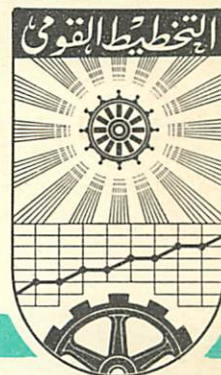


# UNITED ARAB REPUBLIC

## THE INSTITUTE OF NATIONAL PLANNING

لجنة التخطيط



Memo. No. 398

A TENTATIVE PLAN  
FOR THE FUTURE DEVELOPMENT OF THE  
EDUCATIONAL SYSTEM IN THE U. A. R.

by

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## Introduction

Today as never before , the development of education is of prime and indispensable importance to every country in the world. "The swift and farreaching social changes now in progress, the enormous growth of population, the exigencies of quickly developing economies and the wealth of knowladge and technology available are some of the factors which give the problem special urgancy"<sup>1</sup>

There is therefore an urge, allover the world, to adapt the education system of every country and its cultural content in a way which could meet the new requirements imposed on by modern socio-economic changes, especially those imposed on by the development of science and technology.

In this country we are living days of hot controversies over the adequacy of our educational system. Letters and addresses in newspapers and magazines, talks in radio and television, reports and memoires in public circles show the interest in the problem, and the wide differences of openions for solving it. The main theme in these arguments is that our educational system has failed to provide the country with its needs for skilled manpower at all levels to carry out the national development plans.

This paper is an attempt to reveal the position of our educational system, and to illustrate

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1. UNESCO, Elements of Educational Planning.

Educational studies and documents , No. 45

P.5.



that it is unable by its present structure and content, to meet the challenges of the current rapid socio-economic forces.

It has also the purpose of devising a framework for a new educational system which while not departing from our tradition and line of educational development, yet, I believe, will meet the demands of this time.

## Chapter I

### Education and socio-economic development •

#### 1- Education and manpower problems

This country, as most of the developing countries, is plagued with two basic problems concerning its available manpower :

- a. A surplus of unskilled manpower in both urban and rural areas in a form of un- and underemployment
- b- A shortage of skilled manpower in almost all types of skill in agriculture, industry, commerce etc.

The shortage and surplus of manpower are related. The greater the shortage of skill, the greater is the likely surplus of the unemployed and the potentially unemployed people. The surplus of unskilled manpower could be a result of rapid growth in population, too rapid disintegration of traditional rural societies and consequent rapid development of urbanisation. But the two problems of surplus and shortage of manpower are strongly



related to education. The education system is the main agency for producing skill. It can direct the surplus of unskilled labour, by providing them with skill, to meet the shortages of skilled manpower. It is not however certain that an expansion of the educational facilities will solve the whole problem. It may on the contrary increase it. An unbalanced or ill-planned educational facilities which overlook the dimensions of the manpower problem would have bad consequences. For example a rapid development of, or over - investment in primary education may lead to large scale unemployment since primary school leavers do not always like to work on land and seek clerical jobs in town. Similarly a rapid development of higher education may lead to a certain type of unemployment among the educated. It is interesting to note that "countries which have made the most spectacular progress toward eliminating illiteracy and in pressing forward industrialisation ( i.e. Egypt, Ghana, and Nigeria ) are often the ones which have encountered the most serious shortages of high level manpower as well as the largest number of unemployed persons. (1)

#### Education as a factor of production

Education has long been looked upon as a service or a consumption good. It was rightly considered, and still is, a necessity for the full development of human personality. Its aim is to enable everyone to make the fullest use of his innate

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(1) UNESCO , Final report, Conference of african states on the development of education in Africa, Addis Ababa, 12.25. May, 1961, P.48



potentialities whether intellectual, spiritual or physical. This is true now as it was , and will remain as such in the future. What has been neglected is the productive aspect of education from the economic angle. Andrew D. white had spoken of "the genius and talent of citizens as being the most precious of state treasures, and further that it was the duty of society to itself to see that the stock of talent and genius in each generation may have a chance for development." <sup>1</sup>

In recent years educational literature abounds with such new terms as "human capital" and "investment in man" exposing the role of education as a factor in economic development equal to land or capital. Recent statistical calculations have shown that the accumulation of physical capital explains less than half of the annual increase of production in the developed countries. The rest is due to increase in human skills and to better organisation of production. It is however difficult to measure the proportion of increase in production due to formal education since factors which contribute to the development of human capacity cannot easily be isolated. Nevertheless it is beyond doubt that education is a good investment which more than pays for itself in the narrowest economic sense.

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(1) Henderson , Algo g.9



Economic development and educational content

It is not enough to design the educational system in the way by which the quantitative needs of productive manpower as determined by economic development can be met. It is very important to provide the kind of education essential to satisfy the economic and productive functions of our society. The progress of science and technology , and the dependence of our material future and the maintenance, if not the raising, of our standard of living on this progress, necessitates more emphasis on the teaching of mathematics and sciences in all levels of education. The conference of African States on the Development of Education in Africa stated:

"If education is to be integrated with economic development and to pay its way in purely economic terms, one of the principal changes must be a shift in curricula away from philosophic and literary studies towards natural sciences and its various applications." <sup>1</sup>

It seems, however, that giving more emphasis on the teaching of sciences, mathematics and technical studies is not the whole problem. It is very important to dilute the technical studies with adequate general education. This applies to

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(1) Opcit P.10



technical training at both secondary and higher levels. For purely economic reasons technical training must not be isolated from general education. Technical training designed for flexibility and adaptability and transfer of skill is the best requirements for technical personnel. Modern industrial societies require their technically trained manpower with broad and general background to be able to adapt themselves to the ever changing environments of dynamic societies.

It is obvious that our modern industrial society cannot tolerate an antithesis between the scientific and the general studies. Our educational system must, therefore, try hard to build up a synthesis of our two cultures - the scientific or technological and the general or the liberal.

#### Priorities in Education

Investment in education is often high and usually pays on the long run. It is therefore important to avoid doing too much which might prove wasteful and even harmful. If education is to be brought into line with the demands of economic development and the financial capacity of the state, due consideration should be given to the problem of priorities in education.

It has already been noted that a rapid expansion of primary education at the expense of secondary and higher education may lead to unskilled unemployment on one side and shortages in high technical personnel on the other. It is well known that education creates high expectations, and an over-rapid spread of



primary education in the developing countries may create insoluble problems. The budgets of these countries may be strained by teachers salaries, their towns may be flooded by an influx of primary school leavers seeking clerical jobs, and high demands will be put on more facilities for further education which the country cannot afford providing.

It is true that an expansion of primary education will broaden the base from which better quality of secondary school pupils may be selected. But plans for economic and social development in the developing countries require immediate efforts to train such a great number of technologists, engineer, scientists agriculturists, teachers and technicians. If the biggest portion of education budget is to be spent on primary education to make it universal as soon as possible, plans for economic and social development may be handicapped as a result of shortages in middle and high technical personnel. Therefore, the adoption of a policy of universal literacy cannot be given the highest priority especially in the earliest stages of economic development at the expense of the expansion of skills at secondary and higher levels.

It is important however to note that universal primary education is not in question. The problem is a matter of priority at a certain stage of the country's economic development. A country which rapidly increases its national income through productive investment in developing its skilled manpower may reach this goal more rapidly than if it were to



neglect the early investment in secondary and higher education.

### Planning of education

The aforesaid problems illustrate the prime importance of the planning of education. Educational planning is defined in the following terms:

"Planning of education is concerned with governmental and private activities in order to have adequate education by stages and within defined goals, offering each individual a better chance to realise his potentialities and to make his most effective contribution to the country's social and economic development."<sup>1</sup>

Educational planning has as object to achieve proper balance in the educational development, and to relate this development to the plans for economic and social development. It is important therefore that educational plans should be closely bound up to the whole of the country's general development plan. .

The nature of educational planning dictates that it must be a long term one. There is always time lags in the formation of human capital. To train a primary school boy, for example to be a scientist or engineer requires some over fifteen years. It is evident, therefore, that effective educational planning requires an assessment of the needs for at least ten, fifteen ,

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(1) Ibid P.35.



or perhaps over twenty years into the future. This does not , however, deny the importance of short-term educational planning to meet the immediate needs for certain types of manpower such as supervisors, semi-skilled labour, technical specialists in certain jobs. A system of on the job training or accelerated training can be devised for this purpose.

One approach to educational planning is the manpower approach. Educational planning must be based on forecasting manpower requirements as determined by plans for economic and social development.

Another approach to educational planning is the cultural approach. Education has a purpose in itself irrespective of its economic and social purposes. Economic progress is not the only objective of societies. Each society must ensure that its educational system is able to bring up good citizens who have better education and enjoy better life with all its physical , intellectual and spiritual sides. Good educational planning must consider both two approaches.

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## Chapter II

### Education and the structure of Occupations

#### Changes in the structure of occupations

The only basis for building up an educational system is a thorough examination of the structure of occupations. Our aim must be to establish an educational system which can create a strong relationship between the occupational categories and the various levels and types of education.

Modern industrial techniques have exerted strong influence on the structure of occupations. Before the Industrial Revolution industrial work was artisinal. The craftsman or the artisan was the master, the designer as well as the worker. Apprenticeship was the sole method for entering a trade or industry. I

The introduction of mechanical processes in production has led to the division and subdivision of labour, and to a marked trend towards specialisation. As a result the number of occupations has grown enormously and their functions have widely diversified.

In the first place modern industrial society requires a great number of high level occupations. A big number of engineers, scientists, technologists .... etc are needed to work in the production sectors , in research and development. The ever developing services sectors are in bad need for doctors, teachers, lawyers..

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1- See, The Impact of Modern Technology on Education, by Dr.M.S. Fahmy, Memo. 276 I.N.P. 1963.



etc. Managerial and administrative occupations have extended greatly in recent years by the extension of big enterprises , and the trend towards planned economy.

In the second place modern industrial work has created new industrial functions which are now commonly known as intermediary or "technician" functions. These functions have multiplied enormously with the rapid technological development.

They become the keynote of industrial work, as they affect management as well as all ranks in industry.

In the third place technological development and the subsequent socio-economic changes have greatly developed what we often call clerical or co-ordinating occupations. Recent trends in the distribution of labour force by economic sectors give evidence that an increasing number of people are now employed in the services sectors such as distribution, commerce, transport and other activities in direct contact with the public. Other industries catering for travel, entertainment, sport, and other forms of recreation provide important sources of employment. It is obvious that a continuation of this trend will enormously increase the number of these occupations.

In the fourth place modern production methods have greatly altered the type of skill required. The importance of skill in its traditional sense ( skill in hands ) has been reduced, and more emphasis has been given to technical knowledge, intelligence, alertness, promptness and sense of responsibility.



The number of skilled workers directly engaged in the production of goods has proportionally decreased, while the number working in the making and maintenance of machines producing the goods has enormously increased.

Modern industrial techniques and specially automation have entrusted the direct production of goods to a group of semi-skilled workers generally known as "operatives". The operative is skilled in a certain production process. Therefore, by the increasing number of production processes due to the creation of new industries and the transference of manual production to mechanised and fully mechanised production, the number of semi-skilled occupations has increased enormously with the result of the rapid increase in the demand for semi-skilled workers.

Having briefly examined the new trends in the structure of occupations as affected by modern industrial and technological techniques, it is essential to propose a new occupational system. Three important elements have to be ensured in this system:

- a- It must be flexible enough to make room for future changes in the occupations,
- b- It must reflect an occupational pattern which exists in the most developed industrial enterprises from the technological and organisational point of view,
- c- It must reflect comparatively defined educational levels by which it would make it possible to convert a certain category of occupation to a certain level



or type of education.

An occupational system which is supposed to ensure these requirement will include these categories:

- 1- Managerial occupations ( Managers )
- 2- Higher technical and professional occupations  
( High professionals )
- 3- Middle technical and sub-professional occupations  
( Technicians )
- 4- Co-ordinating occupations (Co-ordinating staff)
- 5- Skilled occupations ( Skilled labour )
- 6- Unskilled occupations ( Unskilled labour )

#### Definition of the occupational categories

Since it is assumed that the educational system must be based on the occupational system, it is of great importance to define as clearly as possible our concept of the occupational categories :

#### Managers

The managers are those people who occupy the top rank in the hierarchy of the occupational system. They are the decision makers in their businesses, enterprises, works and departments. Good management depends primarily on the personal qualities such as imagination, courage, understanding, good character, enterprenal spirit. We believe however that these qualities may be developed by education for management.

Managers may be clossified into top and executive managers. Top managers are those who draw the general policy of their



enterprises or departments such as general managers in industry and managers and administrators in public service.

Executive managers are heads of departments in industrial enterprises or government establishments.

It is our view that top and executive managers ought to have specialised university education supplemented whenever possible by special training for management. It is however well known that a considerable number of them may have a lower level of education and may be recruited from the cadre of superintendents and intermediate or sub-professional technical personnel.

#### High technical and professional personnel

This category of manpower occupy the high technical and professional occupations. They are always known as men of the professions, such as scientists, doctors, engineers, lawyers, journalists, university and secondary school teachers... etc. It is obvious that the education of these people must be of university level.

#### Middle technical personnel (Technicians)

This category of manpower occupy the intermediate occupations between the high technical and professional occupations and skilled labour occupations. It is obvious that this category is rather broad. Modern technology and the increasing complexity of industrial work have necessitated the division of this category into two sub-categories: higher grade and lower grade technicians. The higher grade technicians include assistant engineers, superintendent, works managers ... etc. The lower grade technicians include



supervisory personnel, foremen, technical and laboratory assistants ... etc. We believe that the first group requires specialised technical training ranging from one to three years after the completion of secondary education, while specialised technical education at a secondary level is appropriate for the second group.

#### Co-ordinating staff

This category include those who have something to do with the co-ordination and harmonising of the human activities in the various sectors of economy. It is impossible to assign a special educational level for this category as their educational requirements range from university education to general and commercial education of secondary level.

#### Skilled labour

Skill is a complicated term. It is difficult to measure, uneasy to differentiate between its different grades, and nearly impossible to determine what portion of it is attributed to education and training, to experience, or to innate ability and aptitude.

In this context we shall consider the skilled worker as one who is engaged in some sort of skilled work. This will include the semi-skilled workers under this category. The skilled worker requires a certain degree of general and technical knowledge primarily a thorough knowledge of his tools and materials beside a considerable skill with his hands. Under modern



industrial conditions there has been a move from "motor" or manual skill to "perceptual" skill ( the ability to see and receive information ) to "conceptual" skill ( the ability to understand the received information and to know what to do ). Good general education is therefore very important to the skilled worker. It is important therefore that he must have sound general education up to the age of fifteen or sixteen followed by technical training for two or three years.

#### Unskilled labour

This category includes those who work in occupations which do not require any degree of skill or whose skill can be learned in few hours without any preliminary preparation. In most underdeveloped countries this category constitutes the bulk of the labour force. It is expected, however, that the development of technology will diminish the size of this category in favour of more skilled and semi-skilled labour.

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### Chapter III

#### An overview of the adequacy of the present system of education

It is our intention now to throw light on the basic problems in the different levels and types of education which have resulted in our educational system being unable to meet the requirements of our modern society as affected by the socio-economic forces.

#### Higher education

Our higher education is provided in two type of institutions: The universities, and the higher technical institutes.

1. The universities have failed to train the required number of engineers, doctors, research workers and many other specialists. In a manpower survey<sup>(1)</sup> recently made (1962) it has been estimated that the requirements of fresh engineers by 1965 will be 233% of the total capacity of the four universities. For doctor, the requirements has been estimated by 246% of the present capacity. It is true that the percentage of university students to the total population is not altogether alarming when compared with other developed and developing countries <sup>(2)</sup>,

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(1) اللجنتان الدائمتان للأفراد الفنيين والأفراد العالمين  
دراسة في تخطيط وتنمية القوى العاملة وعلاقتها بالخطة

الخمسية . ديسمبر سنة ١٩٦٢  
(2) In the International Yearbook of Education, by UNESCO, 1957  
the following table of number of university students in different  
countries has been given:



But the distribution of university students by faculty is not reflecting the actual and future requirements of manpower. The following table shows the number of students enrolled in some faculties in the last three years:

Faculty	60/61	60/62	62/63
Faculty of Arts	15070	16690	16172
Faculty of Law	13118	13481	13339
Faculty of Commerce	19717	23945	21909
Faculty of Science	5081	5919	6542
Faculty of Medicine	7464	7859	8141
Faculty of Engineering	11238	13012	14821
Faculty of Agriculture	6502	7588	8813

It is obvious that the number of students enrolled in theoretical faculties much exceeds those in the practical ones. The result is that while there is an excess in some of the arts

Country	No. of students in universities	Population (in 1000s)	No. of students per 1000 population
U.S.A.	2.918.212	175.000	16.670
U.S.S.R	2.013.565	200.200	10.000
Italy	212.424	50.000	4.450
France	170.023	43.854	3.880
W. Germany	151.343	50.594	3.000
Egypt	63.761	22.651	2.810
Netherlands	30.939	11.094	2.810
U.K.	90.500	49.812	1.815



graduates such as lawyers there is a shortage in engineers, doctors, scientists ... etc.

Recent organisation for university education has aimed to double the output of high scientific and technical personnel in the shortest time by making the study on two shifts. It is important however to ensure that such measures must not lower the quality of university education by increasing the burden on the teaching staff

2- The higher technical institutes run by the Ministry of Higher Education are not exactly satisfying the purpose of their establishment. The purpose of these institutes is to produce to the labour market high technical personnel who, in addition to their thorough scientific training, have a practical outlook and can apply scientific discoveries to production. A distinction has therefore been made between the functions of university and the higher technical institutes. "While universities emphasize the academic and theoretical branches of studies, higher institutes are established to stress the practical goals of these studies"<sup>1</sup>

It is obvious that the purpose of the higher technical institutes is essential to the national economy exactly as the university. The two types of institutions are supplementing each other. It would be most unwise to assign the training of high technical personnel to one type of institutions. The country

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(1) Some Problems of Planning Higher Education in the U.A.R. by Dr. M. Hassan, Mero. No.299 i.N.P.C. 1963



needs hands and brains trained in different ways to fill the varied technological posts in the spheres of production, invention, design, research and management. There is no single way leading to the highest technological posts in industry, and if industry were to select for these posts only those individuals trained in one type of institution, there is no guarantee that such selection would secure the best high technical personnel from the whole field available.

Unfortunately the programmes of the high technical institutes are not well arranged for this purpose. In most cases they copy the universities academic model. At the same time they suffer from a grave shortage of physical facilities, ie. buildings and equipments and a further more shortage in the teaching staff.

#### Technical and vocational education

1- Our system of technical education has gravely neglected the special requirements for the training of higher grade technicians. The training of this grade of technical personnel has been overshadowed by the importance attached to higher and university education. It has been planned that the programme of the higher technical institutes would be distributed over 2 levels: the first is a three year course of study (The diploma level) and the second lasts for another two years (The specialised technical level). Graduates from the first level serve as higher grade technicians, while those from the second serve as technological



specialists.<sup>1</sup>

Unfortunately these institutes have refrained from training the technicians and adjusted their curricula and programmes of training only to provide the labour market with university level graduates.

The one - or - two year training centres of the Ministry of Higher Education are providing people more or less far from being of the category we have now in mind. Their purpose is to train skilled workers or lower grade technicians in some specialised branches. The need for higher grade technicians is immense, and our educational system is far from satisfying this need.

2- The secondary technical school has failed to adapt itself to the changes in the structure of occupations. The school still reflects the features of the old intermediate technical school whose function was to train draughtsmen, technical and engineer assistants. Its graduates still look for jobs in the public service. In 1957 it was decided to transform the school from one offering a technical course to one whose graduates could enter the university faculties of agriculture, commerce and engineering. It was thought that this would serve both sides of enabling competent pupils to continue their studies up to university level, and at the same time, to provide the labour market with intermediate technical personnel.

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(1) Dr. M. Hassan, *Op cit* P.12



Unfortunately the school could not satisfy both aims. The university and higher technical institutes have favoured pupils coming from the general secondary schools, and industry and business are not altogether pleased with the standard and quality of its graduates. The structure of the school is rigid, its aurricula is neither diversified nor flexible, and the school itself is not aware of the actual requirements of the labour market.

3- Our system of technical education has failed to train the required number of skilled workers. Until the rudiments of industrialisation have been laid in this country few decades ago, informal apprenticeship was the sole method for entering a trade or a craft. In the few industries which have been established , mostly textile industries, training for skill was obtained on the job. By the increasing demand for some sort of institutionalised training for skilled workers , elementary technical schools have been created which came now to be known as preparatory technical schools. These schools take their pupils after completing their primary education at the age of 12 and keep them for a 3 year course, after which they ~~were~~ are expected to enter industry, business and agriculture as skilled labour.

But the preparatory technical school has faild in fulfilling its purpose for the following reasons:-

a- The school has recuited its pupils at too early age. It is chear that a boy or girl at this age of 12 is unable to choose the type of education which is most suitable for his



abilities, aptitudes and interests.

b- The pupil who completes his studies is supposed to enter the work at the age of 15. At this age he is too young to bear the responsibilities imposed on him by his position in industry or business as a skilled worker.

c- Modern industry requires from the skilled worker a high degree of general education. Primary education has been considered not sufficient to give the pupil a good general education upon which technical education can be based.

d- The school has failed to establish a good tradition of co-operation and understanding with industry and business. Therefore, it could not appreciate and adapt itself to the changing demands of industry. Businessmen always criticize its curricula as outmoded, some of its specialisations as not required, and its graduates as unable to use the knowledge they have obtained at school in practical life.

The failure of the preparatory school has stimulated the authorities to stop the further development of these schools as a part of a long policy to abolish this type of schools. Training centres for skilled workers have been created, most of them under the control of the Ministry of Industry. Unfortunately the development of these centres is not sufficient to meet the requirements of skilled manpower. These centres also suffer from lack of co-operation and co-ordination with the several authorities interested in technical training.



### Secondary general education

It is important first to note that under this type of education I shall mean both the preparatory and secondary general schools.

Our system of secondary general education has failed to adapt itself to the socio-economic forces of this time. In spite of the several changes in the structure of the system, the latter continues to exhibit the main features and spirit of the old traditional secondary education.

Firstly: secondary general education is still the privilege of our strong middle class. It is true that the free education policy has opened the secondary general school to all who possess the natural abilities- as measured by the the examinations- for this type of education. But most of the secondary schools are situated in big cities, and the majority of their pupils are the sons of government officials, people of the professions industry and commerce . As a result our secondary school becomes one for an élite who remarkably belongs to a clearly defined middle class.

Secondly: Our system of secondary general education still exhibits the features of a system primarily designed to prepare pupils to go to universities and higher institutes. The curriculum of the schools is determined by the relationship between these schools and the universities. Thirdly: Secondary general education still exhibits the antithesis between general and



technical subjects. Secondary schools still follow a per - university preparatory model and aim to stress the validity of a severe academic and scientific dicipline.

### Primary education

Our primary education has extended greatly in recent years. Between 1953/54 and 1962/63 the number of pupils at primary ~~schools~~ has increased from 1.392.741 to 2.909.578, an increase of more than 100%. Now more than 70% of the population at compulsory school age find places at primary schools, and by 1970 it is planned that each child at this age will find a place at school.

But this expansion of primary education was not only at the expense of training more engineers, technicians and skilled workers , but also at the quality of this education. An indicator to the quality of education is the pupil/teacher ratio or the puipl/headmaster ratio.

### Changes in pupil/teacher ratio at primary schools

Year	No. of Pup.	No. of Tea.	Ratio
53/54	1.392.741	45.869	30.3/1
54/55	1.580.089	43.441	36.3/1
56/57	1.975.874	51.631	38.2/1
59/60	2.452.377	63.428	38.6/1
61/62	2.754.566	71.069	38.8/1



Changes in pupil/headmaster ratio  
at primary schools+

Year	No. of Pup.	No. of Headm.	Ratio
54/55	1.221.385	5168	236.3/1
56/57	1.574.468	5500	286.3/1
59/60	2.094.703	5061	418.9/1
61/62	2.377.909	5507	431.8/1

The lowering of the quality of primary education has been reflected on the standard of pupils at school. Parents are often complaining that the primary school is not good in doing its job. Many pupils leave the school without being able to read correctly, to write a simple letter or to solve a simple arithmetical problem. In addition the school curriculum has not been adapted to the changes in environment. Primary education has not contributed to community development especially in rural areas where it failed to help the children to improve their agricultural activities.

It is now clear that our educational system at all its levels is not meeting the requirements of this society. Our educational system needs a radical overhauling both in structure and content. It is not our purpose now to devise a detailed picture of a new educational system for the future which would meet these requirements. Our aim is only to put the broad outlines of this new system. In devising any changes in an educational system, it is important, however, that the new system should not be alien from the accepted values, traditions, history, national characteristics ... etc of this country.

+ Government schools only



Practical work should constitute as well an important part of the school curriculum. In rural areas this work must be adapted to help the child to develop his local community, and to fit him at the same time to his developing community. It should however be noted that this practical work must not be vocational. Its aim is not to prepare the child for any future occupation, but to develop his interests and aptitudes and to give him a respect to manual work. The conference of African States on the Development of Education in Africa held in Addis Ababa in 1962 recommended that primary education should be "general and not vocational in its intention, including elements which inculcate manual dexterity and respect for it, provide experience in creative activities and stimulate an intelligent approach to the practical problems of home and the community"<sup>1</sup>

Our primary education needs more efficiency in order to be of a better quality. This necessitates a better pupil/teacher ratio, which means an increase in the number of the primary school teachers. It also requires greater efforts to improve the standard of those teacher and the physical facilities at schools both in buildings and equipment.

### 3- The preparatory stage

This stage caters for pupils between the ages of 12 and 15. By 1985 it should be planned that this of education would

(1) Conference of African States on the Development of Education in Africa. Addis Ababa, 1962, Final Report, PP.23-24.



recruit all children at this age by raising compulsory schooling up to the age of 15. The school at this stage must be comprehensive in character and the education must be general in essence. The education being general does not in any sense mean that it is theoretical. At this stage differences in the individual's interests, aptitudes and capabilities are manifested. Therefore education at this stage must aim to discover the children's innate differences and orient them to the type of education most suitable for their ~~interests~~ and abilities. It must also be diversified in order to give each child the type of education for which he is most suited.

Having taken the individual differences into consideration, it is equally important to have in mind the future expectations of the school graduates as determined by manpower requirements. It is obvious that the majority of the preparatory school leavers will enter directly productive life, and a good deal of them will start some sort of vocational training to be skilled workers. A considerable number of graduates will continue some sort of higher technical education to prepare themselves to be the future technicians and perhaps engineers and technologists. Finally a few of them will enter the general secondary schools to be the future people of the professions, administrators, scientists, technologists ... etc.

Having all this in mind we propose that the first year of this stage must be general for all pupils. It would be



Practical work should constitute as well an important part of the school curriculum. In rural areas this work must be adapted to help the child to develop his local community, and to fit him at the same time to his developing community. It should however be noted that this practical work must not be vocational. Its aim is not to prepare the child for any future occupation, but to develop his interests and aptitudes and to give him a respect to manual work. The conference of African States on the Development of Education in Africa held in Addis Ababa in 1962 recommended that primary education should be "general and not vocational in its intention, including elements which inculcate manual dexterity and respect for it, provide experience in creative activities and stimulate an intelligent approach to the practical problems of home and the community"<sup>1</sup>

Our primary education needs more efficiency in order to be of a better quality . This necessitates a better pupily/teacher ratio, which means an increase in the number of the primary school teachers. It also requires greater efforts to improve the standard of those teacher and the physical facilities at schools both in buildings and equipment.

### 3- The preparatory stage

This stage caters for pupils between the ages of 12 and 15. By 1985 it should be planned that this of education would

(1) Confernce of African States on the Development of Education in Africa. Addis Ababa, 1962; Final Report, PP.23-24.



recruit all children at this age by raising compulsory schooling up to the age of 15. The school at this stage must be comprehensive in character and the education must be general in essence. The education being general does not in any sense mean that it is theoretical. At this stage differences in the individual's interests, aptitudes and capabilities are manifested. Therefore education at this stage must aim to discover the children's innate differences and orient them to the type of education most suitable for their interests and abilities. It must also be diversified in order to give each child the type of education for which he is most suited.

Having taken the individual differences into consideration, it is equally important to have in mind the future expectations of the school graduates as determined by manpower requirements. It is obvious that the majority of the preparatory school leavers will enter directly productive life, and a good deal of them will start some sort of vocational training to be skilled workers. A considerable number of graduates will continue some sort of higher technical education to prepare themselves to be the future technicians and perhaps engineers and technologists. Finally a few of them will enter the general secondary schools to be the future people of the professions, administrators, scientists, technologists ... etc.

Having all this in mind we propose that the first year of this stage must be general for all pupils. It would be



called an orientation year during which each pupil under the supervision of his teacher would be oriented to the type of education most appropriate to his interests and aptitudes.

Starting from the second year the school curriculum must be organised in a way which may ensure that each pupil receives the type of education most suited for him. Groups of subjects may be arranged in a form of streams or sections. Pupils who are interested in learning for its own sake, in books, in theoretical reasonings, those whose intelligence lie in the domain of ideas and thoughts would form the theoretical or academic streams. Those who find their interest and abilities in the field of applied science and applied art would form one or more technical streams. And those whose ability lie in the realm of reality and deal more easily with concrete matters would form a practical stream. In the first stream more emphasis will be given to general subjects and languages. In the second, stress would be given to science and technical subjects. In the third, practical subjects in commerce, agriculture, or craft training should be given to predispose school leavers to productive occupations such as farming, commercial and craft work.

It should, however, be stressed that the different streams must be of equal standing falling all within the comprehensive plan. A common core of subjects, both theoretical and practical, must be given to all pupils. It should also be stressed that the choice of one stream would not be determined



at the age of 13. There would always be facilities for transfer from one stream to another, if the original choice proved to have been unsuitable.

#### The secondary stage

This stage would cater for pupils between 15 and 18 or 19 who had completed their preparatory education and passed successfully a certain entrance examination. Education at this stage must be diversified according to the future careers in life. The diversification at this stage must also be within the frame of the comprehensive idea. A rigid demarcation between the general, scientific and vocational education must not be allowed. Therefore each type of education at this stage must ensure a certain minimum of general education.

The diversity principle necessitates the grouping of teaching subjects into different branches. Subjects in each branch must tend to group themselves in a homogenous manner around a central and common nucleus so that each branch can share with the others a common and basic instruction.

Modern industrial and technological development has given to the teaching of science a special importance. This applies particularly to technical education which requires an entirely new kind of science preparation. But the same arises for the general schools which will send the greatest number of students to universities and their science and technological faculties.



Having these principles in mind the secondary stage would include the following types of institutions:

- a- General secondary schools
- b- Technical secondary schools
- c- Vocational training centres

a- General secondary schools

We can take our existing general secondary school as a base for the proposed new school. The school will cater for pupils at the age of 15 who have passed successfully an entrance examination especially designed for these schools. It is expected that the majority of the pupils entering this examination will come from the general branch of the preparatory school. A considerable number may come, however, from the technical branches. The first year at school will be a common course for all giving a balanced curriculum of scientific and general subjects.

Starting from the second year there will be three branches: literary, scientific and technical. The literary branch would put emphasis on the study of languages and general subjects. The scientific branch would stress the study of pure sciences. The technical branch would lay more emphasis on the study of mathematics, physical sciences, technology and technical drawing.

It is important to note that pupils who complete their education from the technical branch are not in general destined for any position in practical life. They are expected to pursue



their technical studies at the highest level to become administrators and managers, research workers, and topmost engineers and technologists.

At the end of the 3 year course at school pupils have to sit for a final examination, success in which would give entrance to university faculties and higher institutes.

b- Technical secondary schools

We shall also take the existing secondary technical school as a starting point. There are at present three main types of technical schools: industrial, commercial and agricultural. The three types of schools will remain, although more than one type of school may be grouped together, or one or more types of school may be attached to a general secondary school. This aims at two things:

a- A realisation of the comprehensive idea of schooling by which pupils studying technical and general subjects may stay together having a common understanding and enjoy a broad and diversified cultural atmosphere.

b- It will make education less costly by using teachers, premises and equipment more economically, especially in places where it is not easy to establish a school for each type of education.

The technical school will cater for pupils who have completed their preparatory education and passed successfully a special entrance examination. It should be expected that the majority



of entrants will come from the technical branches of the preparatory school. In addition to the entrance examination a special test in aptitudes and physical fitness must be undertaken by the vocational guidance service.

Before entering the school, the pupil must make his mind about the type of technical education he likes to study. The service of vocational guidance must help him in choosing the type of education most suitable for him.

The school courses will generally cover three years. An additional year (or in some cases two), which can be called specialisation year, may be provided for those who wish to specialise in a specific branch of industrial or agricultural work. The first course in each type of school will be common for all pupils. A special emphasis must be given to the general and basic scientific subjects. Not less than 50% of the time-table must be given to the general subjects, the rest will be divided equally between the basic sciences and the technical and practical training.

Specialisation within each school will start from the second year. The specialities should not, however, be too narrow, and must allow the pupil to have an allround understanding of the techniques and knowledge of his branch of study. Technical training must help the school graduate to transfer easily from one job to another within his own speciality. In the second and third years more time should be given to the theoretical technical subjects and practical training at the expense of the general



subjects and basic sciences. A pupil who successfully completes his 3 year course is awarded a technical diploma in his speciality by which he is entitled to work in industry, agriculture and commerce as a technician. In industry he may work first as a skilled worker but in the path of time he will be the foreman and works managers. Those who like to have more technical training in an industrial branch which requires more institutionalised technical training and a high degree of specialisation may stay for the additional one or two years. The pupil who successfully completes this specialisation course will be awarded a certificate in his specialised subject.

Each technical school may have a theoretical technical branch similar to the technical branch of the general secondary schools which prepares for technical faculties and higher institutes. Pupils may transfer from the theoretical branch to the other technical branches or vice versa under certain conditions and a special examination in the necessary subjects.

The important feature of the new technical school is that it must be flexible and adaptable. It must be prepared to introduce new branches or specialisations, or change its curricula as soon as changes in industry and technology necessitate such things. Therefore the school must be in close contact with local and national industries. This may be achieved by creating for each school an advisory board representative of the industries and labour organisations in the community which the school serves.



This board will advise the headmaster and staff on the new changes in the school's curricula to meet the changing requirements of technical personnel. The school must also reflect the atmosphere of industry, and its workshops must be run on a basis not dissimilar to the industry's workshops. The school workshops must apply therefore, the production system without sacrificing the educational purpose. Pupils must stay at school a full time leaving it by the end of the day.

Finally it is important that all types of technical schools must provide the pupils with a common course of the general subjects which is considered indispensable for the future technician.

#### c- Vocational training centres

A considerable number of those who leave the preparatory school would be trained to be skilled workers. The training of skilled workers will almost entirely be the responsibility of vocational training centres. We consider that vocational training must be under the control of the educational authorities. All bodies interested in this training such as labour organisations industrial establishments, Ministry of Industry...etc, must however, be represented. We emphasise, therefore, that the vocational training centres must form a part of the general comprehensive system of education.

Vocational training centres are to be created by the Ministry of Education according to a certain policy of manpower



determined by plans for social and economic development. Industrial enterprises must be obliged to establish its training centres within the limit<sup>of</sup> a certain budget determined by its wage bill. Enterprises which are not able to create its training centres must be taxed in percentage of its wage bill to finance the vocational training centres. Small enterprises and workshops which are willing to undertake the training of apprentices may be encouraged to do so by a system of subsidies from the State.

The policy of vocational training is made by a Permanent Committee for Vocational Training in which all parties interested in the training of skilled workers are represented. This Committee will be presided by the Under-secretary of Ministry of Education for Technical Education, and will advise on the following matters:

- a- The drawing up of list of trades and specialities which require vocational training;
- b- The drawing up of model programmes for apprentice training, up-grading and re-training;
- c- The numbers of skilled workers to be trained in each vocation or speciality;
- d- The determination of the general regulations for training and examinations which terminate each training;
- e- The estimation of the budget of vocational training on the national scale.

Associated with this Permanent Committee there would be two types of organisations in which the educational, industrial and labour bodies interested in vocational training are



represented:

1- The National Organisations: These organisations are set up on a trade basis, that is to say, that each one of these organisations would be responsible for one trade extending its activities all over the country. Each organisation has the following functions:

a- The drawing up of programmes and curricula for general and technical courses for its trade,

b- The drawing of examination papers at the end of the vocational training,

c- The supervision of the training of apprentices within industry, and setting up standards for training ,

d- The determination of such conditions that should exist in each enterprise undertaking the training of apprentices.

e- The draft of research schemes for developing vocational training in its specified trade.

2- The Regional organisations: These organisations would be set up on provincial basis, that is to say each would restrict its activities to its provincial boundaries. Their main concern would be the supply of information about vocational training and recruiting apprentices for the vocational training centres or traditional apprenticeship. They would stimulate employers to undertake the training of apprentices, and parents to send their children for this type of education. They would also be concerned with the welfare of apprentices during their training in industry, and solve their social and psychological problems.



Successful pass in the examination will be confirmed by a certificate which must have a national recognition.

The receipt of this certificate puts the apprentice in the wage scale of a skilled craftsman.

In addition to the vocational training centres, traditional (or artisinal) apprenticeship must be promoted and encouraged especially in craft and art trades, automobile engineering and many others. Traditional apprenticeship must receive a legal recognition by issuing an Apprentice Law organising the whole system. Funds should be allocated to finance the system and to give premiums to those who undertake apprentice training. The National and Regional Organisations would be responsible for the supervision and good running of the system. Traditional apprenticeship should also be terminated by a final examination and a certificate of national recognition would be given to those who successfully pass the examination.

#### The higher stage

This stage of education would cater for students generally over the age of 18, who have successfully completed their secondary education. In this stage there would be two types of institutions: the universities, and the higher technical institutes.<sup>¶</sup> As has already been noted, it is unwise to limit higher education to one type of institutions; the country needs hands and brains trained in different ways to fill the varied technological posts in the

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<sup>¶</sup> In this paper we did not consider the teacher training institutes and colleges or the special high institutes.



diferent fields of activity.

### The universities

It is beyond the purpose of this paper to attempt to outline any reform for the universities. Few elements, however, have to be ensured in such a reform.

#### 1- Unity of teaching and research

The university must stick to its old tradition of unity of teaching and research. Its function must combine the education of the youth and the dissemination of knowledge. More time should therefore be given by the university professors and teachers to the students. This would be achieved by improving the teacher/student ratios and adopting more effectively the tutorial system.

At the same time the universities must not neglect research. Recent years have witnessed a world wide trend to isolate research from the universities and devote it almost mainly to special research centres. This trend has appeared because of the importance of research specially for defence and military purposes. It has emerged as well because of the high cost of research specially in the technological fields which the universities cannot afford, and the necessity to assign some of the genius of the nation solely for research and development.

In spite of that, research in the universities must be promoted. It must have its academic and pure scientific



character more related to the dissemination of human knowledge, leaving the research institutions to the more applied and technological character. This should not however mean that research in the universities must be alien from the problems of industry, agriculture and the other economic activities. Various types of contact between the universities and industry and other economic sectors must be established in the field of research by which the universities will be aware of the research problems outside its walls.

## 2- Expansion of scientific and technological training

The universities must be aware of the changing demands of society. Modern industrial societies require a great number of technologists, scientists, agriculturists, administrators and other higher technical personnel. Therefore there would be a rapid expansion of the faculties of engineering, science, medicine and other practical faculties, and this expansion must be according to a manpower plan within a comprehensive plan for economic and social development.

Expansion of university education require generous funds, more physical facilities and greater increase in the teaching staff. Regulations for the recruitment of teaching staff need reexamination. Good B.Sc. and M.Sc. men with experience may be promoted to the teaching responsibilities. The Ph.D degree should not be the golden and sole way for teaching jobs, and the doors should not be closed in front of other men to contribute to the



university teaching.

3- Setting up balances between technology and the humanities

The universities must strive to establish a balance between the technological and scientific studies on one side and the humanities on the other. It is of course expected that by the increasing demand for scientists and technologists the balance in the universities will go for the technological and scientific side. Creating the balance is not, however, by checking the number of students studying science and technology. It can only be achieved by setting up a synthesis of the elements of our modern culture, both human and scientific, and making the speciality of each student a centre around which his general education may be built up.

4- Decentralisation of university education

Our university education is more or less centralised in Cairo. The students of Cairo, Ein Shams and Al-azhar universities constitute the large majority of university students. Many of the university problems arise from this centralisation. The university is not only a teaching or a research institution. It is equally a centre in which culture in its broadest sense is generated, and transmitted to all areas around it. If only for this reason, there should be more universities in this country with much smaller numbers than the Cairo universities.



#### 5- Creation of post-graduate schools

The rapid growth of knowledge and the increasing tendency towards specialisation have made it impossible to amass in the undergraduate course all the knowledge required for the specialist. Narrow specialisation in the first degree level is not good for the changing requirements of occupations and also for the development of knowledge itself, where new sciences are emerging at the boundaries of more than one old subject.

These facts make it very important to develop post-graduate schools or departments which would recruit a greater number of university graduates and offer them courses in more specialised subjects.

#### 6- Closer contact with industry

It has already been noted that better contact should be established between universities on one side and industry and the other economic sectors on the other. This contact is better created through research programmes. Problems of industry may be given to the universities for the finding of solutions. A system of industry grants or research contracts between industry and universities may be created to finance these programmes. University professors and experts may be released for some time to work in industry research units, and industry men may as well do some work in the university as research workers or lecturers in their specialities.

#### The higher technical institutes

The higher technical institutes must take an approach



to higher studies markedly different from the university approach. The institutes' approach must be more applied and practical, and especially concerned with utility and production. Therefore each institutes must be given more freedom in designing its curriculum and emphasising the special fields of study more attached to the needs of its locality. It is important also for this purpose that each institute must have an advisory committee which would advise its dean and teaching staff on formulating the education policy of the institute. In this committee people from the locality with experience and interest in the functions of the institute must be represented.

There should be two types of the high technical institutes whose functions and identities must be clearly defined. The two types of institutes may be housed on one premises, and perhaps administered by one authority, but their aims and functions are quite different.

The first type of institutes should be equal to the university faculties. Their courses would cover four or five years at the end of which students would be awarded a B.Sc. degree or a degree of equal status. Some of these institutes may be in the nucleus of a technological university, or a complete university with theoretical faculties beside the practical ones. The teaching staff must be of the same caliber as university staff, and facilities for research must be provided. The number of these institutes must by necessity be limited. Their courses must be of a practical and utilitarian approach than the



universities, but they must be equally based on a sound scientific and theoretical ground.

The other type of institutes which we shall call special technical institutes must be of an educational level lower than the first type and of course lower than the university faculties. These special institutes would recruit the same caliber of students (secondary school leavers from both general and technical schools), but their courses would cover 2 or 3 years. Their curricula must concentrate on the industry techniques and the practical problems much more than on the scientific and theoretical principles. More time should be given to practical training, and every student must spend some time for practical work in industry. This time may extend to one year and must be considered as an integral part of the study course. Finally these institutes would provide a great variety of specialities which industry requires.

It is now obvious that the aim of the special technical institutes is to train the higher grade technician which modern technology has made their function of high importance. At the same time the training of this category of manpower will of course release engineers and technologists from occupying jobs less than their real capacity, and spare them for the highly technical functions.

It is very important that there would be some way by which the abler graduates of these institutes could join the first



type of technical institutes or the university faculties. Good graduates may be admitted to third year of the latter institutions after passing a special examination in some basic sciences.



### Conclusion

Our society is living a time of rapid change. Science and technology have exerted much influence on the direction of this change.

Unfortunately our educational system has not been able to match or adapt itself to the new technological and social changes. It is, therefore, largely obsolete and needs a complete re-examination.

The only basis on which we can hope to establish a suitable educational system is the study of the structure of occupations in the various economic sectors and its expected future changes as determined by future trends in the requirements of economy.

Education has increasingly been recognised as a factor of production. It is no longer considered only as a consumptive goods. Success of plans of national economic and social development in due in many respects to effective structure of education. This necessitates that educationists and educational authorities must have a clearly defined economic concept of education which should not be isolated from old concepts e.g. cultural, social, democratic ... etc.

The only framework for the new system of education which would meet the requirements of manpower, and would suit the socialist and democratic structure of this country is the



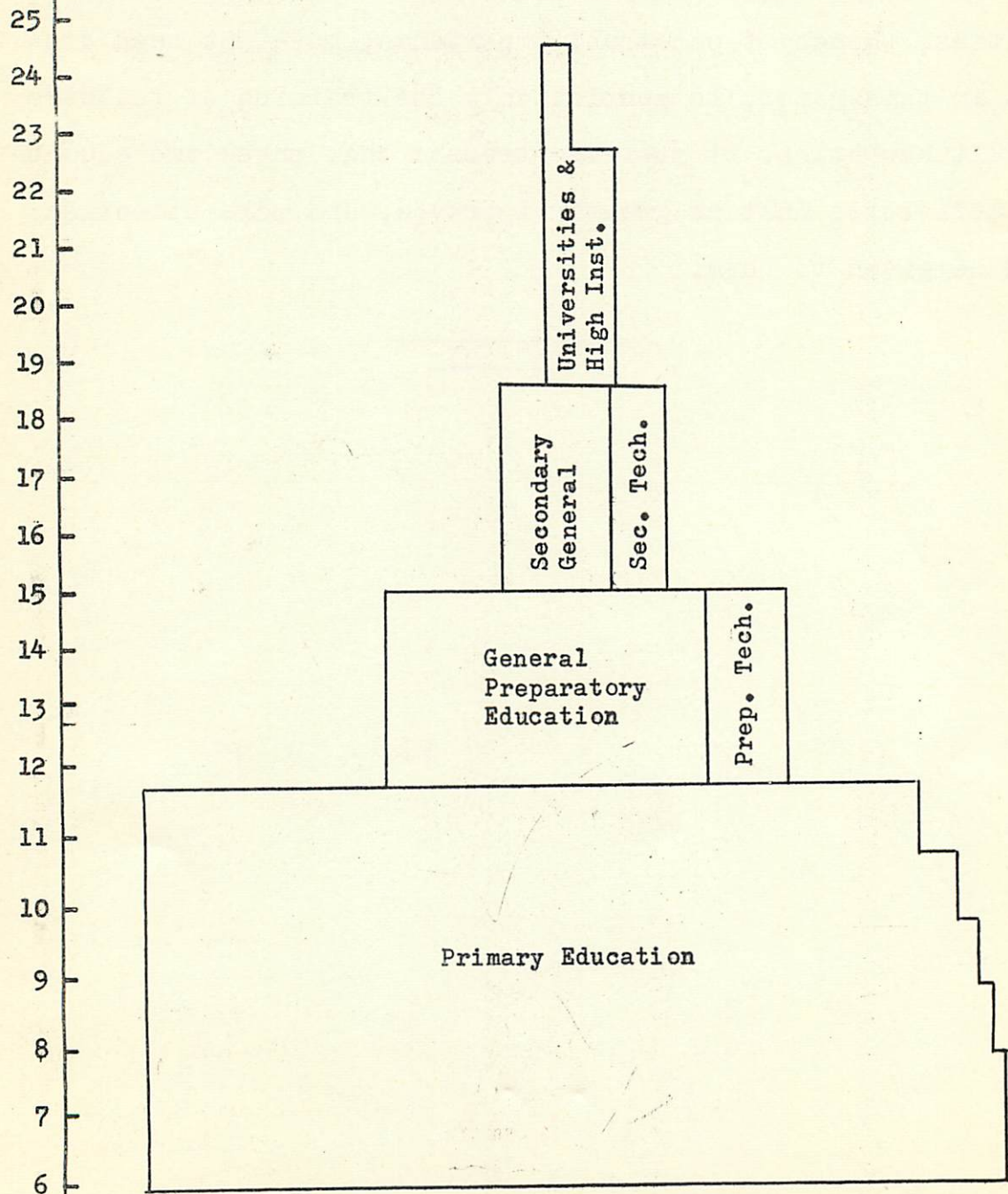
comprehensive idea of schooling. All types of education will be of an equal status. The system must be united though widely diversified. It will be flexible and adaptable to the new forces from within or without.

It must be noted that other spheres of educational activities, though of paramount importance, have not been discussed in this paper, to mention only the training of teachers and adult education. It must be stressed that these two educational activities must be greatly improved, and more attention should be given to them.

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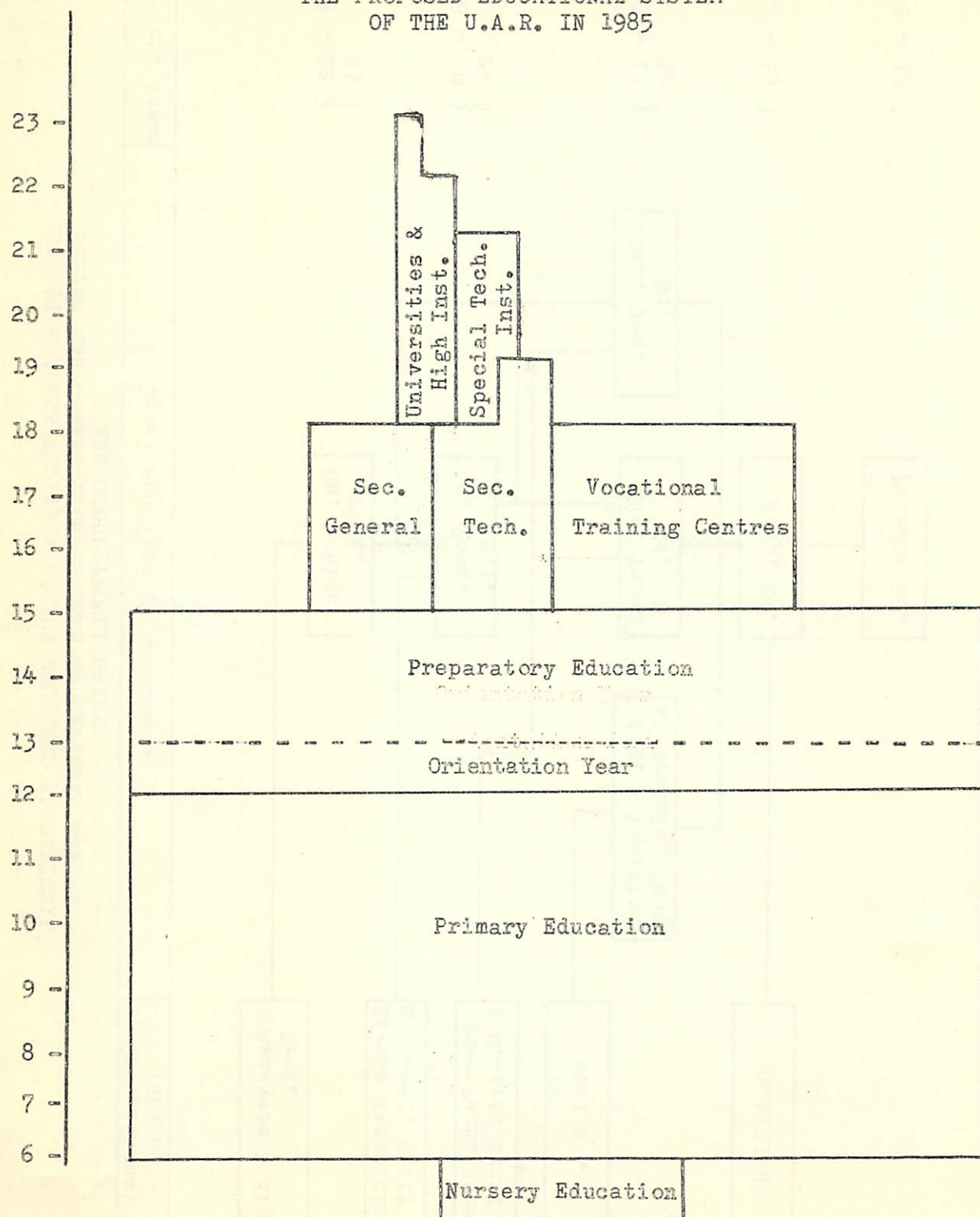


# THE PRESENT EDUCATIONAL SYSTEM FOR THE U.A.R.





# THE PROPOSED EDUCATIONAL SYSTEM OF THE U.A.R. IN 1985





TENTATIVE CLASSIFICATION OF THE PROPOSED EDUCATIONAL  
SYSTEM AND CORRELATION BETWEEN EDUCATIONAL STATUS  
AND OCCUPATIONAL GRADE

