أن أؤكد ان جميع الأجابات سوف تؤخذ بعين الأعتبار .

مع خالص شكري للجميع ،

الموافق : ١٩٨٦/١/٢م .

الباحث
محمد جعفر الموسوي
جامعة البحرين
كلية العلوم والآداب والتربية
دائرة التربية
قسم تكنولوجيا التعليم

الاستبيان

القسم الأول : معلومات عامه

١ - نوع المدرسة :

مدارس الدولة :
- ابتدائية فقط ☐
- ابتدائية / اعدادية مشتركة ☐
- أعدادية فقط ☐
- أعدادية / ثانوية مشتركة ☐
- ثانوية فقط ☐

مدارس خاصة :
- ابتدائية ☐
- أعدادية ☐
- ثانوية ☐

٢ - المؤهلات :

المؤهل	السنة	البلده	
- ماجستير تربوي	.....	.....	☐
- ماجستير غير تربوي	.....	.....	☐
- بكالريوس تربوي	.....	.....	☐
- بكالريوس غير تربوي	.....	.....	☐
- دبلوم معلمين أو المعلمات	.....	.....	☐
- دبلوم الدراسات العليا في التربية	.....	.....	☐
- ثانوية عامة	.....	.....	☐
- مؤهل آخر	.....	.....	☐

٣ - المواد التي تدرسها بالمرحلة :

الأبتدائية : .....

.....

الأعدادية : .....

.....

الثانوية : .....

.....

٤ - فئـــــات العمـــــر :

- ٢٠ ←——— فما فوق ☐
- ٣٠ ←——— فما فوق ☐
- ٤٠ ←——— فما فوق ☐
- ٥٠ ←——— فما فوق ☐

٥ - الجنـــــــــس :

☐ ذكـــــر ☐ انثـــى

٦ - عـدد سنوات الخبره في التدريـــس :

- صفر ←——— فما فوق ☐
- ١٠ ←——— فما فوق ☐
- ٢٠ ←——— فما فوق ☐
- ٣٠ ←——— فما فوق ☐

القســـــم الثانـــي:

٧ - هل أعطيـــت أي دورة في استخدام وانتاج الوسائل التعليميـــــة ؟

☐ نعـــم ☐ لا

٨ - اذا كانت الأجـــابة بنعم هل كانـــت الدورة

- غـــير مفيـــدة اطـــلاقا ☐
- مفيـــدة نوعـــا مـا ☐
- متوســـطة الأفـــادة ☐
- مفيدة الى حـــد كـــبير ☐
- ممتـــــــــازة ☐

٩ - هل تشـــعر بانك في حاجـة الى مزيد من التدريب على استخدام وانتـــــاج الوسائل التعليميـــــة ؟

١٠ - اذا كانت الأجابة على السؤال السابق(بنعم) أرجو أن تذكر المجالات الذي تشـــعر بأنـــك في حاجـــة الى تدريـــب فيهـــا :

- التدريـب على أعداد الوسائل التعليميـــــة ☐
- التدريب على توظيف الوسائل في غرفة الـــدرس ☐
- التدريب على اختبار الوسائل التعليميـــــة ☐
- التدريب على تقويم الوسائل التعليميـــــة ☐
- مجالات أخرى اذكرهـــا من فضـــــلك

.....

.....

١١ - حدد الأهمية التي تعطيها للمجالات المدونه أدناه في مجال اعداد الدرس .

	غيرمهمة	قليلة الأهمية	عظيمة الأهمية
- تحديد أهداف الدرس	☐	☐	☐
- تحديد محتوى الدرس	☐	☐	☐
- اختيار استراتيجية التدريس	☐	☐	☐
- اختيار الوسائل التعليمية	☐	☐	☐
- تصميم وانتاج الوسائل التعليمية	☐	☐	☐
- تهيئة وتنظيم المكان والأجهزة المستخدمة .	☐	☐	☐
- وسائل التقويم	☐	☐	☐

١٢ - في أي من المستويات التالية تصنف نفسك في مجال استخدام الوسائل التعليمية ؟

- لا يستخدم أبدا ☐
- دون الوسط ☐
- وسط ☐
- فوق الوسط ☐
- دائم الاستخدام ☐

١٣ - اذا كنت قد صنفت نفسك في المستويات "دون الوسط" ، "وسط" ، " فوق الوسط" "دائم الأستخدام" فما مدى توظيفك للوسائل التعليمية التالية في المواقف التدريسية .

	لا استخدمها اطلاقا	استخدمها احيانا	استخدمها بانتظام
- الملصقات التعلمية	☐	☐	☐
- مواد وشفافيات جهاز العرض فوق الرأس	☐	☐	☐
- أفلام ثابتة	☐	☐	☐
- أفلام شرائح	☐	☐	☐
- أشرطة صوتية	☐	☐	☐
- أشرطة فيديو	☐	☐	☐
- كتاب مبرمج	☐	☐	☐
- عينات	☐	☐	☐
- نماذج	☐	☐	☐
- تمثيل	☐	☐	☐
- رحلات ميدانية	☐	☐	☐
- برامج التلفاز العام	☐	☐	☐
- برامج المذياع العام	☐	☐	☐
- برامج كمبيوتر للتعليم	☐	☐	☐
- الألعاب التعليمية	☐	☐	☐
- وسائل تعليمية أخرى	☐	☐	☐

١٤ - المشكلات التالية يمكن ان تصادفك في اثناء استخدامك للوسائل التعليمية . حدد الى أي مدى أنت تواجهها بوضع علامة (×) في المربع المناسب .

	تواجهني كثيرا	تواجهني أحيانا	لاتواجهني اطلاقا
- صعوبة اختيار الوسيلة المناسبة	☐	☐	☐
- صعوبة الحصول على المواد التعليمية (مثل الشفافيات والأفلام)	☐	☐	☐
- صعوبة الحصول على الأجهزة التعليمية (مثل جهاز عرض شرائح والأفلام الثابتة)	☐	☐	☐
- فقدان التشجيع والدعم من قبل المدرسة	☐	☐	☐
- أي صعوبة أخرى - حددها من فضلك	☐	☐	☐
.....	☐	☐	☐

١٥ - هل يوجد في مدرستك من يقوم بأداء الخدمات التالية في مجال الوسائل التعليمية ؟

	نعم	لا
- امداد المدرسين بمختلف الوسائل التعليمية وأجهزتها	☐	☐
- مساعدة المدرسين على انتاج الوسائل التعليمية	☐	☐
- تشغيل أجهزة الوسائل التعليمية	☐	☐
- تقديم الأستشارات في مجال الوسائل التعليمية	☐	☐
- فهرست وتنويب مواد وأجهزة الوسائل التعليمية	☐	☐

١٦ - هل تجد صعوبة في تعاون أي شخص من الآتية أسماءهم معك عند تخطيطك لاستخدام الوسيلة ؟

	لايتعاون اطلاقا	يتعاون أحيانا	يتعاون باستمرار
- المدرس الأول	☐	☐	☐
- مدير المدرسة	☐	☐	☐
- زملائي المدرسين	☐	☐	☐
- المدرس المسئول عن الوسائل في المدرسة	☐	☐	☐
- أخصائي الوسائل في مركز التقنيات التربوية	☐	☐	☐
- موجه المادة (أخصائي المادة) .	☐	☐	☐

١٧ - اذا واجهتك صعوبة في موضوع الوسائل التعليمية واستخداماتها فماذا تفعل؟

	نعم	لا
- أستعين بمن له خبره في الوسائل التعليمية من مدرسي المدرسة	☐	☐
- أعتمد على نفسي في حل المشكلات	☐	☐
- أحاول تأجيل تدريس ذلك الموضوع حتى أتوصل الى حل	☐	☐
- أتجاهل استخدام الوسائل وادرس الموضوع من دونها	☐	☐
- استعين بخبرات مركز التقنيات التربوية بالوزارة	☐	☐

١٨ - أي المصادر تعتمد عليها في التعرف على الجديد في الوسائل التعليمية ؟

	نعم	لا
- مركز التقنيات التربوية	☐	☐
- الأجتماعات الدورية مع المدرس الأول أو الموجه	☐	☐
- مدرسوا المدرسة	☐	☐
- الدوريات والمجلات الخاصة بالوسائل التعليمية	☐	☐

١٩ - هل هناك وعي عام باستخدام الوسائل بين مدرس المدرسة نعم ☐ لا ☐

٢٠ - اذكر ثلاث وسائل تعليمية استخدمتها في دروسك أكثر من غيرها .

١ - .....

٢ - .....

٣ - .....

٢١ - أي من الأهداف التعليمية التالية تم تدريبك عليها أودرستها في أثناء دوراتك التدريبية؟ ضع علامة (X) في المربع أمام الهدف الذي تدرب عليه .

	لم يسبق أن درسته	سبق أن درسته
- أن يكتب تعريفا للتقنيات التربوية	☐	☐
- أن يعرّف الأدوار الرئيسية للتقنيات التربوية	☐	☐
- أن يكتب هدفا سلوكيا أجرائيا	☐	☐
- أن يخطط درسا مراعيا فيه سلم الأهداف	☐	☐
- أن يطبق تصنيف بلوم للأهداف في عملية التعلم	☐	☐
- أن يضع قائمة بالمزايا والعيوب للتعليم الجماعي	☐	☐
- أن يضع قائمة بالمزايا والعيوب للتعليم الفردي	☐	☐
- أن يعرف التعليم المبرمج	☐	☐
- أن يختار وسائل تعليمية مناسب لموضوع تدريس	☐	☐
- أن يضع قائمة بمزايا الألعاب التعليمية	☐	☐
- أن يصم امتحان من نوع الأختيار المتعدد	☐	☐
- أن يوفق بين استراتيجية التدريس وقدرات المتعلمين	☐	☐
- أن يشغل جهاز العارض فوق الرأس	☐	☐

	لم يسبق أن درسته	سبق أن درسته
- أن يشغل جهاز عرض الشرائح والأفلام الثابتة	☐	☐
- أن يشغل جهاز عرض الشرائح والأفلام الثابتة	☐	☐
- أن يشغل جهاز عرض الأفلام المتحركة ١٦ ملم	☐	☐
- أن يقوم بالتصوير الفوتوغرافي	☐	☐
- أن يقوم بانتاج الرسوم البيانية	☐	☐
- أن يرسم بطريقة الكارتون والعيدان	☐	☐
- أن يقوم بانتاج مواد تعليمية للأستخدام في الأغراض التعليمية .	☐	☐

٢٢ - أي الأسس التالية أهم في نظرك في اختيار الوسيلة التعليمية . تخير واحدا فقط وذلك بوضع علامة (✗) في المربع المناسب .

- أسهلها توظيفا ☐
- أسهلها انتاجا ☐
- أكثرها توافرا ☐
- أكثرها مناسبه لموضوع الدرس ☐

٢٣ - الى أي حد تعتقد ان مركز التقنيات التربوية التابع لوزارة التربية والتعليم يقدم لك ولمدرستك خدماته .

اختر احدى الأختيارات التالية :

يقدمها على الوجه الأكمل	يقدمها بصورة مقبولة	يقدمها الى حدما	لايقدمها اطلاقا
☐	☐	☐	☐

٢٤ - ماهي المقترحات التي تود لوأن مركز التقنيات التربوية يقوم بها بالنسبة للمدرسين أو المدارس لتسهيل عملية توظيف الوسائل التعليمية ؟

المقترحات :

١ - .....
.....

٢ - .....
.....

٣ - .....
.....

٤ - .....
.....

٥ - .....

واشكر حسن تعاونك معي ،

محمد الموسوي
(جامعة البحرين)

The University College of Wales, Aberystwyth
Coleg Prifysgol Cymru

Deon/Dean
J R Webster

Swyddog Cyfadran/Faculty Officer
Janem M Jones

Y Gyfadran Addysg/Faculty of Education
Yr Hen Goleg/Old College
Aberystwyth, Dyfed SY23 2AX

Tel: (0970) 3177
Est/Ext 267

Date/Dyddiad | Our reference/Ein cyfeirnod | Your reference/Eich cyfeirnod

19/11/1986.

TO WHOM IT MAY CONCERN

Re: MR MOHAMED JAFFER AL-MOOSAWI

The above named student is currently studying for the degree of Ph D at the University College of Wales, Aberystwyth.

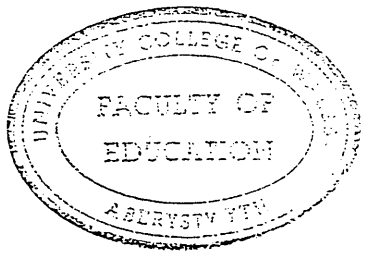
It is necessary for him to approach both administrators and teachers to gather evidence for a major study of the current state of implementation of Educational Technology in Bahrain.

We appreciate that this involves extra work from those whom we wish to interview. However the study would be seriously hampered if we did not get evidence from all levels of the Educational Service of Bahrain.

I would be grateful for any help and assistance that you can give Mr Al-Moosawi. The results of the study should be of benefit to Bahrain.

Yours sincerely

Geoffrey D O Evans Ph D
Lecturer in Education
Director of Studies for Mr Al-Moosawi



ANNEXE 17B. Questionnaire to investigate teachers' opinions concerning Educational Technology in Bahrain

Dear colleague

This questionnaire intended to explore the actual implementation of Educational Technology in the state schools and in the private schools, supervised by Ministry of Education, in an attempt to investigate the major problems facing the teachers in their daily classroom teaching, and further to study these problems, hopping to seek possible solution for the purpose of improving educational practices in general and classroom teaching in particular.

I would like to clarify to my colleague, that this study is a part of a phD. theses requirements in the University college of wales-Aberystwyth.

I request all teachers to answer all elements of this questionnaire in full objectivity according to their experiences in teaching.

I also would like to assure all teachers that every single answer will be considered.

with my deepest gratitude

M.J. AL-Moosawi
University of Bahrain
Department of Education

ANNEXE 17C

STATE OF BAHRAIN
MINISTRY OF EDUCATION

دولة البحرين
وزارة التربية والتعليم
ادارة التعليم الاعدادى والثانوى

الرقم : ١١/ ث ـ ١٢/ ٨٧ التاريخ : ١٩٨٧/١/٧

حضرات السادة الأفاضل / مديرى ومديرات المدارس الاعدادية والثانوية المحترمين

تحية طيبة وبعد

نرجو تسهيل مهمة الاستاذ / محمد جعفر الموسوى فى اجراء الاستبيان حول التقنيات التربوية بالمدرسة .

ولكم وافر التقدير ،،،

مدير ادارة
التعليم الاعدادى والثانوى

نسخة منة الى : ـ
١ ـ الاستاذة / رئيسة التعليم الاعدادى .
٢ ـ الاستاذ / رئيس التعليم الثانوى العام .
٣ ـ الاستاذ / رئيس التعليم التجارى .
٤ ـ الاستاذ / رئيس التعليم الصناعى .

ANNEXE 17D

STATE OF BAHRAIN
UNIVERSITY COLLEGE OF ARTS
SCIENCE & EDUCATION
P.O. Box 1082
Tel.:682748/682071
Telex:9258 UCOBAH

دولة البحرين
الكلية الجامعية
للعلوم والآداب والتربية
ص. ب : ١٠٨٢
تليفون : ٦٨٢٧٤٨/٦٨٢٠٧١
تلكس : ٩٢٥٨ يوكابا

سعادة الاستاذ الفاضل حسن المحرى المحترم

وكيل وزارة التربية والتعليم المساعد للتعليم
العام والفنى

تحية طيبة وبعد

أتشرف أن اذكر لسعادتكم أن الزميل الاستاذ محمد جعفر الموسوى يقوم باجراء دراسة ميدانية لاعداد رسالة الدكتوراه فى مجال التقنيات التربوية فى نظام التعليم بالبحرين . وقد أعد استبيانا لكل مرحلة من مراحل التعليم .

والمرجو التفضل بالمعاونة فى تيسير مهمة سيادته فيما يختص بتوزيع الاستبيان على المدارس فى مختلف المراحل .

ويسعدنا أن نسجل تعاونكم المستمر وتعضيدكم للزملاء .

وتفضلوا بقبول وافر الاحترام والتحية

حرر فى ١٩٨٦/١٢/٢٩

د. واصف عزيز واصف
رئيس دائرة التربية

ANNEXE 18 No. of Schools, Students, Classrooms and Administrative, Technical and Teaching staff by type of school & sex: 1987/88

Type of school	Sex	No. of Schools	No. of Students	No. of Classrooms	Administrative staff						Technical staff						Teaching staff			Labourers		Total
					Principals	Deputy Pr.	Secretary	Clerk & Typist	Admin. Sup.	Total	Social Worker	Librarian	Lab. Tech.	Store-keeper	Others	Total	Bahraini	Non-Bahraini	Total	Male	Female	
Primary	Male	44	23316	696	33	27	32	8	1	101	2	2	–	–	–	4	656	126	782	189	20	1096
	Female	41	24136	700	52	42	51	30	–	175	34	40	–	–	1	75	1087	279	1366	78	215	1909
Primary/ Intermediate	Male	12	7962	229	12	12	11	10	–	45	4	7	2	–	–	13	292	152	444	80	12	594
	Female	6	5662	154	6	6	6	8	–	26	6	6	6	–	–	18	234	161	295	8	24	371
Intermediate	Male	10	6683	188	10	10	9	7	–	36	6	6	2	–	–	14	248	148	396	79	5	530
	Female	11	6296	182	11	11	11	11	1	45	10	9	9	–	1	29	329	56	385	11	53	523
Intermediate/ Secondary	Male	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Female	2	1399	44	2	2	2	2	–	8	2	2	2	–	–	6	106	15	121	3	21	159
**Secondary (General, Com. & Health Sc.)	Male	6	3393	110	6	6	6	7	–	25	5	5	6	–	–	16	102	186	288	42	15	386
	Female	6	5063	148	6	6	6	8	2	28	6	6	6	–	–	18	249	124	373	14	41	474
Commercial Secondary	Male	1	1710	26	1	1	1	2	–	5	–	1	–	–	–	1	11	54	65	8	6	85
	Female	3	1993	69	3	3	3	3	–	12	3	4	–	–	–	7	141	48	189	7	14	229
Industrial Secondary	Male	4	3937	140	4	5	4	3	2	18	–	1	3	8	–	12	94	339	433	21	–	484
Religious Education – Primary	Male	1	86	3	1	–	1	–	–	2	–	–	–	–	–	–	7	13	20	4	–	26
Religious Education – Intermediate			65	3																		
Religious Education – Secondary			33	3																		
Total	Male	78	46185	1398	67	61	64	37	3	232	17	22	13	8	–	60	410	1018	2428	423	58	3201
	Female	69	44549	1297	80	70	79	62	3	294	61	67	23	–	2	153	2146	583	2720	121	368	3665
	Total	147	90734	2695	147	131	153	99	6	526	78	89	36	8	2	213	3556	1601	5157	544	426	6866

*Includes female administrative, technical and teaching staff in boys primary schools.
**Includes Agriculture & Livestock Resources, Hotel, Printing and Textile & Clothing.

ANNEXE 19 **Teachers Load of weekly periods in Public Schools by type of school and sex: 1984/85**

Type of School	Teacher's Load of Weekly Periods		
	Total	Female	Male
Primary	20	20	20
Primary/Intermediate	19	19	19
Intermediate	18	18	18
Intermediate/Secondary	17	17	—
General (other secondary Branches) Secondary	17	17	17
Commercial. Secondary	16	15	17
Industrial Secondary	27	—	27
Religious Education	19	—	19

★ Includes, Health Sciences, Textiles, Catering, Animal-Husbandry, & Printing.

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           EXPER 16 COURSE 18 UTILITY 19
        FTRAIN 20
        AREAT1 TO AREAT5 21-25
        IMPORT1 TO IMPORT7 26-32
        USER 33
         MEDUSE1 TO MEDUSE16 34-49
          PROB1 TO PROB5 50-54
        RESP1 TO RESP5 55-59
        PEOPLE1 TO PEOPLE6 60-65
        SOLVE1 TO SOLVE5 66-70
        RESOURC1 TO RESOURC2 71-72
      /2 RESOURC3 TO RESOURC4 5-6
        UTILIZ 7 MOSTMED1 8
        MOSTMED2 TO MOSTMED3 9-10
        OBJECT1 TO OBJECT19 11-29
        MEDSEL 30
          SERVICES 31 SUGGEST1 TO SUGGEST5 32-36
VARIABLE LABELS CASE'NUMBER OF CASES'
                SCHL'SCHOOL OF TEACHER'
           TYPE'SCHOOL TYPE'
           QUAL'QUALIFICATION'
          YEAR 'YEAR OF QUALIFICATION'
           PLACE'PLACE OF QUALIFICATION'
                LEVEL'LEVEL TEACHING'
                SUB'SUBJECT TAUGHT'
                AGE'AGE GROUP'
                SEX'SEX SPECIFICATION'
                EXPER'YEARS OF EXPERIENCE'
                COURSE'HAD TRAINING'
                UTILITY'VALUE OF TRAINING'
           FTRAIN'NEEN MORE TRAINING'
                AREAT1'MEDIA PRODUCTION'
                AREAT2'MEDIA UTILIZATION'
                AREAT3'MEDIA SELECTION'
                AREAT4'EVALUATION'
                AREAT5'OTHER AREAS'
                IMPORT1'SPECIFY LESSON OBJECTIVES'
                IMPORT2'SPECIFY LESSON CONTENTS'
                IMPORT3'SELECTING LESSON STRATEGIES'
                IMPORT4'SELECTING MEDIA'
                IMPORT5'DESIGN & PRODUCE MEDIA'
           IMPORT6'PREPARATION FOR MEDIA UTILIZATION'
                IMPORT7'EVALUATION TOOLS'
                USER'USING MEDIA'
              MEDUSE1'DISPLAYS'
              MEDUSE2'O.H.P.MATERIALS'
              MEDUSE3'FILM STRIPS'
              MEDUSE4'FILM SLIDES'
              MEDUSE5'AUDIO TAPES'
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     MEDUSE6'VIDEO TAPES'
     MEDUSE7'PROG. TEXT'
     MEDUSE8'SPECIMENS'
     MEDUSE9'MODELS'
     MEDUSE10'DRAMATIZATION'
     MEDUSE11'FILD TRIPS'
     MEDUSE12'T.V.PROGRAMMES'
     MEDUSE13'RADIO PROGRAMMES'
     MEDUSE14'COMPUTER'
     MEDUSE15'TEACHING GAMES'
     MEDUSE16'OTHER MEDIA'
    PROB1'SELECTING'
       PROB2'ACQUIS.MATERIALS'
                PROB3'ACQUIS.EQUIPMENTS'
                PROB4'ENCOURAGMENT'
          PROB5'OTHER'
          RESP1'SUPPLY AIDS'
          RESP2'ASSISTS PRODUCTION'
RESP3'ASSISTS OPERATION'
          RESP4'CONSULTATION'
          RESP5'LIB.SERVICES'
          PEOPLE1'SEN.TECH.'
          PEOPLE2'SCH.HEAD'
          PEOPLE3'COLLEAGUE'
          PEOPLE4'AV SPECIAL.IN SCHOOL'
                PEOPLE5'A.V.SPECIAL.IN CENTRE'
          PEOPLE6'SUB.DIRECTOR'
          SOLVE1'SEEK HELP FROM OTHER'
          SOLVE2'TRY SELF EFFORT'
          SOLVE3'POSTPONE TEACHING'
          SOLVE4'IGNOR USING MEDIA'
         SOLVE5'CONSULT ED.TECH.CENT.'
        RESOURC1 'ED.TECH.CENT.'
        RESOURC2 'REG.MEETING'
        RESOURC3 'OTHER TEACHERS'
        RESOURC4 'PRINTED RESOURCES'
          UTILIZ'MEDIA UTILIZATION'
        MOSTMED1 TO MOSTMED3'MEDIA MOST USED'
           OBJECT1 'DEFINITION'
                OBJECT2'ED.TECH.ROLES'
                OBJECT3'WRITE OBJECTIVE'
                OBJECT4'DESIGN LESSON'
                OBJECT5'B.TAXONOMY'
      OBJECT6'LIST ADV AND DISADV.G.DLERN.'
      OBJECT7'LIST ADV AND DISADV I.LERN.'
          OBJECT8'DEFINE P.LERN.'
          OBJECT9'SELECT MEDIA'
          OBJECT10'ADV.TECHING GAMES'
                OBJECT11'DESIGN MULT.TESTS'
         OBJECT12'MACH TEACH.STRA-LEARN.ABIL.'
              OBJECT13'OPER.O.H.P.'
        OBJECT14'OPER.SLIDES PROJECT.'
        OBJECT15'OPER.MOTION PICT.'
        OBJECT16'PHOTO.TECHNIQUES'
              OBJECT17'PRODUCE DIAGRAMS'
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