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MODERN STRATEGICAL OF EDUCATIONAL PLANNING

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**MODERN STRATEGY OF
EDUCATIONAL PLANNING**

by

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Educational Planning*

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Inaugural Lecture Series 19

INTRODUCTION

MR. VICE-CHANCELLOR, I understand that when a university professor is appointed one of his first public duties is to give an inaugural lecture, during which he is expected to justify his entitlement to the occupation of the professorial chair. His audience is, however, mixed; consequently, while flashes of scholarship may illumine his exposition he must show the social relevance of his discipline in order to get a proper hearing. More expected of him, I gather, is to show the extent to which he can justify that he and his colleagues are capable of extending the frontiers of knowledge in their specialised field and of inspiring the students who are committed to their care, so that mankind may profit from what they discover.

In this, I believe, lies the justification of the shelter and protection which universities throughout the world give to the scholars within their walls. I have chosen Modern Strategy of Educational Planning as the theme of this lecture because of its relevance to the rigorous battle for survival which all developing countries are facing in this scientific and technological age.

HISTORICAL FOUNDATIONS OF EDUCATIONAL PLANNING

Educational planning as a university discipline is a post-war phenomenon which can trace its roots to antiquity. There can be no doubt that in pre-literate societies the elders planned and transmitted to their children the tribal lore that ensured food-getting, implementing, shelter-building, hunting, village defence, healing, worshipping, placating the gods, and burying the dead. By the same token, the priests, nobles and warriors of ancient Egypt, Babylon and Assyria planned and implemented the education of their successors in order to preserve the *status quo* of leadership and domination over the toiling masses. It is probable that the art of writing which arose in the ancient civilisation and has been ascribed to the genius of a legendary god or national hero was also planned to ensure the continuous supremacy of the intellect and the preservation of power for those that are learned. The Babylonian library at Telló (c. 2700 B.C.) containing 32,000 books must have been planned.

The Greeks left for the world a magnificent legacy of planning. The Spartans, a minority people invaded often by foreign foes, planned to train their boys in the soldierly qualities of courage and obedience. The boys ran and jumped, wrestled and danced, threw the javelin and did gymnastics for eleven years before being garrisoned to learn the art and science of war. For their indoctrination they read the poems of Homer extolling those who died for

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their country. Plato was a great educational planner of ancient Athens who wanted the governing class of warriors and rulers to be given specialist education in which those with practical abilities became warriors and those with wisdom and philosophical insights became rulers or guardians. For the latter, a long period of education in mathematics, philosophy and leadership was prescribed.

The Romans, influenced by Greek culture, planned the teaching of rhetoric, philosophy and law to prepare their children as citizens of a great empire. The importance which they attached to rhetoric or oratory made the writings of Cicero and Quintilian famous. What is more, the Emperor Vespasian (9 to 79 A.D.) first made educational planning a state responsibility while Diocletian fixed the rates of pay for different categories of teachers. The educational philosophy of these emperors was extended throughout the Roman empire according to plan.

The Christians, originally a poor and illiterate religious group, became a great educational force for centuries from the moment they converted citizens highly placed in the social, educational and political ladder. The dilemma which arose at the time about the relative weight to be given to religious and secular teaching has continued throughout the centuries with varying fortunes befalling the protagonist of one idea or the other. The Ecclesiastic won at first and planned the teaching of rhetoric, philosophy, arithmetic, music, geometry and astronomy but made them subservient to Christian theology. But when Europe was plunged into the Dark Age for four centuries, education was virtually wiped out except in the monasteries where the clergy were trained in theology.

Rebels like Adam Bede, Beothius, Isidore, Casiodorus criticised this concentration on theology. Some bishops opened schools with the support of rulers like Charlemagne to meet the needs of the age. Palace schools were also established by kings, while the nobility planned schools for their children, engaged tutors to train them in courtly manners, physical prowess, hunting and military sports. They read and wrote, gave commands and learnt to be worthy knights, prudent masters, and sensible managers of the estate.

The planning which took place in medieval times followed when, after the crusades, Western Europe met the Moors of Spain, saw the universities of Toledo and Cordova, and became familiar with the advances already achieved by the Mohammedan Arabs in literature, philosophy, law, medicine and astronomy. The philosophy of Ancient Greece came in. Scholasticism and disputation became the hallmark of intellectualism and the first universities of Europe were planned and established by scholars and students.

During the Renaissance in the thirteenth century, no holes were barred in educational planning and expansion. As small settlements grew into cities, the guilds, industry and trade planned the training of the prototype technicians of our day: scientific exploration and researches followed the stimulation of Greek philosophy and science; literary and graphic arts flourished; nationalism was born in the midst of these fermentations. A few leading educational philosophers like Agricola in Germany, Thomas More in England, were able to reconcile the renaissance spirit with the traditional theology of the times with varying degrees of success.

The Reformation, which followed the Renaissance, was not without its educational planners. The Lutherans remodelled the Latin gymnasiums of Germany; while the Calvinists in Switzerland, the Huguenots in France, the Puritans in England and Wales, the Presbyterians in Scotland also planned the transformation of the grammar schools to harmonise with their intellectual beliefs and religious faiths. All these plans and practices were largely dominated by religious and classical traditions, and the common needs of man as we know them today were ignored.

This situation led to the emergence of the great educational planners and philosophers of the seventeenth century. Bacon pleaded for the advancement of learning. Milton condemned the pedantic teaching of the classics in a style that was itself replete with the rhythm, assonance and cadence of Latin prose. Newton brought light to Cambridge and revived mathematics there. The decadence that had overtaken the universities led to the planning and creation of the Berlin Academy in Germany, the Royal Society in England, the Academie des Sciences in France — all of them outside the universities. And so it happened, that the children of the nobles received their instruction in the academies and not in the universities.

The eighteenth century opened with nobody to care for the children of the poor. Elementary schools were few and inadequate. Education had been planned and developed from the top. It was at this stage that John Locke pleaded for toleration. A philanthropic movement began when Rousseau wrote *Emile* and urged teachers to study their children and make them happy. Charity schools were planned and opened in Britain by the Society for the Propagation of Knowledge while St. Jean Baptiste de Salle did the same in France. Elementary education for the many therefore began as a philanthropic movement.

National planning of education properly so called began in modern times in Prussia in 1808 after Germany had suffered a defeat at Jena. A department of education was created that year, and the university of Berlin followed the following year. Gymnasium and Realschule were founded to give secondary education. Later elementary schools (Volkschule) were established which became compulsory and free throughout the country before 1900. France also revived central state control of education. By 1833 primary, senior primary and teacher training colleges were planned and established under Francois Guizot, a scholarly and energetic Minister of Education. By 1880, Ferry, another Minister, had introduced secular, free, compulsory primary education; secondary schools (lycees) for boys and girls were opened; technical education was developed, and fifteen universities came into operation in France. In England, government control of education was late because of the controversy with the Church and the influence which the various denominations had. It was in 1833, while the French Government had taken complete control in France, that Britain gave its first building grant to any school. Inspection thereafter followed and by 1870 an elementary education act was passed which became compulsory in 1880.

In our century, educational planning has reached a world-wide dimension. This has been due to the growth of an egalitarian society, the universal declaration of human rights and the extension of democratic principles throughout the world. Statesmen passionately support educational schemes. The late Sir Winston Churchill¹ is reported to have said 'The future of the world is to the highly educated races, who alone can handle the scientific apparatus necessary for prominence in peace or survival in war.' Nearer home, Chief Obafemi Awolowo has advocated free education for all from the primary school to the university in order to further the process of democratisation. Nkrumah was also an ardent believer in democratisation, while Azikiwe and Nyerere have spoken in the same strain. The demands of modern life and the continuing rise in the standard of living have forced many countries to begin to plan their educational system with a thoroughness second only to that of war. After World War I the Nazis planned with teutonic totality under Hitler, the Fascists did the same under Benito Mussolini, and the Russians rebuilt Soviet education with an efficiency which continues to escalate. After World War II, this belief in education planning is reflected in the extent to which manpower forecasting and projection have dominated higher educational planning and begun to

influence not only the terminal offerings of the secondary schools, but also the embryonic stages of instruction given in kindergarten and elementary schools.

World population continue to rise posing grave questions of staffing, building, equipment, finance and legislation to educational planners. The expansion for developing countries will double by 2000 A.D. At the same time the world as a whole must face the explosive growth of knowledge. If 90 percent of all we know has been found out during the past eight years, what will happen to us who live in the scientific and technological deserts of the world while this exponential growth continues. A reformulation of scientific and technological education is going on all over the world. New mechanisms for the storage and retrieval of information are being devised. New modes of learning are also being planned and evolved. The scope of secondary education is being widened. The boundary lines between primary and secondary, between secondary and tertiary are being blurred because information explosion has reached a critical threshold. There are things we know through the mass media and personal contact despite ourselves. Only through planning can we become the arbiter of our educational destiny. Furthermore, education is no longer restricted to school life; it has become permanent and continuous from birth to the grave. Teacher training has acquired a new dimension. The modern psychology of learning has revealed potentialities in pre-school children unthought of a few decades ago. All this increases the factors which modern educational planners must consider and integrate into their schemes.

The contemporary situation is nevertheless reassuring. The United Nations Educational Scientific and Cultural Organisation continues to give international leadership in all these fields. The International Institute of Educational Planning is completely devoted to the promotion of the discipline in all the nation of the world. Many nations belonging to the United Nations help one another for they all realise that the problems we have described are at once human and international, for the survival of the human race depends on reaching a solution. In the year 1961, the Addis Ababa conference put educational planning in the centre of African educational endeavour. The 1967 Williamburg Conference in the United States presented these problems as constituting the World Educational Crisis for which global planning must be drawn. These then are the historical foundations of educational planning.

THE DOMINANCE OF PLANNING BY OBJECTIVES

The brief historical survey of educational planning throughout the ages reveals that the common factor which runs through it all is the dominance which the social objectives of the times exerted on the educational plans. Viewed in perspective, some of these objectives may be difficult for us to appreciate today. We must, however, remember Dante's warning in the *Divine Comedy* that the hottest part of hell is reserved to those who remain indifferent to the burning question of their time. In all probability, most of us would share the views of the planners if we lived during the period when these objectives were the order of the day. It would be correct to say that the planners were men who were able to identify their contemporary educational problems, evolve plans that would command the support of their fellow men, and provide solutions that all accepted as sound. Many of the major objectives include:

1. *Preparation of Citizens for War and Defence*

We find this in pre-literate societies, in Greece and Rome, among the Christians and Mohammedans who fought in the Crusades; in Germany after the defeat at Jena; and after World War I. Sometimes this objective precedes wars of aggression. Today the existence of military, naval, and air force academies is a reminder that military objectives for educational planning are not dead.

2. *Needs of Government and Administration*

The education of the ruling class has always been a major objective of educational planning. Plato wanted philosopher kings and proposed a curriculum for their training. The Romans wanted governors for their far-flung empire and trained lawyers and jurists. Many universities and administrative colleges were designed to train an elite civil service for the art of administration. Western European kings and feudal lords provided training for their sons and daughters in their courts where they learnt how to rule, lead and command. In our days, such colleges exist with many of the privileges which a meritocratic elite has always enjoyed.

3. *Promotion of Religion and Social Morality*

The extent to which religion has dominated educational planning throughout history has been tremendous. The ancient priests were powerful, so were the great religions.

in the way they controlled morals, behaviour and subservience to the will of something greater than men. There have been great educational controversies over the insistence on religious instruction. In modern times, however, a wave of secularism has started to dominate education planning. This may be due to the increasing dominance of science and technology, and the illumination of men's minds about those natural phenomena like thunder and lightning, rain and drought, light and darkness, birth and death, moon and stars, which are now scientifically explained. Here in Nigeria, we have been recapitulating world history, and secularism has arrived.

4. *The Manufacturing and Production of Goods*

Although the training of artisans, craftsmen and technicians was not pursued with vigour for many centuries, the rulers and war lords encouraged the workers to make the weapons of war, the implements of agriculture, the bricks for houses in which to live. Since the industrial revolution this form of education has been more and more encouraged. It has received much greater emphasis during the twentieth century when manpower requirements have shown that modern education must be democratised and structured to generate the wide range of specialisations on which the scientific and technological age depends. While at first the manufacturers have promoted the training, nation states have now taken a great deal of control into their hands in order to ensure the weapons of war and the tools for peaceful manufacture.

5. *Promotion of Trade and Commerce*

While trade remained domestic it was enough to teach commercial arithmetic in Bishops' schools and guilds; but as it became international, private schools of accountancy and banking, of insurance and international trade, of modern languages and transport had to be established both within and outside universities. These too had to be planned.

6. *Agricultural Development and Food Supply*

For a long, long time farmers were left alone and untrained. Agriculture as a profession was not very rewarding and many people abandoned it for lucrative trade in the

cities. The demand for food, however, continued to increase with population. Agricultural science then had to be planned and taught. Great advances were made in the United States and the so-called 'Green Revolution' has emphasized the importance of planning agricultural education, research and development if world famine is to be prevented.

7. *Medical and Public Health*

Medical education and training have always been pursued in order to maintain individual and public health. Before schools were established doctors passed their knowledge from father to son, later to apprentices who studied under them. The Hippocratic oath which doctors have taken since 300 B.C. binds all doctors till today and medical education has never been neglected by doctors in peace or war.

8. *Teacher Education Supply*

All educational plans have always emphasized the preparation of teachers not only in the methodology of teaching but in the substance of instruction. Planning became serious from the time nation states began to take control.

9. *The Humanist Tradition and International Peace*

The ravages of World Wars I and II have led educationists to realise that a peaceful international objective must be built into all educational plans at all levels so that the peace of the world may be maintained and the survival of man assured. The advances in thermonuclear and biological warfare have made this objective a necessity if mankind as a whole is to survive.

These various objectives dominating educational plans throughout the ages have become a complex which makes educational planning a more arduous task. The major lessons learnt are that no educational plan must be undertaken without a clear definition of its objectives, and, once the objectives have been defined, plans must be made, educators found, and resources placed at their disposal to train the manpower required to ensure that the educational objectives are attained.

THE EVOLUTION OF THE METHODOLOGIES OF EDUCATIONAL PLANNING

The evolution of the methodologies of educational planning has been a slow process, but the principal ingredients have been identified since Prussia embarked on educational development in 1808. Various educational planners have called these ingredients by various names – Chesswas used the term 'stages', Coombs spoke of the "elements of a system. I have been calling them the parameters of Educational Planning.

In 1954–1955 during the planning of universal primary education in the Western Region, I used those parameters as a frame of reference. During the 1964 Berlin symposium on educational planning, my paper presenting the Western Nigeria experience was cast in the same frame. When the International Institute of Educational Planning invited twelve educational planners to review the educational components of the French Cinquieme Plan, my critique was structured with these ingredients in mind. At a 1974 Nigerian Union of Teachers symposium on universal primary education, my paper had the title 'The Parameters of Educational Planning'. When the Education Society of Adeyemi College asked me to examine the present universal primary education in the light of experience, I was obliged to use these ingredients as my measuring rods. My courses at Standard in 1965 and currently at Ife derive their major components from these principles. For what it may be worth, the evolution of these ingredients, these elements, these components, or these parameters of educational planning is described below:

1. *The Teacher – Educator* of our day has evolved from the priest, the philosopher guide. As Education became diversified we found him as the educator and trainer in the science and art of war, medicine, law, architecture, music, rhetoric, science and technology. In the palaces of kings he was once a courtier. Today, he is the master with apprentices, the mentor and guide, the television broadcaster that reaches a big audience. He is at once an actor on the stage, a disciplinarian, a friend, a psychologist, an expert in his field of knowledge, an inspirer who leads his student to acquire the intellectual patrimony of mankind.
2. *Books and other Teaching Aids*: The laborious manuscripts in ancient libraries on which scholars pored have been replaced by books that are mass produced in modern printing presses. Libraries have been established, manuals

and work books published. Audio-visual aids have emerged, together with programmed individualised materials. Computer assisted instruction has also been introduced in technologically advanced countries like the United States. The manufacture of these teaching aids is a major consideration of planners when they have to deal with large numbers of learners. The logistics of their distribution is not a mean task.

3. *The Place of Instruction* is also an element that has been evolving. The shade of a tree, the cave dwelling, the tent, the corridor of a great house, the hall of a palace, the church, the monastery, the nunnery, the mosque, the hospital, the workshop, the laboratory, the classroom, the lecture theatre, the college, the lycee, the gymnasium, the complex of buildings in a modern university or college — all have provided shelter for teachers and pupils. The Jesuits provided airy dwellings; but the modern school architect receives a briefing about the function of educational buildings before presenting his design for approval.

4. *The Mobilisation of Students*

Parents and all adults have had to mobilise pupils for instruction. Sometimes by law and force as with the Spartans and Germans, sometimes by inducement and play as with the elites, and sometimes by group interests and aptitude. Classification by age and sex and by intellectual attainment has been introduced. The cohorts of students in the modern schools are counted and registered. The advancement of the cohorts is recorded and attendance registered. Sophisticated statistical devices are now used to keep under continuous surveillance the enrolment in educational institutions. Projections of future requirements are also undertaken 16 to 20 years ahead in order to prepare for the educational cycle which succeeding generations must pass through.

5. *Administration and Control*

The administration and control of education has undergone progressive changes. From parents it has moved to philosophers, teachers, guilds, groups, churches, other religious bodies, state and international organisations. Individuals have influenced administration and control — teachers, priests, bishops, philosophers, supervisors, inspec-

tors and directors. Invariably those who (pay) the piper have called the tune. The administering bodies have assumed the responsibility of planning, management, evaluation, research and development. Public ministries have been created and structured in a variety of ways during the past two hundred years in various parts of the world. By and large, administration and control are now in the hands of government although responsibility is often delegated to local bodies. The mechanism of control includes legislation, financing, punishment for the violation of statutory provisions since education has become a national affair.

6. *Financing*

The responsibility for meeting the cost of education has shifted through the years from the parents to guilds, churches, mosques, charitable bodies, endowments, and the state. Wealthy and highly placed parents in many countries still succeed in choosing the kind of education they want for their children, but the trend whereby the state assumes full responsibility for education can no longer be reversed; for it is a national investment which yields high dividends for the state as a whole as well as for the individuals. Some modern states like California raise state bonds which the community services.

7. *Curriculum Development*

The planning of the quantum of knowledge to be imparted at every stage used to vary from teacher to teacher; now it is systematised. In France it is centrally controlled and nationalised. In the United States, there is absolute freedom to experiment, to change and to improve. The explosive growth of knowledge has led to the continuous practice of incorporating new materials and removing obsolescent topics especially in mathematics, science and technology.

8. *Methodology of Instruction*

From learning by rote and lecturing, new methodologies of learning and instruction have evolved. The old system of apprenticeship and internship is still maintained in various forms to ensure personal contact, intellectual stimulation, and learning from example. The seminars and tutorials in modern universities preserve and continue the ingredient of personal contact. Findings from the psychology of learning

and of development are also affecting profoundly the process of instruction.

9. *Public Information*

General mass support of educational programmes is its life blood. Controversies have never ceased on the necessity for relevance to political, economic and social needs. This justification has been called for throughout the ages. In the complex situation of modern times, educational planners must increasingly justify their proposals to a highly critical public in order to get universal support.

10. *Manpower Budgeting*

The necessity of manpower budgeting as a basis for educational plans has evolved from such humble beginnings as the training of an officer corps, an adequate priest class, and a body of teachers. The International Standard Classification of Occupations² gives a list of designated posts that run into thousands, if the needs of modern times are to be met in food and agriculture, in medicine and health, in industry and trade, in science and technology, in education and other services like defence and maintenance of peace, order and good government. The manpower requirements are categorised as high, intermediate and skilled. The planning for the generation of this wide spectrum of manpower is a major responsibility of educational planners and a high degree of sophistication is shown today in the processes involved to bring these factors into play.

IMPACT OF OTHER DISCIPLINES ON EDUCATIONAL PLANNING

At the 1964 Bellagio seminar organised by the International Institute of Educational Planning to identify critical areas of research in educational planning, Justice Rojansky of Massachusetts created pleasure excitement among the consultants at breakfast one morning when he remarked that educational planning would make its most significant break-through by setting out deliberately to invite experts from other disciplines to bring their insights into its problems. It is well known that a science like physics would not be where it is today without mathematics, not biology without chemistry and physics. The stupendous advancement of medicine has been due to the cumulative contributions of various sciences.

While ministries in developing countries are not so well placed to ensure interdisciplinary impact on their programmes, universities are better provided for the purpose. In 1953, for instance, there was only one person in the Ministry of Education of the then Western Region of Nigeria with a modicum of mathematical pretensions and he had to cope with the arithmetics of planning with his inadequate intellectual equipment until he was relieved by a statistician, Professor Adenola Igun of this university. All over the world the impact of other disciplines on the methodology is increasing day by day. Some of the disciplines that have already made their impact include:

1. *Mathematical Statistics*

With the large number of students being enrolled, the incidence of drop-outs, the necessity for demographic projection of manpower requirements, and the flow dynamics of students and teachers, surveillance by demographers and statisticians has been a major contribution.

2. *Computer Technology and Informatics*

The development of computer technology and informatics during the last two decades has been reflected in a higher degree of sophistication in educational administration, pay-roll preparation, store keeping, management, automatic grading of candidates' scripts, computer assisted instruction, automatic storage and retrieval of information. Even in a country like our own, beginnings have been made and one can predict the rapidity of computer applications when it is realised that computer installations double in developing countries approximately every three years.

3. *Systems Analysis and Design*

The concept of systems analysis and design has been implicit in most educational planning programmes of any considerable dimension. During the Williambourg Conference, Philip Coombs outlined the application of systems analysis and design in educational planning and development. The concept implies the building up of a multidisciplinary team to plan and implement educational programmes. The United Nations Development Programme and UNESCO have consistently adopted this approach and drawn up PERT diagrams to indicate the delivery times of various components in their plans of operation.

4. *Industrial Production Technique*

At the 1961 Addis Ababa Conference of UNESCO on educational planning, the similarity between the education industry and other industries was vividly presented by Philip Coombs. He showed that the education industry had been set up to produce trained manpower. The similarities between education and other industries — land, raw materials, machines, workers, finance, etc. — were enumerated. The need for efficient management was emphasized. The marketability of the finished products, their standard testing, the productivity of the educational plant, the satisfaction of workers and their social welfare, the maintenance of the plant and the installation of modern machines based on new technology were emphasized. Conservative educationists have resented this analogy, but the truth is inescapable and has percolated fast. As a result, economists are now contributing to educational planning more than ever before.

5. *Trade and Commerce*

One major aspect of modern life is trade and distribution, both of which go under the general name of commerce. The goods of modern trade are usually advertised. The best advertisement is the durability and serviceability of the goods themselves. The education industry, centralised and directed under state auspices, needs to adopt some of the techniques of modern communication and publicity if mass support is to be assured. What is more, the products must be serviceable. Otherwise, the employment market will reject the graduate product.

6. *Political Science, Sociology and Anthropology*

Since education is a social service the contribution of sociology, anthropology and political science is without question. Right from the time of Plato, education has been intertwined with politics. In fact, it is generally recognized that *Plato's Republic* is more a treatise on education than otherwise. Educational Planners ignore political parameters at their own peril. The support of political leadership is a *sine qua non* and this has been so since the nation state emerged. The power of coercion which national and state governments exercise, the resources which they command,

the social conviction which they can mobilise, the administrative machinery at their disposal, show that an educational planner properly so called is outside his element when he does not function in an administrative-political milieu or secure its support.

7. *Law and Jurisprudence*

A comparative study of educational laws reveals the similarity of educational conditions in many countries and the variations in the legislative instruments adopted to keep programmes under control. The contribution of legislative enactments is a continuous exercise that can never end.

8. *Science and Technology*

A complete review of the contribution of science and technology to the methodology of educational planning is impossible in the short space of one lecture. Already the mass media of radio, television and newspapers have brought public information to a critical threshold which dwarfs the achievements of traditional information media. New materials resistant to great heat and abrasion are being introduced in laboratories and workshops. Neurological researches are opening up new vistas bordering on science fiction. Behavioural sciences and endocrinology are elucidating some of the phenomena difficult to explain a few decades ago.

9. *Modern Psychology*

It is perhaps too early to judge what break-throughs will emerge in the coming years in the psychology of learning but educational planners are on the watch out.

10. *Architecture and Environmental Design*

The schools of today are better than those of a few decades ago because of advancement in architecture and environmental design. Heating in the temperate zones has improved and air-conditioning has come into some tropical institutions, lengthening the hours of work and increasing productivity. Important mission-oriented researches are going on in the field of solar energy for heating and cooling

purposes. The explosive school population is forcing architects to design more functional and comfortable buildings in which the utilization of every square metre of space is maximised.

11. Military Strategy

Educational Planners do not often realise how their concepts have been influenced by principles of military strategy. The phenomenal development of education in Prussia after the defeat at Jena in 1808, in Russia after World Wars I and II, in Britain, Germany, Japan, U.S.A. and various countries of the world after World War II is sufficient justification for the examination of the impact of Military Strategy on educational planning. I had the privilege of drawing attention to this phenomenon in an opening address to a UNESCO seminar on Science Education Strategy in 1972 at Place de Fontenoy. In an analysis of the basic essentials of military strategy as understood in the United States, Britain, France and Soviet Russia, Colonel Vincent J. Exposito, Professor of Military Art and Engineering at the United States Military Academy outlined twelve principles, eleven of which have been adopted by post-war educational planners, consciously or unconsciously, with great effect:

Military Principles of Strategy	Educational Principles of Strategy
(i) Objective	Objective
(ii) Offensive Action	Educational Action
(iii) Unity of Command and Cooperation	Integrated Action and Cooperation
(iv) Massive	Achievement of Critical Mass in Men and Equipment
(v) Economy of Effort	Economy, Avoidance of Waste and Standardisation
(vi) Manoeuvrability and Freedom on the field of battle	Local Initiative
(vii) Surprise and Deception	—
(viii) Security and Reserves	Reserves of Equipment and Stores
(ix) Simplicity	Simplicity
(x) Morale	Publicity and Mass Morale
(xi) Annihilation	Totality and Thoroughness
(xii) Administration	Administration and Management.

INFLUENCE OF CONTEMPORARY WRITERS ON EDUCATIONAL PLANNING

During the past fifteen to twenty years the volume of contemporary writing with profound effect on educational planning is so large as to make classification difficult. Consequently, I should like to touch briefly on six groups of writers: the educational planners themselves, the scientific writers, the futurologists, the social scientists, the curriculum developers, the technologists, and the modern documentalists.

The I.I.E.P. Group of Educational Planners

Since the establishment of the International Institute of Educational Planning, its first director, Philip Coombs, directed the study



and publication of a series of books on the fundamentals of educational planning, drawing on an international body of writers. The books have been disseminated throughout the developing world and have become useful manuals for practising planners in many ministries. Poignant has described the relations between educational plans and economic and social planning; and Rowley, the politics of educational planning; while Anderson has outlined the social context of educational plans. Herbison wrote on a human resource development base for educational planning; while Hunter presented a case-study in Tanzania on manpower, employment and education in the rural economy of the country. On the costing of education Vaizey and Chesswass have also written, while Woodhall and Hallak have given us the benefit of cost analysis in educational planning. Based on studies made in Nigeria, Archibald Callaway has described how out-of-school education can help unemployed youth. On the role of the administrator in educational planning and the necessity of facing political realities Beeby wrote with conviction, while Curle gave us a description of the professional identity of the educational planner. Chesswass' practical manuals on the methodologies of educational planning have found great use in developing countries like our own. Some efforts have also been made on the development of different levels of education, for example, Hawes on primary school curriculum, Gall on the problems of the democratisation of secondary and higher education in which, if one may quote out of context, Ghana has 0.9 students in the university per 1000 inhabitants while the USSR has 23, Sweden 17, Japan 18, France 13, but Nigerian is not listed at all.

Scientific and Technological Writers

It is difficult to assess the extent to which scientific writers have influenced educational planning. In 1963 the United Nations organised a conference on the application of science and technology (UNCAST)³. Some 1836 papers were presented at that conference on natural resources, agriculture, manpower, industrialisation, economic planning, transport, communication, international cooperation, scientific and technological education, health, labour, employment, rural and urban development. A great ferment was created that year when in Geneva and throughout the world, people realised that education must henceforth pay attention to science and technology if development is to respond to national, international and personal ambitions. A similar major conference is now in the planning stage

at which another global brain storming will be witnessed. As one of the twelve scientific secretaries who read, summarised and processed those 1836 papers, I can testify here today that I have not witnessed a more revolutionary scientific enterprise. Since then a World Plan of Action in Science and Technology has followed and each major region of the world has orchestrated on the main themes.

This global exercise has, however, been preceded by Pierre Auger's⁴ epoch-making publication entitled 'Modern Trends in Scientific Research' more known in the advanced countries of the world than in countries like our own. The survey of modern trends in science has influenced the planning of science education, and inspired science policy makers in the more advanced countries to the extent that five years ago, the book, which was barely ten years old, was considered due for revision.

Following Pierre Auger's classic, UNESCO embarked on a series of publications of Modern Trends in such disciplines as physics, chemistry, biology and mathematics every two years, thus influencing the planning and advancement of university education in these disciplines. The social sciences have also begun development along the same line.

These developments have influenced profoundly the planning of new universities and the transformation, indeed the metamorphosis of existing ones. Today, in order to cope with the rapid proliferation of disciplines, specialized universities are growing up for agricultural, medical, technological, teacher, social sciences and law education. The planning of education, research, development and extension work within these universities has become a major concern of many states. In California higher education was the subject of reform in the late 1950s. In England, the Robbins report has led to colleges of education awarding degrees. In Eastern Europe, Turkey, India and Japan specialized and technological universities have come into existence and expanded. Thrice this year, I have had occasion to point out the need for a complete metamorphosis⁵ in the structure and offerings of universities on the continent of Africa if they are to face the challenge of modernisation and development in a scientific and technological age.

Curriculum Developers

The majority of scientific writers have been concerned about what takes place at the university level; but a not significant number of them have been concerned with the secondary and primary levels. Jerrold Zacharias started a review of physics curriculum in the United States in the 1950s. Howard Fehr and others have spoken fervently about the mathematics curriculum, Grobman about the biology. Even integrated science in the primary school has not been missed. The concern over the reconstitution of the content of science education has extended to language and social studies.

Scientific Futurologists

The influence of scientific writers could not be complete without reference to the futurologists and science fiction writers. The latest I have read is *The Terminal Man* whose emotions of love and hate can be triggered off by remote control through electrodes planted in the brain. In ways which are hard to describe, they drive educational planners to innovate in curriculum design as they contemplate the future. Arthur Clark⁶ showed the speed with which X-rays, nuclear energy, radio, telephone, television, electronics, masers, lasers, superconductors, atomic clocks, carbon dating, radar, automobiles, aeroplanes, nuclear submarines and space ships followed one another in this century. This must make education planners alert in devising ways of reconstituting the subject of instruction. Within the last twenty five years, spaceships and satellites have been launched; electronic computers, transistors, and the science of cybernetics have emerged; automation and the fusion bomb have been devised; antibiotics, silicones, tranquilisers have multiplied; the molecular architecture of proteins and the genetic code have been elucidated. Futurologists like Arthur Clark have also indicated that planetary landing and colonising will follow the space laboratories and lunar landing of the last five years and the first hundred years of the next century will witness earth probes, interstellar probes, gravity control, inter-stellar flights and speeds approaching that of light. In communication, translating machines have been made, and soon to follow are artificial intelligence, a global library, logical languages, robots, mechanical educator and world brain. Fusion bombs may soon be followed by fusion power and wireless energy, sea-mining and space-mining, weather control and climate control. In biology, concepts of genetic engineering and heredity control are more and more entertained; suspended animation may be possible; and gerontology may eventually lead to voluntary immortality. These

visions of science may be real or imaginary, but educators who plan the contents of education must be able to inspire the next generation about the tasks ahead and condition their minds to the new thrusts of knowledge.

Social Scientists

Perhaps the contemporary writers that have influenced educational planning most profoundly and pragmatically are the social scientists, especially demographers, development economists and systems analysts. Nathan Keyfitz, drawing on the researches of Hoselitz and Moore showed that life expectation is rapidly increasing throughout the world during the twentieth century through better nutrition, housing, environmental sanitation, personal hygiene and the use of insecticides D.D.T. Educational Planners therefore have more people to look after and must forecast future population. Even the new Ogun State in Nigeria has undertaken such an exercise within the last two weeks. Rostow — in formulating the famous concept that a country takes off into self-sustained growth after investing more than ten per cent of its national income, secures one or more substantial industries to act as leading sectors, and reshapes its political, social and institutional framework to favour the leading sector — led educational planners to give priority to manpower training and development to contribute to economic take-off in one or two major fields or, to use the Rudolf Bican's phraseology, to move 'over the threshold of economic development'. Hoselitz⁷ has shown how the size of a nation and the role of government are major determinants in development, while Michel Debeauvais has demonstrated how 'human capital' has contributed to the growth of the economy of a country like the United States and Switzerland. Investment in man, *Homo-economicus*, by giving him education and labour skills has therefore become an article of faith with planners. Philips,⁸ among many others, has also shown how science and technology contribute to the process of modernisation. An equally significant contribution to the advancement of educational planning technique is the systems approach to society so ably presented by Philip Coombs in the World Educational Crisis and by Peter Lengyet⁹ in his review of a systems approach to society.

Modern Documentalists

Perhaps the most recent effort likely to have great effect on educational planning is DEVSIS¹⁶ — Development Sciences Information System. For some decades many countries have been formulating national development plans. Many developing countries want to know what other countries have done before them but they have no access to the necessary information. Their needs range from information about food production, to housing, health, education, transport, communication, et cetera. They want the information which is locked up in some libraries or archives in Europe or America. They need a one-time study already carried out in Libya or Libreville. Through DEVSIS, they will get this information almost at the touch of a button. For DEVSIS will be global and national. It will cover all development sciences including education. The International Development Centre in Canada initiated it and is now supported by Germany, France, UNESCO, U.N.D.P. and other specialised agencies. Only last December the German Foundation for Development sponsored a seminar on ways and means of implementing the recommendations of the steering committee. I have had the honour of serving as vice-chairman of the steering committee under Mr. Paul Marc-Henry of O.E.C.D. It is sincerely hoped that Nigeria will become a participating member of DEVSIS when it is launched, so that it may have access to all the development literature and ideas existing throughout the world.

The world situation shows that an encyclopaedic mind is necessary to visualize the significance of educational plans within the framework of national plans. Nothing short of a team approach, a systems approach, an interdisciplinary approach can adequately cope with the situation. Fafunwa's proposal of a 'Think Tank' for Nigeria is accordingly the recipe to cure the developmental malady.

MODERN STRATEGY OF EDUCATIONAL PLANNING

The Complex of Objectives

An examination of the trends already described would show that an effective modern strategy of educational planning is a complex undertaking. The history of education has shown that a clear definition of objectives has characterised educational planning throughout the ages. None of the objectives has ever left us; instead, they get compounded into a complex of objectives to guide our path. Nevertheless, this complex of objectives must be known in all its dimensions and ramifications.

What are those dimensions? First, there is the political dimension leading us to plan an education for internal security; for the preservation of territorial integrity against an external foe; for peaceful co-existence with all the nations of the world; for the survival of man on our planet; for universal brotherhood and philanthropy; for moral and civic responsibility; for the stability of the family, the village, the town, the nation and the world; and for the maintenance of those ideals that will ensure peaceful co-existence.

Secondly, there is the economic dimension that makes us live a happy life free from hunger, diseases and want. Through this dimension we learn to produce the food, the houses, the drugs, the textiles, the cars and the other material needs of daily life. Within this dimension we trade and exchange goods; furthermore, we give various services like transport and communication; extract resources from the mines; secure energy and fuel for daily use; and store these material goods in preparation for days of scarcity.

Thirdly, there is the scientific and technological dimension which compels us as developing countries to strive to narrow the technological gap that separates us from the more advanced nations of the world. All the means at our disposal must be used for this purpose. All assistance must be mobilised. All policy steps must be conducive to the promotion and advancement of these fields, for therein lies the guarantee of our survival in the scientific and technological age. Neither our political nor our economic objectives can be meaningful without adequate self-reliance in science and technology.

Fourthly, there is the demographic dimension, against which we have to combat. A 1976 population of about 76.74 million will become 138.80 million by the year 2000 necessitating a labour force of some 31.00 million now and 56 million in twenty five years time. This labour force of 56 million must be trained in twenty-five years before the oil wells get dry. Some 1.8 million of them must be high level manpower, 9.0 million intermediate, and 45 million skilled and educated manpower in a wide spectrum of disciplines. These are the cumulative manpower targets for the nation, to ensure complete modernisation by the year 2000.

Fifthly, there is a time span that puts an inexorable constraint on all our plans. Nothing planned now can have full effect before sixteen years. Any action on our part will begin to bear fruit only between the years 1990 and 2000. Meanwhile, the technological gap continues to grow. The year 2000 is, for us, an important target date, a deadline by which scientific and technological take-off must take place.

Sixthly, we need to preserve as far as possible our socio-cultural identity among the family of nations through the careful nurture of our history, our arts, and our customs. This must, however, be done within the framework of a world in which time and distances are no longer cultural barriers, communication between nations almost instantaneous, and socio-cultural values progressively international. A golden opportunity exists to demonstrate the African tradition of neighbourliness, hospitality and open-house to the other nations of the world in the hope that there will be full reciprocity.

Seventhly, our planning objective envisages a total education of all the people — from the cradle to the grave — in order to acquire the intellectual patrimony of mankind and contribute to its progressive growth. That is our seven-dimensional complex of objectives in educational planning.

A System Analysis and Design

The analysis and design of the systems and subsystems envisaged in this objective is our next great task. And this must be done before the country embarks on any meaningful implementation. Some of the questions that must be answered in the systems analysis are the following: How many students will have to be educated between now and the year 2000 in the primary, secondary and tertiary institutions? How many adults will bear the financial burden? How many educators must be progressively provided in each category of institution? How must they be prepared to perform their duties? What range of disciplines must be introduced in the higher institutions to generate the manpower requirements for the political, economic, scientific, technological, socio-cultural and other objectives? What supporting intermediate cadres must be produced in other institutions and how are these institutions to be designed, staffed, equipped, managed and progressively assessed? What are the global and individual costs of all these schemes? How can cost reach the critical threshold and waste be avoided at the same time? What are the quanta of knowledge to be taught to each category or unit of manpower? How can the curriculum and content be under continuous surveillance and changed as knowledge grows? How must the institutions be distributed geographically so that the needs of the rural and urban areas may be kept in just and equitable equilibrium?

Such a systems analysis can only be undertaken by a team under competent direction and consulting with as large a body of informed opinion as possible. It is to be expected that following such an

analysis, a new structure and design will evolve in which the best in the old education is retained, and the worst cast away. The framework that will be constructed must ensure the effective assimilation of the growing corpus of knowledge, embody an institutionalised mechanism for education and training, cater for the whole population, and provide for the needs of the community both now and in the twenty-five years.

The Educational Institutions

The educational institutions must be designed strictly in accordance with the objectives that will be agreed on. It would be futile to train present day students in the grammar and rhetoric of a scholasticism that is past, to indoctrinate them with the classical poems of war by Homer, or to preach against a colonialism that is no more. Antiquarian interest may lead us to spend a few moments on the deathless prose of bygone eras, but it must be remembered that time is not on our side and that the generation at school now must be prepared for life in the twenty-first century when in all probability men will read directly in Lagos a document located in the Library of Congress; have and dialogue with a professor of gerontology in Göttingen on a television screen; consult a physician on the cure for an inceptive cancer; and engineer genetically the intellectual qualities of a child yet to be born.

Universities and Higher Institutions for High-Level Manpower

Twenty-first century institutions will be different from those we know now; it seems fairly certain that the universities of today will change their form, structure and offerings because of the explosion of knowledge and the changes in world situation. The problems of war and peace are already demanding the creation of higher institutions where the guardians and philosopher-kings of a modern Plato will be trained to look after the fortunes of mankind. A start has already been made at Tokyo and Stockholm. Man's survival is in serious jeopardy as a result of the armaments accumulated by the United States, Britain, France, Germany, Russia, and China. Each of these countries, alone, can destroy the whole of the human race while the Security Council talks and talks. The United Nations University will evolve and have campuses in all the regions of the world to train a new breed of men dedicated to the proper administration of international affairs. Their national counterparts will be the law schools where lawyers are trained for the administration of justice in criminal and civil cases.

The economic requirements of our days already demand the creation of technological universities where the manpower for technological, and scientific services can be trained at the highest level. Universities as they exist in most developing countries today are anachronistic. They are replicas of institutions with environments and challenges different from our own. We teach the basic sciences to men who hardly use them, the engineering sciences for industries not yet established. Meanwhile, our roads are built by foreign firms on contract; our sweet drinks are imported; building materials are manufactured overseas; and drugs are flown in by plane. A hard core of technological disciplines must be the nucleus of the subjects offered in the universities of developing countries so that food, housing, health, clothing, transportation, communication, fuel, energy, computation, rural transformation, defence, water, may be assured on the basis of self-reliance. These technologies should be serviced by the basic, engineering, and social sciences, subjects in which university degrees may be taken and specialists prepared. The world has changed and will continue to change, but what our society will need in the foreseeable future are largely the economic goods which depend on technological advance. All the basic, engineering and social sciences arose because of the problems which the technological pursuits of man continuously pose. Botany and zoology would never have evolved if man did not need food. Nor would chemistry if men did not hate to die. War technology alone has led to the phenomenal growth of the basic sciences in our age and era. By all means, let us pursue the basic sciences of mathematics, botany, zoology, chemistry, physics, statistics, geography, biochemistry, but let us remember that they will become most useful only when they serve the technological pursuits of our communities and are used to solve their problems.

Agricultural universities for the production, processing, distribution, sale and utilisation of food and other agricultural products are round the corner. They must also train the high and intermediate manpower required by the nation, and be supported by all the basic, engineering, and social sciences.

By the same token, university and higher institutions for economics and the social sciences are emerging to handle the rapidly increasing specialisations of modern times. When universities do not respond quickly enough, new academies arise to teach management, banking, actuarial science, business administration, public relations, commercial and industrial law, political science, marketing and distribution — all of which are in high demand in modern commercial

enterprises. The rate at which national and international trade has been growing in Nigeria can be extrapolated. I am sure that by the year 2000 it will amount to the combined trade of Britain, France, and Germany today if nothing arrests our present population growth and the goods that the public demand.

University colleges for education have emerged first in the United States now, for example, in England, Poland, France, Russia, India. The education industry is one of the largest in any country and specialised institutions have been the rule ever since nation states emerged. The explosion of knowledge will increasingly lead to such institutions placing greater emphasis on knowledge and methodology. Teachers will serve longer periods of internship in model schools to gain experience. What quantum of knowledge do our teachers get now?

Military Academies for security and defence have never been forgotten since the Spartans began garrisoning their eighteen-year olds as cadets or epheboi. While national military academies grow, international ones may have to develop in order to police the world and prevent wars.

Institutions for Intermediate Manpower

The institutions that will train the intermediate manpower of tomorrow will probably be omnibus institutions like the universities of today. They will of necessity be employment-oriented with their central nucleus being devoted to the intermediate manpower needs of industry, trade and such services as education, health, catering, estate management, banking insurance, sports, clothing, transport, communication, tourism, and many other areas.

Institutions for Skilled Manpower

The skilled manpower and craftsmen will come from the products of the secondary school system after receiving prevocational education.

These school systems are units in the educational army with clearly determined responsibilities. They can also be described as specific industrial plants for the generation of different categories of high, intermediate and junior level manpower. In every case there must be unity of command, clearly defined objective, integrated action, adequate resources to achieve critical mass and concentration, economy of scale, avoidance of waste to maximise effort, initiative and tactical freedom, simplicity, good morale, thoroughness, efficiency, effective management and administration in order that educational strategy may apply the lessons learnt from the strategy of war.

Modus Operandi and Logistics of Implementing Educational Plans

Earlier on, mention was made of the parameters of educational planning as conceived two decades ago. In the modern strategy now being presented, the ways and means of implementation are greater and richer. Funds are to be found not only from taxes but also from the selling of bonds, international borrowings and technical assistance. Students are to be registered at birth, brought into school by law at the appropriate age, kept till school leaving age, and looked after later. Their numbers are to be known more precisely for years ahead. Teachers are also prepared for their profession in numbers corresponding to anticipated demand, while the academic and professional standards are brought up to contemporary standard.

The school building and plant must be functional and profit from recent advances in architecture and environmental design. Equipment must be mass-produced; libraries created; books, manuals and other teaching aids provided in adequate numbers. The administration and management of education in individual schools and Ministry of Education should be taken over by personnel that is trained in the techniques of educational management. Evaluation and assessment of work must be a scientific and continuous exercise. Good public relations must be maintained by both the ministry and the institutions in order to ensure universal support, satisfaction and good morale. Curriculum research and development must be pursued in order to reconstitute continuously the corpus of knowledge to be imparted in order to avoid obsolescence. The educators and educationists must be regularly supplied with information and literature in their specialised fields. Policy — making bodies must be kept regularly at work. Foreign assistance must be judiciously sought and used in a manner that supplements and enhances the national effort. Institutions must be evenly distributed to form an effective network; and legislative support given to all activities so that government can exercise legitimate powers of coercion or persuasion as necessary.

Thus modern strategy has incorporated the new technique of budgeting for projected demands of manpower; the pattern of economic and political development of the community as envisaged; the scientific and technological shape of things to come; and the information derived from practices in other countries.

APPLICATION OF MODERN STRATEGY OF EDUCATIONAL PLANNING IN DEVELOPING COUNTRIES

It would be idle to pretend that the modern strategy described above is being pursued in developing countries. Isolated examples, however, exist in various places forming a mosaic pattern. Last year in a study conducted for UNESCO, which took me to nineteen African Universities to examine their scientific and technological programmes, the mosaic pattern I saw needed some filling up, but the pattern of objectives, institutional requirements, content of offerings, modus operandi, and the need for information and literature were unmistakable. In rapidly developing countries like Mexico, Venezuela, India, Brazil, these elements of strategy have been spelt out in various forms from time to time, sometimes for university education, sometimes for technical.

The definition and clarification of the complex of planning objectives were the subject of a Nigerian seminar in 1973. Thirteen years ago, Fafunwa proposed at the Joint Consultative Committee on education a conference on school curriculum in which market women and farmers would meet with judges, doctors, and business managers to suggest what the objectives of school curriculum should be. This proposal was an earlier version of his recent 'Think Tank' already taken up by the Federal Military Government. That same year, I proposed 'A curriculum for an independent Nigeria' which attracted more attention among those who read the West African Journal of Education overseas than in Nigeria. The primordial necessity of defining a complex of objectives which is at once political, economic, scientific, technological, socio-cultural is yet to be universally recognised in developing countries like our own.

A systems analysis and design approach is equally less evident in developing countries despite the impassioned plea of Coombs. Most analyses are done with inadequate data and are usually episodic. Consistent leadership is absent. When crises occur commissions are set up to propose solutions and then disbanded. The analysis of our educational system should be a permanent institutionalised commitment. It requires a 'think tank' too.

Higher institutions that respond to the national challenge are rapidly growing. Ghana already has a technological university as well as an educational university. The Cameroons at a meeting which lasted a week, under the Chairmanship of the President, decided to have a technological university to meet the industrial, agricultural and commercial needs of the nation. Tanzania is rapidly producing

a body of technical manpower for its needs. Some nations start their expansion from below creating pressures for expansion at the top. Others follow the historical model of starting from the top. While there is good justification for the development of the whole education pyramid, there is a great deal of wisdom in creating the higher and intermediate cadres in order to ensure the full development of the educational pyramid on a democratic basis.

It is in the area of curriculum development designed for economic take-off that performance in developing countries has been abysmally poor. The demands of the colonial era, when communities were at the periphery of the economic sphere of metropolitan powers, were different from those of an independent nation. Unfortunately, many nations are 'independent' but continue to live in that periphery, tied to the apron strings of their former masters. In the circumstance, curricula for political, economic, industrial, commercial, scientific and technological self-reliance are non-existent. International and regional cooperation in this field must therefore be organised. Otherwise, meaningful and relevant education will continue to be elusive in under-developed countries and economic take-off left to chance.

As for the ways and means of implementing educational plans, there is no royal road. Once the political decision is taken, mass support ensured, and resources of funds provided, ways and means are always found even when efficiency is poor. There is, however, no substitute for a clear vision and a dedicated leadership when planning or implementing educational programmes. A thorough execution of the various segments of the plan always yields dividends. What is not always done is the allocation and delegation of clearly stated responsibilities to members of the executive team. Obstacles are also created when the administrative structures are inadequate or follow an obsolescent design.

CONCLUSION

I should like to conclude by calling attention to the role of political leadership in implementing a modern strategy of educational planning and development. The genius that guards the destiny of this nation has recently foiled an abortive coup and saved us from confusion and chaos. The Federal Military Government, since the 29th of July, 1975 bloodless take-over, has tried its best to purge the nation and give exemplary leadership. The former head of state has paid the price of martyrdom in setting the stage for political and economic take-off. This is our finest hour. To the Federal

Military Government is now allotted the sacred duty of verbalising and concretising an educational plan that will embody the multitude of political, economic, scientific, technological, social and cultural desires which the whole community feels. This verbalisation must be in a form to gain universal support. The desires must be analysed and fitted into a coherent plan. They must be transformed into a legislative instrument, a federal decree, which will bind all the people, direct the administration, guide the law courts and instruct the police. They must be seen also in the form of institutions that will serve this generation and others to come. The head of State appears to have perceived the ingredients necessary to lift the masses from the morass of the past — a dissatisfaction with the *status quo*, a deep motivation for national self-reliance, a sensitivity to the wishes of the masses, a capacity to assemble the ingredients of modern statecraft, and a capacity for stimulating fruitful interaction. In the words of Herman Finer, the leader must have 'consciousness, coherence, constancy and conscientiousness — the four chief marks of statesmanship'¹¹. I venture to hope that this analysis of the modern strategy of educational planning will make a modest contribution to the national endeavour.

BIBLIOGRAPHY

- Beeby, C. E. *The quality of education in developing countries*. Cambridge, Mass: Harvard Univ. Press, 1966.
- Burns, H. W. (ed.) *Education and the development of Nations*. Syracuse: Syracuse University Press, 1963.
- Chau, Ta Ngoc. *Population growth and costs of Education in developing countries*. UNESCO: 11EP, 1972.
- Coleman, J. S. (ed.) *Education and Political Development*. Princeton: Princeton University Press, 1965.
- Coombs, Philip H. *The World Educational Crisis*. Oxford Univ. Press, 1968.
- Correa, Hector. *Quantitative Methodologies of Education Planning*. Scranton, Pa: International Textbook Co., 1969.
- Cowan, O'Connel Scanlon eds. *Education and nation building in Africa*. New York: Fredorick A Praeger, 1965.
- Edding, F. *Methods of analysing Educational Outlays*. Paris: UNESCO, 1966.

Gall et al. *Present Problems in the democratisation of secondary and higher Education*. Paris: UNESCO, 1973.

Harbison, F. Myers, C. A. *Education, Manpower and Economic Growth*. New York: McGraw Hill, 1964.

National Education Research Council Nigeria. *Philosophy of Nigerian Education*. London: Heinemann, 1972.

O.E.C.D. *Financing of Education for Economic Growth*. Paris: O.E.C.D., 1966.

Ottaway, A. K. C. *Education and Society*. London: Routledge and Regan Paul, 1962.

Parnes, Herbert. S, ed. *Planning Education for Economic and Social Development*. Paris: OECD, 1962.

Poignant, R. *Education in industrialised countries*. The Hague: N. V. Hartinus Nijhoff, 1973.

Skorov, G. *Integration of educational and economic planning in Tanzania*. Paris: IIEP/UNESCO, 1966.

Staley, E. *Planning occupational education and training for Development*. New Delhi: Orient Longmans, 1970.

1. Encyclopaedia Britannica: *History of Education* 1973, Vol. 7. page 990.
2. ILO. *International Standard Classification of Occupations* 1962 (Tribune de Geneva) Page 235.
3. United Nations. *Science and Technology for Development* Volume 1 to 8 1963. New York.
4. Auger, Piene. *Modern Trends in Scientific Research*. (UNESCO, Paris. 1961) Pages 245.
5. AWOKOYA, S. O. Keynote address to the Inaugural Symposium of the National Sciences Research Council of Nigeria, Calabar, 1976.

- do - Keynote address to the 19th Conference of Secondary School Principal, Enugu, 1976.

- do - Manpower development in Nigeria, Paper presented to the Chemical Society of Nigeria, 1976.
6. Clark, Arthur C. Profiles of the Fulcose (The Scientific Book Club London 1962) Pages 220 et seq.
7. Bert F. Hoselitz and W.E. Moore *Industrialisation and Society* (UNESCO & Mouton) 1963.
8. Phillips H. M. *International Social Science Journal*, Vol. XVIII No. 3, 1916, page 325-44.
9. Peter Lengyel, *Social Systems and Cultural Dynamics: Approach to the Science of Socio-Economic Development*. UNESCO, 1971.
10. Woolton, John *DEVSI. The preliminary design of an international information system for development sciences* (ILO geneva) 1975. Page 258.
11. Finer, Herman: *The Theory and Practice of Modern Government* (London: Methuen, 1955). Page 22.

