

CONSIDERATIONS IN THE ESTABLISHMENT
OF A TWO-YEAR VOCATIONAL AND
TECHNICAL EDUCATION PROGRAM
FOR MANPOWER DEVELOPMENT
IN NIGERIA

By

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CHAPTER 1

INTRODUCTION

Though very rich in both human and natural resources, of what avail is it for developing nations to have immense natural and human resources if they could not be used to improve the fate of the people and to promote real development? Why, in spite of all these riches and great opportunities, in spite of the meritorious efforts of governments, are these nations in the backwaters in all fields? Why in all fields is the utilization of our resources far below our real capacity? (Kodjo, 1980, p. 36).

The answers to these questions are not far-reaching, these developing nations, especially African nations, lack developed human resources to match for progress and development; they have not developed the infrastructure to develop the human resources. Their economic system is still dependent on the foreign system as was received from their colonial masters; instead of developing an indigenous system that will help production and growth in the entire system (Ebi, 1984). Following the colonial frame of education, most African countries have placed undue emphasis on formal education, which in turn, has resulted in the craze for paper qualification in terms of diplomas, certificates, and university degrees of all types. Indeed, excellence in plumbing, carpentry, or auto-mechanics is discounted, while a poor degree or diploma in classics, law, or social sciences is

exalted and over-priced; hence "the lack of appreciation by the public of technicians and artisans" (Taiwo, 1980, p. 144). Due appreciation of technicians and artisans will only come with more education and public awareness of their importance in the society (Onwuachi, 1979).

However, it is only an assumption at this point in the history of the Nigerian system of education, to say that it is geared to the needs of the individual and the society. Evidently, the present economic and industrial development in Nigeria compares very unfavorably with levels already attained by the developed countries, as well as by a number of developing countries in other regions of the world ("Our Educational Goal," 1983).

In terms of the need for accelerated economic and industrial development, and of the potential resources available for exploitation, the present development efforts for intermediate manpower are relatively slow. Nigeria experiences an acute skilled manpower shortage, because its political leaders have overlooked the needs of the common man and society, as reflected in the inadequacy of their educational system's response to the needs of the society, not yet devised to meet the challenge of rapid transition from a traditional economy to an industrial one. Further, educational programs lack in both objectives and course substance those elements that most rapidly foster innovation and economic growth (Fafunwa and Aisiku, 1982).

It is unacceptable, both in principle and practice, that yesterday's tools can be used for today's business and still

be expected to be in tomorrow's business. The societal problems, such as advancing technology, growing urbanization, and rapid changes in the nature of manpower needs, have rendered obsolete and irrelevant most of what is traditionally honored in conventional practices. According to the study done by Nigerian Institute of Economic and Social Research (NIESR) on evaluations of the potentiality of existing educational institutions, those at the postsecondary level, that supply the trained manpower of varied occupational skills needed for economic and industrial development. It was shown that the educational systems suffer from inadequacy and gaps in course content and objectives. The training courses in the professional and technological fields are generally either absent or inadequately developed (Kodjo, 1980). The study further showed that the reason for inadequacy in vocational and technical programs had its roots from the Colonial master's plan of education. Technical education had a slow start and developed less quickly than other forms of education in Nigeria. This was partly due to the fact that the voluntary agencies which pioneered Western education in Nigeria were unable to increase or popularize technical and vocational education on the same scale as literary education, since the former is much more expensive in terms of staff and equipment. Also, the missionaries were more interested in the people's ability to read, rather than to turn screws and prime water pumps. Also, the British Colonial masters at that time were men of literary ability, who studied classics at Oxford and London University (Fafunwa, 1980).

The extensive and intensive application of modern technology has enabled many industrialized nations of the world to achieve rapid economic and social advancement. In Table 1, Fatunwa (1969) made a contrast of characteristics of developed and developing nations. Each of the items listed relates to human factors such as attitudes, skills, and tools. There is a clearly defined relationship between developing on the one hand, and shortage of technical and skilled labor and high mortality rate on the other hand.

In most of these countries, postsecondary institutions have played a primary leadership role, both in development of new technology and its application and maintenance. In Nigeria, such a leadership role is profoundly lacking among its postsecondary institutions. The system is principally tailored to the purely academic system, and is too theoretical-oriented. Its postsecondary institutions are still largely celebrated seats of literary, fighting shy of applied science and technology (Munonye, 1984).

Fafunwa (1974), in speaking of the correlation between productivity and technology, stated that,

productivity depends heavily on the attitudes, knowledge and skills of people which in turn reflect the education, training, and complexity organizations which modern technology requires (p. 9).

Professor Aboyade, a former Vice-Chancellor of the University of Ife, identified some of the problems and attitudes of Nigerian universities, which he called "a mad rush for professionalism, negating education for the world of

TABLE I
 CONTRASTING CHARACTERISTICS OF
 DEVELOPED AND DEVELOPING
 NATIONS

Developed Nations	Developing Nations
1. High-level economy	1. Low-level economy
2. High percentage of literacy	2. Low percentage of literacy (5-50 percent)
3. Large percentage of technical labor force, specialists and highly industrialized community, efficiency	3. Peasant and agrarian economy and poor organization
4. High per capita income	4. Very low per capita income
5. Low mortality rate, preventive health program	5. High mortality rate, disease, squalor
6. Independent for many years	6. Recently autonomous or still colonial
7. Well organized and fairly stable political system	7. Transitional political stage
8. Citizenship rights and obligations recognized	8. Transitional stage
9. Education geared to the needs of the people and the country	9. Inherited system from the colonial era
10. Manufacturers	10. Consumers
11. Masses, by the large scientifically oriented; less superstitious, and generally efficient	11. Masses largely superstitious, scientifically illiterate, and have not acquired technical efficiency

(Fafunwa, 1969, p. 142).

work." He emphasized, that any nation which was blessed with resources and knowledge but was careless on how to utilize them, cannot survive in this present day (Aboyade, 1984).

Okorie (1974), in speaking of the Nigerian educational system, lamented on the avocational characteristics of its

curriculum. Thus, he said,

The greatest weakness in the system is the avocational characteristics of the school curriculum. This practice which was inherited from the colonial era is significantly being perpetuated in the school system . . . there the improvements in the standard of living will become more visible, when the youths associate the importance of work with their studies (p. 115).

Some Nigerian elite are aware of the situations as applied to the educational system, but none has suggested a way out, or how to develop the available resources, and how to make the youth understand the importance of education for the world of work (Okorie, 1974).

Nigeria is not the only country which is experiencing or had experienced acute shortage of intermediate manpower to meet the needs of its people. The Royal Thai government (Pember, 1970) recognized its problem, and with the help of the United States Operational Mission (USOM), developed a detailed plan under the supervision of Oklahoma State University, to help the Thai government develop its human resources in vocational and technical education. The aims of the project include the following:

1. To meet the changing industrial manpower training requirements.
2. To reorient the philosophy of the vocational schools from goals of attempting to prepare students to become engineers or to enter university level engineering programs to preparing for direct entry into industry as potential skilled workers.
3. To concentrate instruction at an age level where maturity requirements are adequately met for the entry of graduates into modern industry.

4. To emphasize and promote the dignity of skilled labor in such a manner that parents, potential trainees, and employers will consider it in its true relative importance within the total developing social and economic structure (Pember, 1970, pp. 26-7).

Similarly, Jordan had the same problem and situation in their educational system. Their educational system did not take into account the urgent need of intermediate manpower in the society. As quoted by Mohamadu (1984),

In 1970, the Ministry of Education established technology and occupational programs in two-year community colleges to take care of the problems for the following reasons:

1. To cope with the change of technology and explorations of knowledge which exposed changes in the society's needs.
2. To meet the needs of industrial and trade sectors and the government agencies for skilled workers.
3. To meet the increased demand from the schools' graduates to study the arts and occupational areas in colleges and universities.
4. To provide the opportunity to every individual in the society to pursue his study to the maximum range suitable to his interests and capabilities (p. 2).

Statement of Problem

The increase in urbanization, advances in technology and the short supply of a skilled labor force have created a need for information to be used in developing an intermediate vocational and technical training program in Nigeria.

According to Udoji (1979), "technical infrastructure is nonexistent." There are just not enough machinists, mechanics, and plumbers with backup skills to service imported machines and communication equipment. Two technicians are needed for every engineer; six to ten technicians are needed

for every medical doctor or a professional researcher in the health profession, and for every professional biological scientist, four to five technicians are needed (Desmond, 1983). The problem with which this study was concerned was the lack of information that could be used in developing a model for a vocational and technical program in Nigeria.

Purpose of Study

The purpose of this study was to survey selected Nigerian students in Oklahoma for information to be used in developing a model for two-year vocational and technical programs that could help facilitate and restructure the educational programs for intermediate manpower development in Nigeria.

Rationale for the Study

If the vocational and technical education is to grow and improve the lot of the society, planning must begin to focus on the needs of the target-market; strategic planning must address outcomes, that are meaningful to the client (Gleason, 1984, p. 21).

Gleason feels very strongly that the planning of any program must address the need and the end product. It must take into account what is needed, how it can be done, and how far the process has solved the problem. If the entire process does not solve the problem, then something new must be planned and carried out. This is the reason for the study.

Furthermore, education must prepare workers who understand the entire system with which they work. Therefore,

the extent to which vocational and technical education will better serve the society will depend, in large measure, on the availability of people who can apply it (McHull, 1973).

Technology is not only changing the way most jobs are performed, but it is as well altering the knowledge and skills required of those who perform them. As workers' roles change, so must vocational and technical education programs change. Education must prepare students with a broad knowledge base, and practical applications of that knowledge (Kuti, 1976).

A study carried out by the Nigerian Institute of Social and Economic Research (NISER) which was presented at the annual Conference of the Nigerian Economic Society revealed that more than 100,000 university graduates and about two million secondary school leavers will be unemployed by A.D. 2000 because they lack skills for employment (Education With Purpose, 1984). NISER's finding is quite predictable because for a quarter century, since the nation's independence, it appears to have lagged behind in restructuring its educational and social system to fit the developmental needs and the national aspirations. The nation's pattern of formal education and social formations are still legacies of its colonial experience.

Professor Ango Abdullahi, the Vice-Chancellor of Ahmadu Bello University, deplored the low turnout of highly qualified vocational and technical teachers for the nation's needs, and blamed this on the colleges and universities in Nigeria.

Earlier attempts aimed at making education contribute significantly to our industrial and technological development were, in spite of government's intentions, hampered by the inability of our colleges and universities to produce enough vocational and technical teachers, and technicians (Abdullahi, 1984, p. 3).

The present technological programs existing in Nigeria do not offer much opportunity to those who want to remain technicians per se; either in salary structure and further educational opportunity. According to Adamolekun's report on salary structure of graduates of Polytechnics, the highest salary scale any of the graduates can aspire in their life time as technicians is "Scale 14" whereas, a graduate of classics, who has spent the same number of years in a post-secondary institution has no limit (Adejayan, and Akimsota, 1984).

Vocational and technical education is a necessity and a productive investment of any government. It is beneficial to the entire nation, since it has to do with the happiness and productive powers of the producers in the nation. Nothing is more vital to any nation than to serve the full talents and capacities of its citizens. Vocational and technical education must be given a national priority (Schriver, and Bowlby, 1971).

The Nigerian's rich assets of national resources are not being fully utilized and also, the rich assets of human labor are being constantly and rapidly wasted, due to inadequacy in its educational system. Any delay in dealing with

the question can be disastrous, both to the nation's economic condition and social status (Aboyade, 1984).

It is past due; Nigeria should address its problem other than casting the blame on the colonial system of education (Ebi, 1984).

According to Pember (1970), the aim of the vocational and technical program will include.

1. To maximize the use of the nation's human resources.
2. To help train and retrain those whose skills have become obsolete, both in government, industries, and businesses.
3. To help the graduates obtain skills for gainful employment.
4. To complement the existing technical education programs in secondary schools as well as in those needed for a college or university degree.
5. To bridge the gap in overproduction of professionals, as opposed to underproduction of semiprofessionals.
6. To popularize technical education, and bring it to the same level with other college and university programs.

Objectives

In order to accomplish the purpose of this study, the following objectives must be achieved. They are:

1. To determine the degree to which stumbling blocks affect the development of vocational and technical programs for the Nigerian manpower development.
2. To secure perceptions of selected Nigerian students in Oklahoma regarding the program content of four vocational

programs for training of the intermediate level in Nigeria.

3. To secure perceptions of the selected Nigerian students in Oklahoma regarding the possibility of modifying the Ordinary National diploma program to the associate degree level.

4. To secure perceptions of the students on whether Nigerian Polytechnics should be allowed to award the Bachelor of Technology degree.

5. To secure perceptions of the students on what body of persons would be involved in program development for the two-year vocational and technical school.

Basic Assumptions

In consideration of the nature and the selected population for the study, the following basic assumptions were made:

1. that all respondents answered each item of the questionnaire truthfully, and above all, their answers were based on their best knowledge of the situation.

2. that the respondents on completion of their studies would return to Nigeria, and that they were aware of the current situation in Nigeria regarding the Ordinary Diploma and High National Diploma programs in Nigeria.

3. that the respondents were aware of the "Operation Crash program" in Nigeria (i.e., middle-level manpower training overseas).

4. that the respondents had a knowledge of the two-year community and junior college system in the United States of America.

Scope and Limitations

In consideration of the difficulties involved in sending the questionnaire to Nigeria, the questionnaires were administered to Nigerian students in the State of Oklahoma. The selection of subjects was based on their knowledge of vocational and technical education, and the situation as it was in Nigeria.

Definition of Terms

The following are definitions and clarifications of terms as they applied in this study.

Technical Education:

Many authors have tried to define and explain technical education in terms of its level and course orientation. It prepares students for jobs in many fields of technology as semiprofessionals and paraprofessionals; more practical than theoretical.

It is an area of education more practical than the professional and more theoretical than that of the craftsman. A new area of education, not a watering down of professional education, and not an upward extension A program to prepare people in two-year post-high school programs to work in a team relationship with professional people in engineering, business, agriculture, distributions, health, social science, and public service (Ohio State University, Fall 1983, p. 1).

Vocational Education

This type of education has been defined and explained by

its specific characteristics--"Learning by Doing." According to J. Fred Ingram,

Is that phase of education designed to improve the proficiency of an individual for and/or in a specific occupation. It is either preparatory for specific employment or supplementary to the work of those employed in a specific occupation It is not restricted to boys and girls in secondary schools but is provided for any youth or adult who needs and can profit from it (Ingram, 1956, p. 10).

Some of its characteristics include:

- a. Specificity
- b. Selectivity
- c. Practicality
- d. Immediate applicability

Associate Degree

This represents an award as well as a symbol of the successful completion of two-years' work at the collegiate level.

Ordinary National Diploma (OND)

This is a certificate awarded to students of technical institutions in Nigeria, after completion of two-years' work, though not at the collegiate level. In the United States, this could be equivalent to the certificates received by students of Area Voc-Tech schools.

High National Diploma (HND)

This is awarded to students of polytechnics after successful completion of four-years' work. This is not

equivalent to a Bachelor's degree; the holders are at times accepted into the university as a sophomore or a junior.

Model

A model helps describe or conceptualize an aspect of a phenomenon. It is an explanatory device (Ryan, 1969). Some models deal with the reaction of phenomena to the introduction of a new information or fact. This is the level of concern or concept of the model in this study.

Church Missionary Society (CMS)

This is an evangelical team that arrived in Nigeria on January 1845 (Fafunwa, 1974). They established church schools that provide general education and religious instructions at primary and secondary levels.

Nigerian Institute of Economic and Social Research (NIESR)

This is a research body which performs research and consultative service in the area of social and economic problems in Nigeria.

Nigerian Certificate of Education (NCE)

This is a certificate awarded by all Advance Teacher's Training Colleges in the nation. It is awarded to those who successfully complete three year's program in teacher education. Those who complete the program are qualified to teach either at the primary school level or at the lower secondary

level. The certificate is equivalent to two years of college work. Each institution is affiliated to a university which supervises its programs and examinations (Margolis, 1977).

Bachelor of Technology (B. Tech)

This originated from British universities. It is awarded to students who complete a four-year college work in the field of technology (Hall, 1982).

Others

As used in academic classification of participants in this study including those who have an associate degree or are currently in junior or community colleges.

CHAPTER II

REVIEW OF LITERATURE

Background and System of Education in Nigeria

As shown in Figure 1, Nigeria lies in the continent of Africa, between latitude 4° and $14^{\circ} 20'$ North, and between longitude $2^{\circ} 50'$ and $14^{\circ} 20'$ East, occupying a total land area of 924,000 square kilometers (i.e., 356,669 square miles). It has a population of about 95 million people, making it the largest populous nation in Africa (Paxton, 1983).

There are about 250 cultural and linguistic groups in Nigeria. The largest groups are Hausa, Ibo, and Yourba. English language is the lingua franca in Nigeria, with the major government documents and books translated into the three major groups (Hausa, Ibo, and Yourba).

Nigeria attained its political independence on October 1, 1960, and became a Republic on October 1, 1963. Presently, the country is divided into 19 states, with the federal capital at Abuja.

The major agricultural products of Nigeria include: cocoa, oilpalm, cotton, rubber, hides and skins, benniseed, and groundnut oil. About 70 percent of the people are engaged in farming. The mineral resources are oil, tin, iron ore,

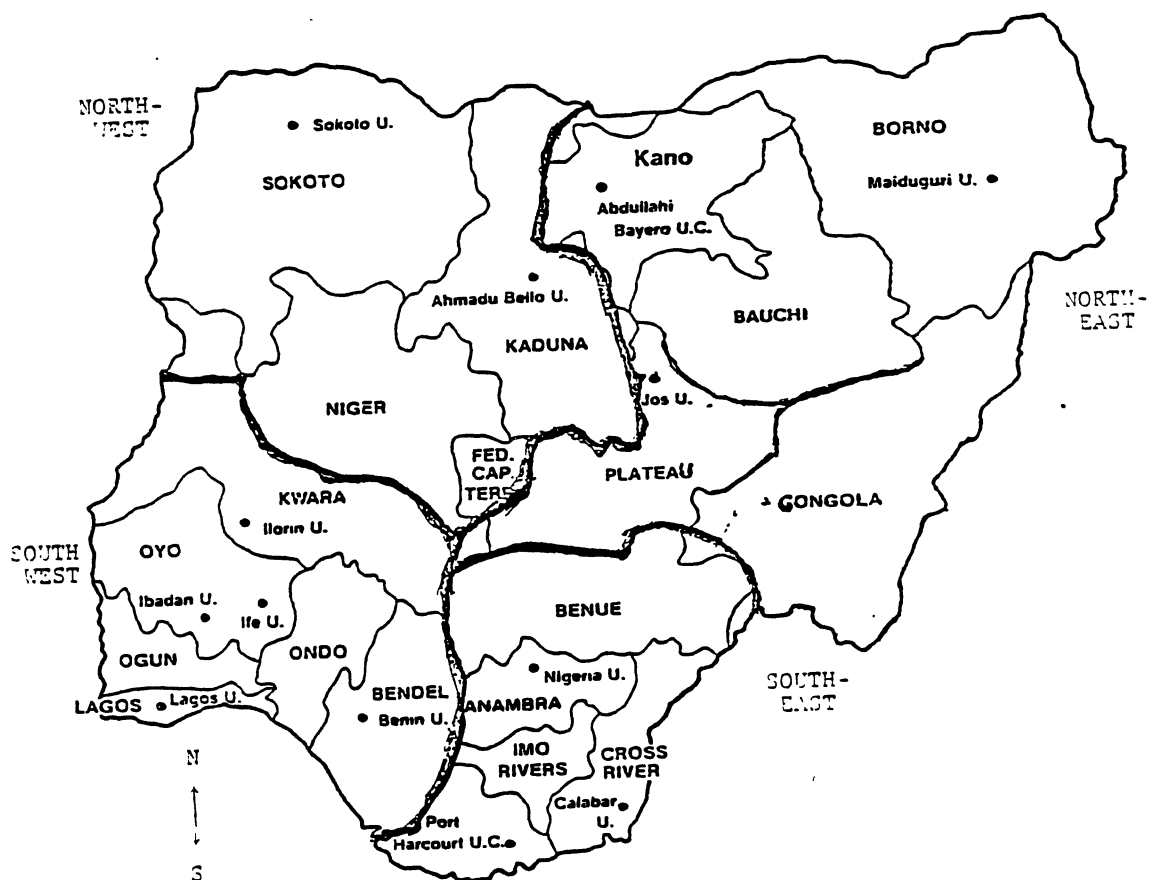


Figure 1. Map of Nigeria, showing four major geographic locations of the participants, as used in this study.

limestone, coal, zinc, and columbite. Oil constitutes over 90 percent of the country's total revenue and foreign exchange (Paxton, 1983).

Beginning of Western Education in Nigeria

In 1842, Nigeria had its first contact with Western education. It was through the evangelization process of the Wesleyan Methodist Missionary Society, under the leadership of Rev. Thomas Birch Freeman, who came from Cape Coast, where he had been the Superintendent of the Methodist Mission (Lewis, 1965). His first port of entry was at Badagry, on the 24th of September 1842. Following the entry, a few months later, the Church Missionary Society (CMS) arrived. By 1860, the big four missionary societies in Nigeria, the Wesleyan Methodist, the Church Missionary Society, the Baptist, and the Roman Catholic had established churches and schools (Amadi, 1976). They were primarily concerned in making Nigeria "people of the Book," that is, men who would later become school masters, pastors for the churches, and clerical assistants for commerce and government (Amadi, 1976).

Following the missionary activities, Nigeria became a territory of the British Imperial Government. In 1899, the first government primary school was opened in Lagos, followed by the first Education Ordinance enacted in 1908 (Ukeje, 1978). Later, in 1909, the first government secondary school

was opened at Lagos. It is presently called, "King's College."

By 1977, a national policy in education was enacted, whereby education is recognized as the greatest force that can be used to foster the much needed unity of Nigeria, and, also, as the greatest investment that can be made for the quick development of the economic, political, sociological, and human resources of the nation (National Policy in Education, 1977).

By October, 1977, the federal government declared education tuition free at all levels.

Primary Education

As shown in Table II, in Nigeria, primary education marks the beginning of formal education (National Policy in Education, 1977). It offers six years of free, basic education courses. It begins at age six. In rural areas, the first year of primary education is conducted both in native and English languages, but in urban areas, it is specifically conducted in English. However, the curriculum is designed by each state government, and it must incorporate the basic principles and objectives as stated by the national policy on education. At the end of the six years, the students graduate with awards of the "First School Learning Certificate." Education at this level is compulsory to all Nigerian children (Fafunwa, 1974).

TABLE II
STRUCTURE OF THE SCHOOL
SYSTEM IN NIGERIA

Age Level	Higher Education (3-4 Years)		
21 20 19 18	Universities 18-21	Polytechnic & Colleges of Science & Technology 18-21	Colleges of Education 18-21
17 16 15	↑ Senior Secondary School (15-17)		
14 13 12	↑ Junior Secondary School (12-14)		
11 10 9 8 7 6	↑ Primary School (age 6-11)		

Secondary Education

This is a six-year period of formal education. It is divided into junior and senior secondary schools. Each has a duration of three years (Nwamadu, 1984). In Nigeria, secondary education consists of the following types:

Secondary Grammar School: The grammar school offers a wide range of arts and science courses, all geared to entry to higher education. The courses include: English language, literature, mathematics, geography, history, physics,

chemistry, biology, art, home economics, and economics. At the end of the period, the student takes a General Certificate of Education examination conducted by West African Examination Council (WAEC) (Fafunwa, 1974).

Technical Secondary School: They provide technical and vocational orientation. They offer courses in technical subjects, such as woodwork, metal work, technical drawing, building, welding, auto-mechanics, painting, and electrical fittings. Their students also take the same final exam conducted by WAEC (Fafunwa, 1974).

Commercial Secondary School: These schools offer training in subjects such as typing and shorthand, accounting, principles of economics, as well as some academic subjects (Ozigi and Ocho, 1981).

Comprehensive Secondary School: These schools offer three years of general education and three years of specialized education in academic, commercial, and technical subjects.

Grade Two Teachers Training School: These are six-year school that offer courses for prospective, primary school teachers. Students who graduate from either grammar school, technical schools, or commercial schools, that want to teach in primary schools, receive one or two years of training in teacher's training school (Taiwo, 1980).

Post-Secondary Education

In Nigeria, this level of education is provided by a number of institutions, which include:

1. Colleges of Education or Advanced Teacher Training Colleges: The products of these colleges are qualified non-graduate teachers who teach in junior secondary schools. They have three years' duration of studies in teacher's education in various subjects. Each institution is affiliated with a university which supervises its programs and examinations. At the end of the studies, the students are awarded a "National Certificate of Education" (NCE) (Margo-lis, 1977).

2. Polytechnics and Colleges of Science and Technology: These institutions are designed to train technicians and businessmen at the intermediate level, who supply the intermediate manpower needs of industry, business and commerce. At the completion of the first two years, the student is awarded the Ordinary National Diploma (OND) and at the completion of four years, the student is awarded the Higher National Diploma (Taiwo, 1980).

3. Universities: These are the institutions that award Bachelors, Masters, and Doctoral degrees.

Nigerian higher institutions have peculiar characteristics in the admission process. Every student entering a higher institution must go through an entrance exam, and must have a good academic standing in the external exams conducted by the West African Examination Council (Mangolis, 1977).

Educational Structure at Federal Level

According to Taiwo's (1980) organizational chart,

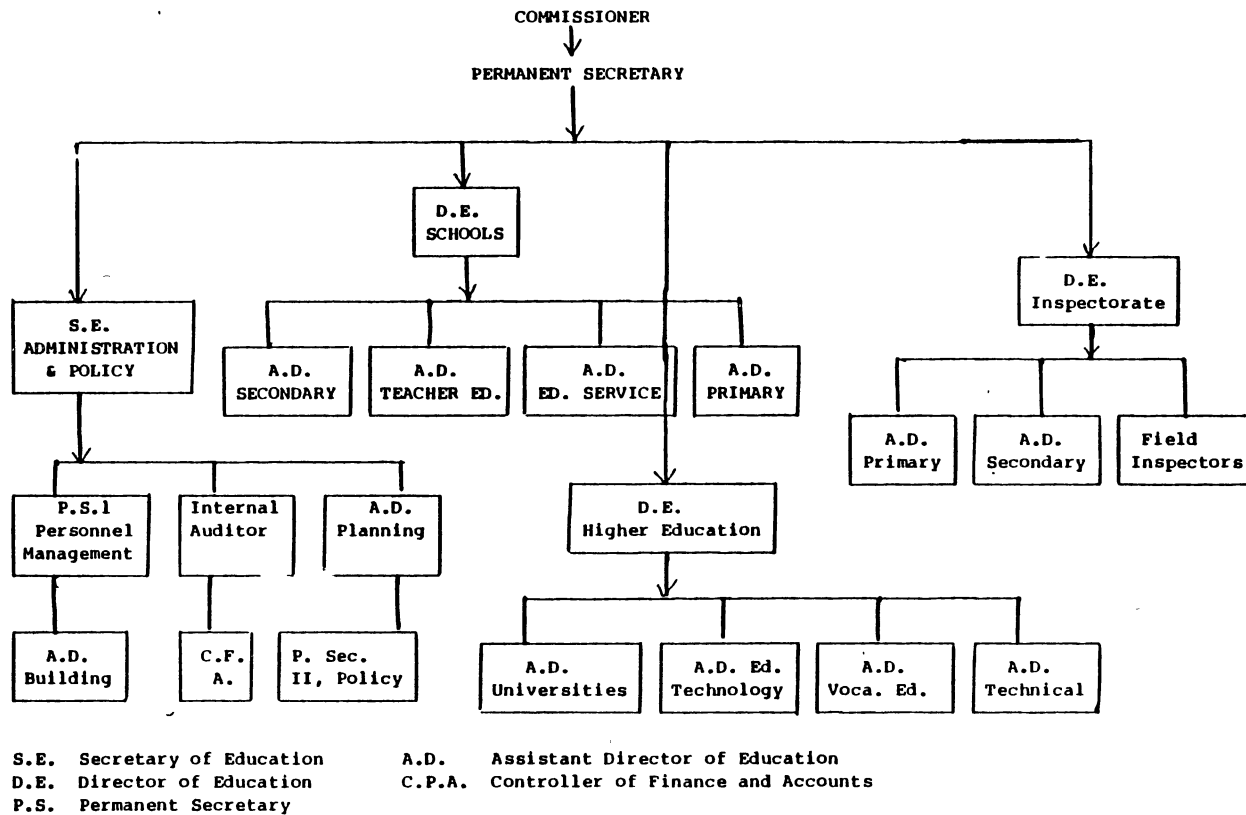
Figure 2, the Federal Ministry of Education is charged with the entire responsibility of administration, organization, and control of education in Nigeria. The chief executive in the Ministry is appointed by the Head of State, and subject to the approval of both the House of Senate and Representatives. The title for the Chief Executive is "Minister of Education." The Ministry is divided into four major divisions. This is done to achieve effect administration and management. They are:

1. Administration and Policy
2. Schools and Educational Services
3. Higher Education
4. Inspectorate

Outside of these four major divisions, there are sub-divisions filled by corps of civil servants, who are unaffected by political changes. At the head of all the Civil Servants within the Ministry, is the Federal Permanent Secretary. He serves as the chief adviser to the Minister of Education, and assures continuity of federal policies and operations in education (Taiwo, 1980).

The Federal Minister of Education is in charge of all educational policy practices as approved by the Senate, and also, initiates policy decisions at the national level and coordinates those initiated at the state levels. The Federal Minister has power over all the State Commissioners of Education and presides over them (National Policy in Education, 1977).

The Federal Minister of Education, working through its



Source: Adopted and modified from The Nigeria Education System, Past, Present and Future, p. 209. Co. O. Taiwo.

Figure 2. Federal Ministry of Education Organization Chart

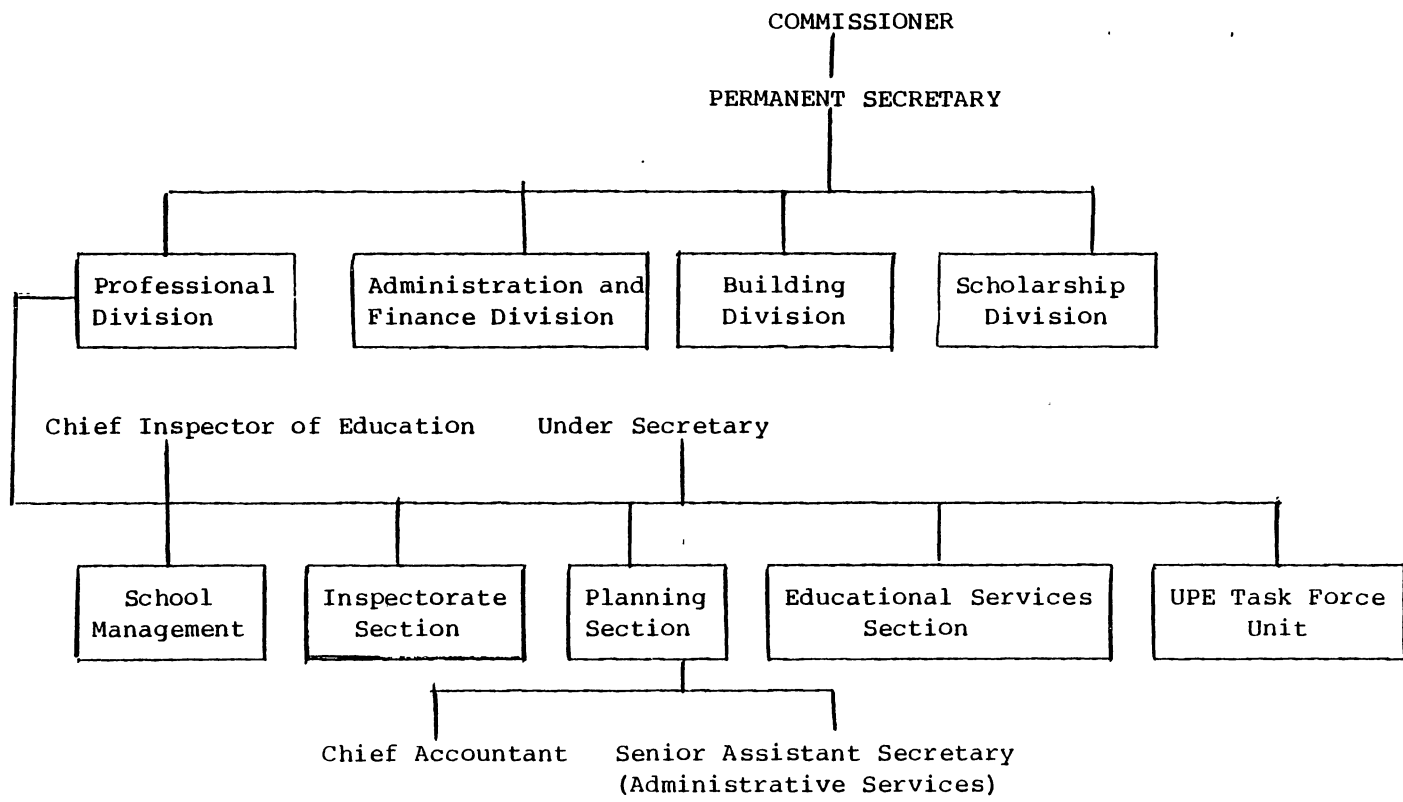
professional division, headed by the Director of Professional Matters, administers two vital advisory bodies: the Joint Consultative Committee on Education (JCCE) and the National Council on Education (NCE) (Tiawo, 1980). Through these advisory bodies, recommendations, and policies are considered and modified to suit respective states.

The Federal Inspectorate, for the Ministry of Education, is responsible for the general inspection of federal government secondary schools and offers advisory services to schools all over the country, while the Higher Education division is responsible for policy issues on universities, Advance Teachers Colleges, and Colleges of Science and Technology throughout the nation (Taiwo, 1980).

The Administration and Policy division is responsible for all the policies and issues concerned with personnel, management, financing and accounts, internal audit, planning and staff development, buildings, and legal and statutory matters. The Schools and Educational Services division are responsible for primary, secondary and teacher education, and curriculum development (Taiwo, 1980).

Educational Structure at State Level

According to Ozigi and Ocho (1981), State Ministry of Education Organizational Chart, Figure 3, the state structure follows the same pattern similar to the federal system, but with a little modification. The Ministry of Education in each state is headed by the Commissioner of Education. The



Source: Adopted and modified from Education in Northern Nigeria, by Ozigi et al.

Figure 3. A Typical State Ministry of Education Organization Chart

Minister is appointed by the State Governor. He initiates policy and represents the interest of the state at national conferences in education.

As in the Federal Ministry of Education, the head of the civil servants in the State Ministry of Education is the Permanent Secretary. He is the adviser to the State Commissioner and carries out administrative and professional duties. He is assisted by the Deputy Permanent Secretary.

At the state level, the Ministry of Education is divided into four major divisions.

1. Professional Division
2. Administrative and Finance Division
3. Building Division
4. Scholarship Division

The Professional division is responsible for school management, inspections, planning, curriculum development, both in-service and preservice education. The division is headed by the Chief Inspector of Education (Fafunwa, 1974).

Administrative and Finance: This division deals with the financial matters, establishment, services condition, retirement, and resignation, while the Building division is concerned with the establishment of new schools, education costs, and expansion of existing institutions. The Scholarship division is in charge of awarding scholarships, financial aid to students, and Advisory Committee Board for students going overseas (Ozigi and Ocho, 1981).

History and Status of Vocational and Technical Education in Nigeria

Unlike grammar schools, vocational and technical institutions in Nigeria had a slow start. The missionaries who introduced Western education in Nigeria were unable to popularize technical education on an equal level with grammar school (Ukeje, 1978).

However, following the visit of the General Secretary of the Church Missionary Society, Mr. Henry Venn, to the territory in 1944, on seeing the educational process, he declared that,

We are not to educate a few young gentlemen, but to make a model, self-supporting, educational institution by combining industrial labor with book learning (Solarin, 1972, p. 121).

In the same year, the Commission on Higher Education in West Africa, appointed by the Colonial Office, recommended the establishment of an intermediate educational institution, as well as a university college. In addition to the recommendation, another delegation on Inter-University Council for Higher Education in the Colonies, led by Sir William Hamilton-Fyfe, in 1947, recommended that polytechnics instead of university colleges should be established (Fafunwa and Aisiku, 1982).

In 1949, the Nigerian government set up a commission to make a feasibility survey on the idea of polytechnics in terms of Nigerian needs. This two-man commission

(F. J. Harlow and W. H. Thorp) strongly recommended the establishment of the College of Arts, Science, and Technology to meet the requirements of industry, commerce, and society, as well as to adjust to the changing needs of the environment (Fafunwa and Aisiku, 1982).

Following the surveys and recommendation, three schools were opened, at Zaria, Ibadan, and Enugu, in 1952. This marked the beginning of vocational and technical education at the postsecondary level in Nigeria. These institutions were to provide training for sub-professionals in the following areas:

1. Teachers for secondary, trade and secondary technical schools.
2. Building, civil engineering, surveying, mechanical and electrical engineering, mining, geology, and telecommunications.
3. Agriculture, forestry, and veterinary sciences.
4. Medical auxiliary services.
5. Extramural or adult education.

Recently, Nigeria has established many institutions that offer courses in arts, science, and technology. But a review of past practice and the results indicates that the existing system has not produced very successful results. Banjo (1974) in his survey study of these institutions and the follow-up study of former graduates, found that many of the technicians who have thus been trained, usually to what is considered as equivalent to the HND level, use this training as the basis for entry to professional engineering

courses. Most of them who remain in the category of technicians after going through the present system of training are not fully able to carry out the role expected of technicians in modern industrial organizations. This was because their background and the courses currently defined for their training produces technicians without any manipulative skills and with less contact with the physical circumstances of the industrial world.

Further, considering that HND is a four-year program, the graduates are not equal to the Bachelor's degree, even though they spent the same number of years after graduation from secondary school. The holders of HND, who transfer to universities at home and abroad, are considered as having completed the equivalent to two years of college. In support of this, Margolis (1977), in his study guide to the academic placement of Nigerian students in United States educational institutions, clearly stated that:

The work done for the HND is postsecondary and should be considered for transfer credit; based on a course-by-course evaluation of HND subjects; it is recommended that transfer credit be considered up to a maximum of two years (60- to semester hours), keeping in mind that the program's thrust is applied and not theoretical (Margolis, 1977, p. 54).

Again, the holders of HND are not accorded their due appreciation in social status and academic arena. This is because Nigerians are degree worshipers; they worship degree holders, no matter what or how. Nigerians who study in United States' junior or community colleges and graduate with an associate

degree, have higher esteem in social status than a holder of H.N.D. from any of the nation's polytechnics.

According to Tiawo, "The result is instability and leakage of intermediate manpower in technology" (Tiawo, 1980, p. 145).

Opinions and Theoretical Background in Occupational Program Development

Before the Second World War, little or nothing was written on the development of occupational programs for two-year colleges. It was Phebe Ward (1947) who made suggestions on how programs could be developed. First, Ward felt that there was a need for the study of the program in institutions where it was existing, that the need be determined by a survey of potential employers within the community and elsewhere in the nation, followed by the exploratory study of the students needed for the program. This should be done through a follow-up study of the recent graduates and pre-registration contact with potential students.

He further suggested a formation of an advisory committee to help plan the program; whose members should consist of leaders from the labor, management, and community groups. The committee members should remain in close contact throughout the life of the program.

The next stage of planning, according to Ward, is the determination of the objectives of occupational proficiency and total development of the students through an occupational

analysis. This should precipitate the instructional plan.

The next step is the purchase of the equipment and search for the faculty. The criteria for choosing the faculty, should be based on past experience and ability to develop instructional materials.

When the faculty has been chosen, a performance standard will be established, a close coordination maintained, and inservice-training provided for the faculty.

Finally, Ward (1947) suggested that the college should maintain a close relationship with the community, and utilize any available resource within the community, and that the program should be re-evaluated from time to time to meet the needs of the community.

The expansion of vocational programs in two-year colleges, to accommodate the needs of the community and the states were stressed by Bogue (1950) in his book. According to Bogue, the expansion of these programs was necessary because not everyone within the society has the same aptitude and interest.

Johnson (1952) in his report on California's Study of General Education in the Junior College, suggested that vocational programs should have some set of broad educational goals to enable the students to perform successfully in life, acquire a social understanding, formulate a philosophy of life, and carry out their civic responsibilities.

Epler (1955) felt that estimating probable enrollments one year, five, and ten years ahead is vital for proper planning, in terms of "building, faculty, budgets, and equipments."

He suggested that information should be sought in these areas:

1. The number of seniors in the high school which have contributed significantly to the present and past enrollments of the college.

2. The number of students in each grade from one to twelve in the schools feeding the college.

3. Births in the area for the past two decades.

4. Census by years of age.

5. Migration in the age groups under twenty years.

According to Epler (1955), other factors which deserve serious consideration in planning are social factors. A new factory seeking younger workers could have a great influence on the enrollment pattern; the unemployment rate could affect changes, and legislative policy.

The need for community input in program planning in two-year colleges was of much concern to Bethel (1956). He agreed with Bogue (1950) that a strong relationship between the college, community, business, and industry, should be a major factor in considering a program. The input from these sectors of the community will be of vital importance in program planning. Like Epler (1955), he suggested another aspect of the administrator's role, which should synchronize community college plans with local business and industry, which will aim in improving the social and economic condition of the community.

Field's (1956) work was clearly a confirmation of Bethel's (1956) opinion. He agreed that community participation in

program planning is important, that both state and local data should be used for enrollment projections, and more importantly, business and industrial personnel are keynote in determining the employability of the graduates (Field, 1956).

Field (1956) suggested that the Advisory Committee should help develop vocational programs. He pointed out and emphasized four major areas of consideration in program development.

1. The program will emphasize the need-centeredness of the community and state.

2. The program must be of great interest to the members of the Advisory Committee and students.

3. The program must possess the uniqueness of the community.

4. The program must be in continuous evaluation to determine its effectiveness at any point in time.

According to Litchfield (1959), the process of decision-making was seen as an important factor in program planning, in which the following terms should be made clear and analyzed: the definition of terms, examination of the existing situation, outlining the alternatives, discussion and finally, a choice. Litchfield (1959) felt that most of the college administrators delegated much of their work to the department heads and served as figure-heads; that most colleges did not have good structure for decision-making; then, he suggested creation of academic vice-presidents, whose work will be to research issues, suggest alternatives, and organize staff meetings for final decisions. He further emphasized the roles of the following in the decision-making process: the faculty, the dean, the president,

and the members of the Trustees.

In a survey study done by the New Jersey Board of Education (1961) on Occupation Program Planning as it Relates to Student's Awareness for Career Choice at Post-High School Level, it was determined that reason is a guide to their choice. Most of them preferred to pursue programs in which the demand is higher and with an acute shortage of qualified personnel.

Blocker, Plummer, and Richardson (1965) prepared a description of vital elements in planning a technical program. They suggested that a technical curriculum should have a relationship to the occupational requirements, curriculum should be developed in fair consideration of industrial input, and have the prospect for future changes in occupation, no overspecialization. The identification of manpower need should be a shared responsibility of the community and the educators, and that the two should cooperate in planning. However, Blocker, Plummer, and Richardson (1965) are in agreement with others, except in regard to overspecialization.

In another discussion of occupational program planning, Thornton (1966) suggested a "Community survey approach," in which the administrators of community colleges should base their decision on whether to open, continue, or close a program. He agreed with Ward (1947) on the use of an Advisory Committee, but he divided them into two sections, which he called the "Lay Advisory Committee," who will inform the community of the program and receive advice from them.

Another advisory body which he called the "Long-Term Committee," whose duty is to advise on planning of specific curriculum. In other words, he suggested several bodies of long-term Advisory Committees for each program.

In Thornton's (1966) opinion, the following are some of the questions to be considered when establishing a program:

1. Should the program be specialized and how far can it be specialized?
2. What amount of general education should a student receive in a program?
3. Is the employment assured to the graduates?
4. What is the duration required for the program?
5. What should be the past educational experience of the student before he/she is admitted to the program?

An interesting experience in planning occupational programs for urban assistants was described by Koch and Wooley (1967). The first question which they had to deal with was, "Are they needed?" According to them, their answer was found in the problem which besieged the city planner, who was once concerned with land use planning and its implementation through zoning ordinances and subdivision, but today, "he is besieged with social, economic, and political consideration" in city planning. Thus was born the concept of planning assistants specialized in different areas (p. 20).

The second step was who was qualified to develop the

specialized courses. This was done through an interview and consultations with professional planners.

The third step was placement of students.

The fourth step was student recruitment, which was done through the education of the school counselors, who in turn made potential students realize the value of such a career.

The fifth step was the design of a curriculum that would produce a well qualified graduate to assume the responsibilities, have the fundamental principles of a liberal education, plus the technical or vocational training needed. This was done through a systematic development of a questionnaire, which included descriptions of courses previously offered and the proposals for specialized courses.

Looking at these steps taken by Koch and Wooley (1967) in developing a program for an urban assistant, the conclusion is that the need must always be defined by the professionals in the area, and that the curriculum must stem from the job analysis.

The suggestions made by Smith and Moss (1970) were quite similar to the process used by Koch and Wooley (1967) through which a vocational curriculum should be developed, include the search for:

1. the role for which the training should be specialized.
2. the determination of the program's educational relevance to the specified tasks.
3. the determination and selection of tasks to be taught.
4. the analysis of tasks through an established method of task analysis.

5. the statement of performance goals.
6. the listing of instructional methods in sequence.

Further, they suggested that in any vocational program, the emphasis must be on product of instruction, greater task orientation, and greater acceptance of non-verbal and skilled related experience. They felt that practical orientation should be emphasized in vocational program planning.

In another interesting discussion, Rindear (1967) accepted the views of Bethel (1956) in noting that community involvement in occupational program planning is important. However, he stressed the role of the Advisory Committee:

Some occupational education in general is closely tied to the economic posture of the community. Program planning must involve representatives of the community; it must adopt two-way communication system (p. 10).

He suggested three types of Advisory Committees, and their relative functions.

1. The General Advisory Committee, which should be made up of leading members of the industrial, business, professional, labor, and educational organizations in the community. Their function is to provide advice in shaping the overall policies and types of occupational education needed within the community.

2. The Occupational Advisory Committee, whose function is to advise junior college administrators on instructional programs in specific trades, crafts, or occupations, such as:
 - (a) Lists the specific skills and suggests related and

technical information for the course, (b) recommends competent personnel from business and industry as potential instructors, (c) helps evaluate the program of instruction, (d) suggests ways for improving the public relations program at the junior college, (e) assists in recruiting, providing internships, and in placing qualified graduates in appropriate jobs, (f) keeps the college informed on changes in the labor market, specific needs, and surpluses, (g) provides means for the college to inform the community of occupational programs, and (h) helps assess program needs in terms of the entire community (Rindear, 1967).

3. The Third Advisory Committee which he suggested is, "Joint Apprenticeship Advisory Committee." The function of this committee is administrative in nature. They are to set standards and the required on-the-job work experiences.

In 1968, the National Council on Vocational Education issued a series of guidelines to improve programs in occupational education. The recommendations include:

1. A greater awareness, so that the training meets the educational objective.

2. Delineation of the relative responsibility of public agencies and private employers.

3. A further study to evaluate the merits of on-the-job versus classroom instructional training programs.

4. An analysis of federal programs to check out overlap in programs.

5. Evaluate the "work" and the "study" aspects of work-training programs.

The Council's recommendations shed light on the effectiveness of the training system and the instructional plans.

Charles, Ritterhouse, and Heald (1969) made a survey of about 400 superintendents, specialists, and consultants, principals, and teachers to determine major stumbling blocks in occupational program planning. These factors constituted a problem for effective planning.

- a. Lack of time to study the existing problem.
- b. Unnecessary emphasis on the financial aspects of it.
- c. The tendency that everybody and every group must be satisfied.
- d. Many of the plans lack evidence to support them.
- e. And finally, most of the plans cannot be defined in terms of measurable and operational objectives.

Teeple (1970) wrote very extensively on occupational program planning and decision-making. He proposed concepts similar to that of Litchfield (1959). According to him,

The administrator must ask pertinent questions about his future priorities, . . . he must have a goal, know what jobs will be available, develop a plan and spell out the task involved in implementing the plan (p. 90).

He further suggested some critical variables which must be considered in program planning. These include: the necessity for training in the occupation, the availability of the training, the attractiveness of the program to the students, and to what level of competency can the students be trained. He emphasized the importance of widespread

involvement and commitment for a successful planning of occupational programs.

The Carnegie Commission (1971) noted a number of conditions that have created pressure upon the educational system to change and have become more responsive to the needs of students and society. These conditions call for maintaining, expanding, and improving existing programs; developing new programs to meet the needs of persons not presently successful in a particular program. The commission further called for continually reviewing and evaluating occupational programs so that individuals can achieve the greatest degree of efficiency and effectiveness possible. The commission recommended the use of apprenticeship programs, inservice training in industry, and part-time certification programs. They felt that opportunities for higher education should be open to individuals, throughout their lifetime, and not only restricted to the years immediately after high school. The sense of isolation would be reduced "if more students were workers, more workers were students, and all ages were mixed on the job and in the classroom."

Adams (1972) conducted analyses on program planning and course development techniques. He outlined three phases on course development.

The first, preparation, includes: job description, analysis of the task, course objective, examination and grading system, the target population, the prerequisite course and prerequisite testing.

The second phase is called the development phase, which includes: putting in sequence, content and procedure selection, sequence and lesson plan completion, and course tryout.

The third phase which is improvement phase, is concerned with evaluation of performance, and objectives as compared to the job.

Skaggs (1973) in his survey of program developed in junior colleges and that of apprenticeship programs, had a negative note toward those developed in colleges. He noted that these factors were responsible for it:

1. Overspecialization and narrowly conceived curriculum development.

2. That more students are enrolled in a program at a time, rather he suggested that a direction should be toward fewer enrollments.

3. That there is much pressure from the State Board, legislative mandate, and the local community to develop occupational programs.

4. Attrition from occupational programs; he suggested that attrition from occupational education programs should be devoted to "meet realistically the needs of students, to assess their objectives and goals with greater clarity" (p. 12).

5. Another obstacle is the problem facing the students in the occupational field. Many of them make it through the college, but cannot relate successfully in the field of work.

Skaggs (1973) suggested that programs should be reevaluated

constantly and more fieldwork be incorporated into the training experience.

Evans and Neagley (1973) in their book, Planning and Developing Innovative Community Colleges, offered a systematic approach in planning and developing an occupational program in a two-year college.

1. A survey of the community to identify the need for the program.
2. Determine the basic philosophy, which will guide the formulation of the program.
3. Organization of an Advisory Committee which will direct and guide the college on program development.
4. Sequencing the instructional material for the program.
5. Search for the personnel and facilities for the process of instructional development.

Bushnell (1973) proposed strategy on how to implement a new program.

The first step is to do the brainstorming activities, analysis and diagnoses of the problem.

The second step is to state the objectives, and determine how to meet the objectives.

The third step is to identify both the constraints and resources.

The fourth step is to suggest solutions.

The fifth step is the selection of the alternative solutions and finally, the selected alternative solutions are translated into action.

Recently, Hannan and Leddick (1984) have pointed out that,

Changes occurring in American industry, in other areas to improve quality, productivity, and competitive position, represent an education and training challenge (p. 41).

They suggested that, hands-on experience with basic statistical tools and techniques for quality and productivity improvement should be integrated into the training plan of the program. They emphasized incorporation of Deming's philosophy in occupational training programs. (Deming's philosophy is credited with Japan's remarkable ability to produce quality products.) They also proposed that a training plan should include an assessment of existing related training resources, and a follow-up of activities (Hannan and Leddick, 1984).

Occupational program planning should be a systematic planning that calls for corporation between the industry, community and the school. For any program to remain alive, it must be reviewed constantly, it must meet criteria for future prospects, it must have adequate facilities for instructional purposes, and it must be in demand (New Jersey State Board of Education, 1961).

The Development and Uses of Models and Systems in Vocational and Technical Education

The historical event which has given rise to the use of models and systems in educational planning, is the recent emphasis on competency based education. Silvern (1971) has

advocated that the use of a system's approach in system engineering be adopted in education, especially in instructional planning aspects. He believes that instruction, "as a dynamic system has its feedback from occupations and the product performance" (p. 22). The feedback permits evaluation and adjustment of the system.

Barbee (1972) developed a system's approach to community college administrators should adopt a systematic approach to their task by taking into account the inputs which react systematically in the total system. He noted that a community college as a system had several interactions outside itself. It interacts with consumers, the community, government, organizations, and, of course, other educational institutes, and supporting technology. Further, his model emphasizes the need for specification of objectives and goals, particularly in instructional areas, because this will help in evaluation, measurement of effectiveness, and adjustment of cost factors.

Gibson (1968) suggested a system's approach in decision-making in schools through a chart of tension and interaction of value and knowledge systems. These systems identify the priority of the finished product, which feeds into a decision system. In his chart, within the decision system, is a control system, that flows into an action system. His control system is checked by a monitoring system, which he called a particular event. This particular event is the action system determined by the decision.

Another system is Stufflebeam's (1966) evaluation schema,

which has values, options, and information feeding into a decision-maker that determines choice, altered action, and educational improvement.

Gelatt (1962) suggested a "sequential decision making process," which has the same concept as that of Gibson (1968). Another similar model approach in community college decision making was the model presented by Marcus (1967). His "Organizational Decision Model," has three stages:

- a. The definition of an approximate goal or aspiration level, and mapping strategies for its attainment.
- b. The evaluation of alternative strategies.
- c. Finally, the comparison with the initial aspiration level for optimal solution.

A model and system's approach in vocational education could be said to have three components:

1. A focus upon a set of objectives, which is the end to be achieved.
2. A means through which the objectives will be reached.
3. An evaluation or feedback process to measure how well the objectives have been reached (Jobe and Wright, 1973).

The United States Air Force's model and system approach in vocational instruction has four component steps. Each step is a continuity of the other.

- a. Gathering and analyzing job performance requirements.
- b. Translating job performance requirement into behaviorally stated learning objectives.
- c. Identifying, developing, and integrating

operating resources, instructional techniques and procedures.

- d. Assuming achievement of the behavioral objectives and confirming that these objectives fully support the job performance requirements (Air Force Manual, 1970 (p. 5)).

Although the Air Force system has been highly successful and recommended, it needs modification to be adapted for other programs outside the Air Force.

Wallhaus (1969) outlines some of the uses of models as follows:

- To permit feasible and economical experimentation on real-world systems without incurring the cost risks and expenditures of time which are to be required in actuality.
- To allow us to formulate, communicate and discuss hypotheses.
- To bring about an understanding of the system variables and their relationships.
- To make it possible over the time scale, allow long time intervals to be collapsed.
- To enable us to control and monitor real-world processes (p. 127).

The use of models and systems in community colleges, cannot be over emphasized. Its use in instructional planning, decision-making and evaluation processes has been most encouraging in educational systems.

Economic Effects of Vocational and Technical Education

The purpose of this section is to provide a clear

understanding of the effects of the occupational education, especially to long-term effects. It will further offer an insight into the basic causal relationship between the independent variable (i.e., occupational training) and the dependent variable, which is earned income.

* To accept the economic assumption that wages increase in the same proportion as the efficiency of labor increases, will introduce the concept that investments in manpower training can generate an additional income more than the original investment. In other words, productivity of a labor force could be increased by increasing the skill base within the labor force, thus creating additional income to be shared by the community or society (Jensen, 1964).

According to Dension (1962), the effects of investments in human capital on the American economy during the period 1929-1957 did contribute a full 20 percent of the nation's economic growth, as was measured by changes in the Gross National Product.

Schrifer and Bowlby (1971) did a study to analyze the differential benefits from vocational training in the Tennessee Area Vocational-Technical School system. One thousand, seven hundred and one (1,701) former students were randomly selected from nineteen area vocational-technical schools.

The study was intended to determine the following objectives:

1. An economic justification of vocational training.
2. The wage differences among the vocationally trained and nontrained.

3. The internal rates of return to area vocational-technical schools. In order to achieve their objectives, the following relationships were examined in various combinations.

Income, unemployment, occupational mobility, and geographic mobility versus program of study, hours of instruction, sex, race, urban-rural, I.Q., prior formal education, and relatedness of training to job (Schriver and Bowlby, p. 17).

The data collected from the respondents in a mail questionnaire were analyzed, and the findings indicated that:

1. AVTS training resulted in average direct benefits of \$1.57 per week (primary effect only).
2. AVTS training resulted in average direct and indirect benefits of \$7.02 per week (primary and secondary effect).
3. AVTS training increased labor force participation, reduced unemployment and increased occupational mobility.
4. The cost of AVTS instruction during the period studied was \$1.52 per hour.
5. The total rate of return on investments in AVTS training during the period studied was estimated to be 6.3 percent; the private rate of return was estimated to be 13.4 percent.
6. Former students with the lowest educational ability received the greatest rate of return from AVTS training based upon analysis of Social Security earnings.
7. AVTS training was beneficial to former students regardless of period of educational attainment. The income of grade school dropouts, grade school graduates, high school dropouts and high school graduates tended to be increased in constant ratio (p. 12).

The Tennessee study, among others, is a good indication that youths and adults who receive vocational education are

rewarded with "happy living," in terms of more favorable employment, higher income, better job security and satisfaction, and geographic and occupational mobility. Also, vocational training centers can attract industries and business establishments, and thus add to the economic growth of the community where it is located. Vocational training investments, as a method of increasing per capita income, are similar in concept to investments in new machinery or new management techniques in order to increase output.

Summary

Related research and literature with information to be used in developing a model for vocational and technical program development in Nigeria were reviewed under the following headings: (a) Background and system of education in Nigeria, which includes, Beginning of Western Education, primary, secondary, and postsecondary education, the structure of administration, both at state and federal levels, (b) past and present status of vocational and technical education in Nigeria, (c) opinions and theoretical background in occupational program development, (d) the development and uses of models and systems in vocational and technical education, and (e) economic effects of vocational and technical education.

Bushell's (1973) proposed strategy for deciding whether or not to implement a new program for vocational and technical education provided a good summation. He proposed that, the

problem be diagnosed, the objective be formulated and the criteria established. Further, he proposed that constraints and resources be identified and the potential solution to the problem be selected, and finally, alternative solutions are evaluated and actions taken.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to survey selected Nigerian students in Oklahoma for information to be used in developing a model for two-year vocational and technical programs that could help facilitate and restructure the educational programs for intermediate manpower development in Nigeria. This chapter deals with the description of the method and procedure used in conducting the study. The major sections include:

- a. The population.
- b. The instrument used in collecting the information and its development.
- c. The statistics applied in the analysis of data.

The Population for the Study

According to Kerlinger (1973), a purposive sampling is characterized by the use of judgment and a deliberate effort to obtain representative sampling by including presumably typical areas or groups in the sample. In his concept, the best sampling is done by including groups or individuals that have the knowledge of the information required for the study. Following Kerlinger's concept, the researcher chose Nigerian

students studying in selected technical institutes, colleges and universities in the State of Oklahoma. The students selected had their major area of specialization either in Vocational and Technical education, Industrial Technology, Engineering Technology, or Business education.

The institutions selected were (Figure IV):

1. Central State University (CSU), Edmond.
2. Langston University (LU), Langston.
3. Northwest Oklahoma State University (NWOSU), Alva.
4. Oklahoma State Technical Institute, Oklahoma City.
5. Oklahoma State University (O.S.U.), Stillwater.
6. Oklahoma State Technical Institute, Okmulgee.
7. Spartan School of Aeronautics, Tulsa.
8. Southeast Oklahoma State University, Durant.
9. Southwest Oklahoma State University, Weatherford.

The criteria for choosing these schools were based on the programs they offered and the number of Nigerian students in each school. This information was provided through personal contact with the president of Nigerian students associations in each school.

Design and Development of the Instrument

This study utilized questionnaires to obtain data from the participants. The expressed purpose in designing the questionnaire was to solicit responses appropriate for the education of intermediate manpower needs in Nigeria. A series of related literatures were reviewed. Mouly (1978)

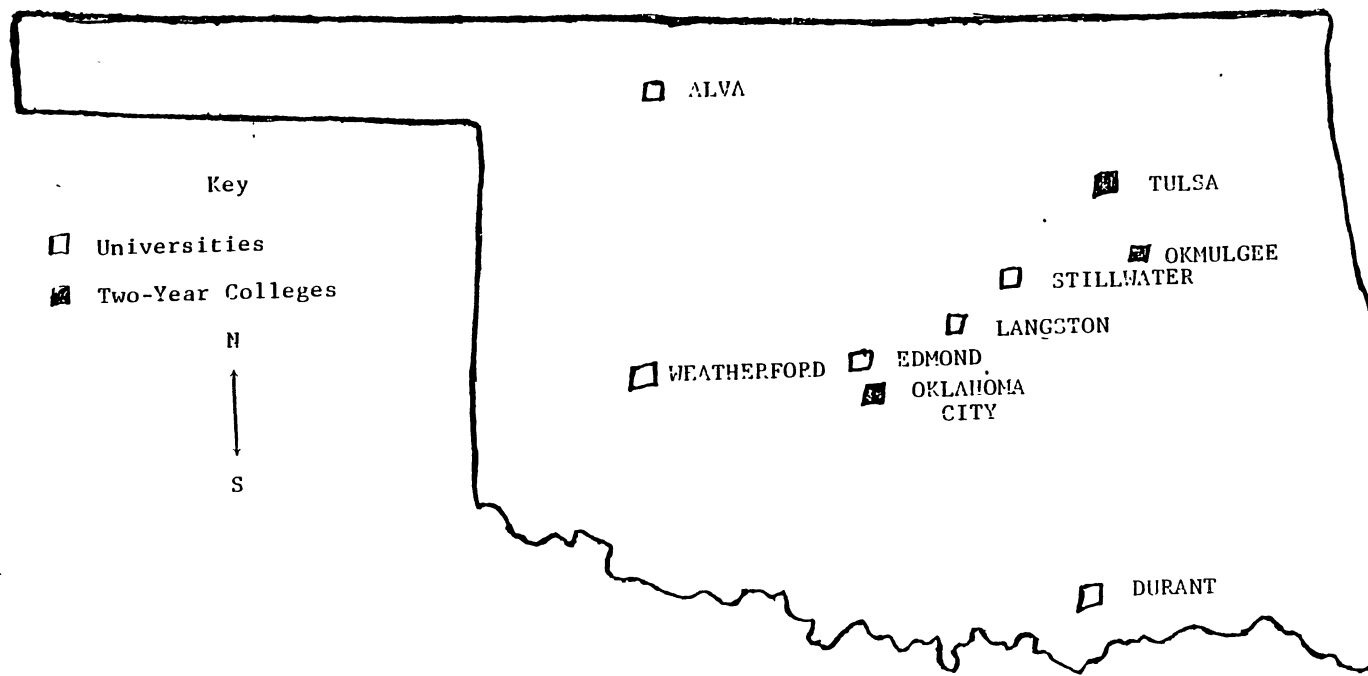


Figure 4. A Map of Oklahoma, showing locations of Colleges and Universities, where Nigerians were selected for this study.

suggested that a questionnaire should seek information not readily available, that it should be brief and understandable, and the directions for filling out the instrument should be as objective and free from ambiguity; and other invalidating features as feasible. He further suggested that they should be placed in good psychological order and arranged for easy tabulation. Following Mouly's suggestions, a panel of experts, which included ten Nigerian graduate students at Oklahoma State University, helped to construct and correct the questionnaire.

The questionnaire was divided into six sections. Each has a specific area of information from the participants. Section One: the demographic information concerning the respondents.

Section Two: Identification of stumbling blocks against effective occupational and technical program development in Nigeria.

Section Three: Program content of four chosen vocational programs.

Section Four: Possibility of modifying two-year Ordinary National Diploma to associate degree.

Section Five: The extent to which respondents preferred the award of Bachelor of Technology to the Higher National Diploma awarded by Nigerian Polytechnics.

Section Six: Concerns who should be involved in occupational and technical program development.

The responses were based on the Likert-type Scale, which

utilized five categories of responses for each item. The Likert-type Scale was chosen because it was found to best measure the perceptions of the population for the study. The instrument is built by accumulating a number of statements, about half of which are positive, and the other half negative. The participants were allowed to express their responses in only one of the five categories. Each category is assigned a number for calculation and analysis purposes.

- a. Strongly Agree = 5
- b. Agree = 4
- c. Undecided = 3
- d. Disagree = 2
- 3. Strongly Disagree = 1

Pilot Study

At the recommendation of the members of the committee, a pilot study was conducted. This was done in order to evaluate and determine: (1) the overall impression of the questionnaire, (2) the clarity of the statements, (3) the style of the questionnaire, (4) the degree to which the questionnaire revealed the purpose and objectives of the study, and (5) to determine other suggestions for the improvement of the questionnaire.

A representative sample of fifteen students from Central State University, Langston University and Oklahoma State University were used. Few changes were made. From this, a final refinement and reconstruction of the instrument was done and approved by the members of the committee for final distribution.

Data Collection

Initially, 200 copies of the questionnaires were distributed to all the selected institutions. They were mailed or distributed to the institutions through a personal contact of the researcher with the president of Nigerian student associations in each institution. Later, 80 copies were sent out to schools which required additional copies. It took approximately three to four weeks to receive completed copies. A total of 231 copies were returned, which is 82.5 percent of the entire copies distributed. The analysis of data is completed based on these 231 respondents who completed their questionnaires.

Data Analysis

The raw data collected for this study was coded and key-punched into the IBM 308 ID at Oklahoma State University's Computer Center. The Statistical Package for Social Sciences (SPSS) was used to compute the data in this study. Descriptive statistics were used to analyze the data, consisting of: (a) Frequency Count, (b) Percentages, (c) Mean Response, and (d) Rank Order. The scale used for each item was as follows: "SA" (Strongly Agree); "A" (Agree); "U" (Undecided); "D" (Disagree); and "SD" (Strongly Disagree). A Five-point rating scale was used to weigh the degree of responses. The scoring of those scores as earlier mentioned in the design and development of the questionnaire were (5.00) Strongly Agree; (4.00) Agree; (3.00) Undecided; (2.00) Disagree; and (1.00) Strongly

Disagree. The researcher considered a mean score of 3.50 or above as an indication of agreement.

Summary

The methodology followed in this study was divided into the following subheadings: (1) the introduction which emphasized the purpose for the study, (2) the selection of the population which followed Kerlinger's (1973) concept of sampling, (3) the design and development of the instrument as suggested by Mouly (1978); the responses were based on Likert-type Scale, (4) pilot study, (5) data collection, and (6) data analysis.

*The Statistical Package for Social Sciences (SPSS) was used to compute the data, while descriptive statistics were used to analyze the data.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this study was to survey selected Nigerian students in Oklahoma for information to be used in developing a model for two-year vocational and technical programs that could help facilitate and restructure the educational programs for intermediate manpower development in Nigeria.

In keeping with the objectives as outlined in Chapter One, this chapter is focused on presentation and analysis of the collected data. The data was collected by means of a structured questionnaire administered to all respondents. The questionnaire was divided into six sections.

One: The demographic information from the respondents.

Two: Identification of severity of some stumbling blocks on effective occupational and technical program development in Nigeria.

Three: Program content of four chosen vocational programs; medical assistant program; mechanical technology, vocational agriculture, and electronic technology program.

Four: Possibility of modifying the two-year Ordinary National Diploma to an associate degree.

Five: The extent to which the respondents preferred the

award of Bachelor of Technology (B. Tech.) to the Higher National Diploma (HND) awarded by Nigerian Polytechnic Institutions.

Six: Who should be involved in the two-year post-secondary occupational and technical program development.

Tables presented in this chapter were designed to provide for more effective communication and to help the understanding of the data analyzed. The statistical techniques used in analyzing the data included frequency distribution, percentages, mean response, and rank order.

Respondents

As shown in Table III, a total of 280 questionnaires were distributed. The initial distribution was 200 copies, with a later follow-up distribution of 80 copies.

A total of 231 students returned their completed questionnaires, which was 82.5 percent of the entire copies distributed.

Demographic Data

In Tables IV through VI, the demographic data from the respondents is illustrated. Table IV, reported the academic classification, with 139 (60.2 percent) as undergraduate students; 85 (36.8 percent) as graduate students; and 7 (3.0 percent) as others.

Table V presented information on age groups, with the highest concentration on ages between 23-27 years old; 112

TABLE III
DISTRIBUTION AND THE RETURN OF
QUESTIONNAIRES BY RESPONDENTS

Total Distri- buted	First Distri- buted	Follow-up Distri- buted	Total Returned	Total Returned
280	200	80	231	82.5

TABLE IV
DISTRIBUTION OF RESPONDENTS ACCORDING
TO ACADEMIC CLASSIFICATION

Academic Classification	Frequency	
	N	%
Undergraduate	139	60.2
Graduate	85	36.8
Others	7	3.0
Total	231	100.0

(48.5 percent) of the total respondents. The next to the largest age group was between 28-32 years old, representing 27.3 percent. The ages between 18-22 had 36 representatives, constituting 15.6 percent, while the smallest age group represented was between 33 and above (8.7 percent).

Illustrated in Table VI, is the geographic location of the respondents in Nigeria. The largest number came from the southeast, 108, which is 46.8 percent. Second to the largest was the southwest, with a representative of 68 students (29.4 percent), while the northeast and the northwest had 28 and 27 representatives (12.1 percent and 11.7 percent) respectively.

TABLE V
DISTRIBUTION OF RESPONDENTS ACCORDING
TO AGE GROUP

Age Group in Years	Frequency	
	N	%
18 - 22	36	15.6
23 - 27	112	48.5
28 - 32	63	27.3
33 - over	20	8.7
Total	231	100.0

TABLE VI
DISTRIBUTION OF RESPONDENTS ACCORDING
TO GEOGRAPHIC LOCATION

Geographic Location	Frequency	
	N	%
Northwest	27	11.7
Southwest	68	29.4
Northeast	28	12.1
Southeast	108	46.8
Total	231	100.0

Findings of the Study

Following the five objectives in which this study was attempting to achieve, the result of the study is presented in five sections. Each section deals with a specific objective.

Section 1

The survey questionnaire asked the participants to identify the severity of some stumbling blocks against effective vocational and technical program development in the Nigerian education system. As demonstrated in Table VII, item ten which is, "Too much attention on ethnic and special interest groups," was identified as number one stumbling block to effective vocational and technical program development in Nigeria. There was an indication of agreement to this item with a mean response of 4.277, 138 participants (59.7 percent) "Strongly agree," while 57 participants (24.7 percent) "Agree." Item twelve, which is, "Inability to relate results and problems elsewhere to the Nigerian manpower development situation," was identified as number two stumbling block, with a mean response of 3.753, while item seven, "Lack of organizational structure to translate research results into meaningful terms for the decision-makers," was identified as the third problem, with a mean response of 3.736. The fourth identified problem was, "Overwhelming pressure from non-educational sources," with a mean response of 3.563, while "Inability to identify causal factors, underlining the vocational education problem,"

TABLE VII

PERCEPTION OF THE FOLLOWING STATEMENTS AS A STUMBLING BLOCK
TO EFFECTIVE VOCATIONAL AND TECHNICAL PROGRAM DEVELOPMENT
IN THE NIGERIAN EDUCATIONAL SYSTEM BY THE RESPONDENTS

Statements Perceived as a Stumbling Block	RESPONSES										Mean Response	Rank Order
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1			
	N	%	N	%	N	%	N	%	N	%		
1. The system lacks sufficient time to study problems related to manpower development in Nigeria.	44	19.0	70	30.3	13	5.6	73	31.6	31	13.4	3.100	11th
2. Inability to identify causal factors underlying vocational education problems.	51	22.1	102	44.2	13	5.6	47	20.3	18	7.8	3.524	5th
3. Undefined measurable goals and objectives or manpower development problems in Nigeria.	54	23.4	84	36.4	15	6.5	52	22.5	26	11.3	3.381	6th

TABLE VII (continued)

Statements perceived as a Stumbling Block	RESPONSES											
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		Mean Response	Rank Order
	N	%	N	%	N	%	N	%	N	%		
4. Unclarified national educational objectives and projects in the eyes of the public by the government.	42	18.2	96	41.6	15	6.5	42	18.2	36	15.6	3.286	8th
5. Lack of qualified personnel to provide research support for program development.	44	19.0	59	25.5	9	3.9	70	30.3	49	21.2	2.909	12th
6. Difficulty in defining exactly what the problem is.	54	23.4	67	29.0	11	4.8	64	27.7	35	15.2	3.177	10th

TABLE VIII (continued)

Statements Perceived as a Stumbling Block	RESPONSES										Mean Response	Rank Order
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1			
	N	%	N	%	N	%	N	%	N	%		
7. Lack of organiza- tional structure to translate re- search results into meaningful terms for the decision-makers.	81	35.1	79	34.2	13	5.6	45	19.5	13	5.6	3.736	3rd
8. The decision- makers are not well trained in decision-making skills.	47	20.3	76	32.9	10	4.3	69	29.9	29	12.6	3.186	9th
9. The wrong vari- ables are stu- died and deci- sions are based on them.	42	18.2	85	36.8	30	13.0	54	23.4	20	8.7	3.325	7th

TABLE VII (continued)

Statements Perceived as a Stumbling Block	RESPONSES										Mean Response	Rank Order
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1			
	N	%	N	%	N	%	N	%	N	%		
10. There is too much attention on ethnic or special interest groups in developing programs.	138	59.7	57	24.7	11	4.8	12	5.2	13	5.6	4.277	1st
11. There is overwhelming pressure from non-educational sources.	57	24.7	89	38.5	24	10.4	49	21.2	12	5.2	3.563	4th
12. Inability to relate results and problems elsewhere to the Nigerian manpower development situation.	52	22.5	119	51.5	15	6.5	41	17.7	4	1.7	3.753	2nd

N = 231, % = 100

was the fifth, with a mean response of 3.524. Item five, "Lack of qualified personnel to provide research support for program development," was shown to be the least problem, with a mean response of 2.909.

Section 2

In this section, the questionnaire was designed to obtain responses from the participants on their perceived program content of four chosen vocational programs. They are: the Medical Assistant program, Mechanical Technology program, Vocational Agriculture, and Electronic Technology. The findings were presented in Tables VIII and IX. Both the Medical Assistant program and the Mechanical Technology program contents were perceived very positively as a necessary and required training program in a vocational and technical school, with the overall mean responses of 4.606 and 4.006 respectively.

Data presented in Tables X and XI showed a strong agreement on program content of vocational agriculture and electronic technology. The overall mean responses from the participants were 4.331 for vocational agriculture and 4.332 for Mechanical technology.

The items that received the highest rating were "basic electronics" and "agricultural mechanics," with total mean responses of 4.511 and 4.498 respectively.

Section 3

The analysis of the participants' perceptions on the possibility of modifying the Ordinary National Diploma program

TABLE VIII
 DISTRIBUTION OF PERCEPTION BY RESPONDENTS ON MEDICAL
 ASSISTANT PROGRAM CONTENT

	<u>RESPONSES</u>										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
1. The Medical Assistant Program content should include: Anatomy, Physiology, related disorders and disease.	104	45.0	108	46.8	10	4.3	7	3.0	2	.9	4.320
2. Office Practices, Medical termin- ology and human relations.	90	39.0	128	55.4	5	2.2	5	2.2	3	1.3	4.286
3. Clinical Practives, Surgical Asepsis, X-ray and pharma- cology.	95	41.1	121	52.4	8	3.5	6	2.6	1	.4	4.312
Overall Mean Response											4.606

N= 231, % = 100

TABLE IX
 DISTRIBUTION OF PERCEPTION BY RESPONDENTS
 ON MECHANICAL TECHNOLOGY PROGRAM
 CONTENT

	<u>RESPONSES</u>										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
1. Individual shop safety	69	29.9	136	58.9	7	3.0	15	6.5	4	1.7	4.087
2. Engine rebuilding, and brake repairs.	70	30.3	125	54.1	8	3.5	16	6.9	12	5.2	3.974
3. Electrical system repairs.	71	30.7	131	56.7	7	3.0	15	6.5	7	3.0	4.056
Overall Mean Response											4.006

N = 231, % = 100

TABLE X
 DISTRIBUTION OF PERCEPTION BY RESPONDENTS
 ON VOCATIONAL AGRICULTURAL
 PROGRAM CONTENT

	RESPONSES											Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1			
	N	%	N	%	N	%	N	%	N	%		
1. Vocational agricultural program content should include agricultural mechanics.	123	43.2	103	44.6	2	.9	3	1.3	-	-	4.498	
2. Supervised experience program.	78	33.8	141	61.0	4	1.7	7	3.0	1	.4	4.247	
3. Leadership programs	94	40.7	121	52.4	3	1.3	5	2.2	8	3.5	4.247	
Overall Mean Response											4.331	

N = 231, % = 100

to an associate degree was presented in Table XII. The data indicated that 72 (31.2 percent) "Strongly Agree," while 81 (35.1 percent) "Agree" that the Ordinary National Diploma should be modified to an associate degree, with a mean response of 3.576. On the question of whether "Ordinary National Diploma awarded in Nigeria polytechnics is equal to an associate degree awarded by American Junior and Community Colleges," a mean response of 3.004 was recorded, showing disagreement. Further, on the equality of the Ordinary National Diploma to American Area Vo-Tech Certificates, the participants responded with a mean response of 2.433. This indicates a strong disagreement by the respondents.

Section 4

The findings shown in Table XIII concerned the extent to which respondents preferred the award of Bachelor of Technology (B. Tech.) to the Higher National Diploma (HND) awarded by Nigerian Polytechnic Institutes. Upon analyzing the perceptual responses, it was found that the overall mean response was 3.672, indicating a preference of the Bachelor of Technology (B. Tech.) in place of the Higher National Diploma (HND). Item two, which is a preference to the award of Bachelor of Technology by Nigerian Polytechnics, has the highest mean response of 4.281. The majority of the respondents who hold the Higher National Diploma (HND) agree that it is equal to the college degree, while those who do not hold it, disagreed to its equality to a college degree.

TABLE XI
 DISTRIBUTION OF PERCEPTIONS BY RESPONDENTS
 ON ELECTRONIC TECHNOLOGY
 PROGRAM CONTENT

	RESPONSES											Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1			
	N	%	N	%	N	%	N	%	N	%		
1. Electronic technology program content should include basic electronics, including source of electrical energy.	123	43.2	104	45.0	3	1.3	1	.4	-	-		4.511
2. Fundamentals of direct and alternating currents.	94	40.7	129	55.8	1	.4	4	1.7	3	1.3		4.329
3. Basic wiring.	96	41.6	108	46.8	6	2.6	9	3.9	12	5.2		4.156
Overall Mean Response											4.332	
N = 231, % = 100												

TABLE XII
 DISTRIBUTION OF RESPONDENTS ON POSSIBILITY
 OF MODIFYING THE ORDINARY NATIONAL
 DIPLOMA PROGRAM TO AN
 ASSOCIATE DEGREE

	<u>FREQUENCIES</u>										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
1. The Ordinary National Diploma program in Nigeria Polytechnics is equal to an Associate Degree awarded by American Junior Colleges.	58	25.1	50	21.6	13	5.6	55	23.8	55	23.8	3.004
2. Ordinary National Diploma program is equal to Area Vo-Tech Certificate awarded by American Vo-Tech institutions.	24	10.4	38	16.5	23	10.3	75	32.5	71	30.7	2.433
3. Ordinary National Diploma program should be modified to an Associate degree program.	72	31.2	81	35.1	11	4.8	42	18.2	25	10.8	3.576

TABLE XII (continued)

	FREQUENCIES										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
4. Ordinary National Diploma program should remain as it is without additional modi- fication in standards.	27	11.7	42	18.2	13	5.6	88	38.1	61	26.4	2.506
Overall Mean Response											2.880

N - 231, % = 100

Section 5

Contained in Table XIV is one of the perceived agreements on who should be involved in vocational and technical program development. Item one, which states that "Politicians should determine what programs institutions should offer," had a mean response of 1.801, indicating a strong disagreement by the respondents. The second item, which states that, "Administrators and teachers should determine what programs are to be offered," had a mean response of 2.74, showing disagreement. Item three, which states that, "Experts should design the program," had a strong agreement with a mean response of 4.255. Item six had the strongest agreement with a mean response of 4.693, which indicates "A cooperative effort of the community, industry and schools," in program development for vocational and technical institutions. Item seven, which states that "Program development should reflect student's occupational interest," had a mean response of 4.242, indicating a strong agreement among the respondents. An overall mean response of 3.717 was calculated from all of the items, supporting their agreement on who should be involved in the occupational program development.

Summary

Chapter IV is a presentation and analysis of data. The presentation is divided into six sections. Each section dealt with a section as in the questionnaire. Section one, reports the demographic information from the participants; two is

TABLE XIII
 DISTRIBUTION OF RESPONDENTS ON THE PREFERENCE
 AND ACCEPTANCE OF BACHELOR OF TECHNOLOGY
 OVER THE HIGHER NATIONAL DIPLOMA
 AWARDED IN NIGERIAN
 POLYTECHNICS

	<u>FREQUENCIES</u>										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
1. Nigerian Polytechnics should award a diploma equal to a college degree.	96	41.6	95	41.1	8	3.5	17	7.4	15	6.5	4.039
2. Bachelor of Technology (B. Tech.) degree should be awarded by the Polytechnics.	118	51.1	89	38.5	5	2.2	9	3.9	10	4.3	4.281
3. The breadth of knowledge acquired from a Bachelor of Technology program in Polytechnics must be that required by their employer.	106	45.9	77	33.3	7	3.0	24	10.4	17	7.4	4.000

TABLE XIII (continued)

	FREQUENCIES										Mean Response
	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		
	5	4	3	2	1						
	N	%	N	%	N	%	N	%	N	%	
4. The Higher National Diploma awarded by the Polytechnics is not readily acceptable as equal to a college degree by the Nigerian public, and thus should be eliminated.	30	13.0	29	12.6	7	3.0	95	41.1	70	30.3	2.368
Overall Mean Response											3.672

N = 231, % = 100

TABLE XIV
 DISTRIBUTION OF RESPONDENTS ON WHO SHOULD
 BE INVOLVED IN VOCATIONAL-TECHNICAL
 PROGRAM DEVELOPMENT

	<u>FREQUENCIES</u>										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
1. Politicians should determine what programs institutions should offer.	10	4.3	18	7.8	8	3.5	75	32.5	120	51.9	1.801
2. Administrators and teachers should determine what programs are to be offered.	28	12.1	52	22.5	9	3.9	116	50.2	26	11.3	2.740
3. It is only an expert who should design programs.	96	41.6	116	50.2	4	1.7	12	5.2	3	1.3	4.255
4. Programs offered in vocational and technical school should reflect community, state, and national interest.	150	64.9	75	32.5	3	1.3	3	1.3	-	-	4.610

TABLE XIV (continued)

	<u>FREQUENCIES</u>										Mean Response
	Strongly Agree 5		Agree 4		Undecided 3		Disagree 2		Strongly Disagree 1		
	N	%	N	%	N	%	N	%	N	%	
5. Program development should be a cooperative effort of the community, school and industry.	164	71.0	65	28.1	-	-	2	.9	-	-	4.693
6. Program development should be influenced or should reflect the interest of business and industry.	132	57.1	89	38.5	2	.9	3	1.3	5	2.2	4.472
7. Program development should reflect students' occupational interest.	87	37.7	128	55.4	3	1.3	11	4.8	2	.9	4.242
9. It is only the industrial sector that should determine the program development.	24	10.4	82	35.5	11	4.8	81	35.1	33	14.3	2.926
Overall Mean Response											3.717

N = 231, % = 100

identification of severity of some stumbling blocks in vocational and technical program development in Nigeria; three, is content of four chosen vocational programs; four and five, are possibility of modifying both Ordinary/High National Diploma to Associate and Bachelor of Technology degree respectively, while six, is identification of those that should be involved in vocational and technical program development.

Tables were designed to provide for more effective communication and to help the understanding of the data analyzed. The statistical technique used for the data analysis includes frequency distribution, percentages, mean response and rank order.

CHAPTER V

SUMMARY, FINDINGS, AND RECOMMENDATIONS

Summary

In consideration of the purpose of this study, which was to survey selected Nigerian students in Oklahoma for information to be used in developing a model for two-year vocational and technical programs that could help facilitate and restructure the educational programs for intermediate manpower development in Nigeria, therefore, this study was designed to achieve the following objectives:

1. To determine the degree to which some stumbling blocks hinder an effective development of vocational and technical programs in the Nigerian educational system for its intermediate manpower need.
2. To secure perceptions of the selected students, regarding the program content of four chosen vocational programs at intermediate manpower development levels.
3. To secure the perceptions of the respondents, regarding the possibility of modifying the Ordinary National Diploma (OND) to an associate degree.
4. To determine the preference and acceptance of the Bachelor of Technology (B. Tech.) over the Higher National

Diploma (HND) awarded by Nigerian polytechnics.

5. To secure the perceptions of the respondents on who should be involved in program development for the two-year occupational and technical schools.

Design and Procedure for the Study

From the review of research and literature related to this study, it was found that the design and methodology for this study involved the following tasks: (a) establishing the population for the study, (b) selecting and developing the questionnaire, (c) validating both the external and internal validity of the instrument, (d) establishing a procedure for administering the questionnaire and data collection, and (e) finally, establishing a method for analyzing and describing the data collected.

The study population was drawn from nine technical institutes, colleges and universities in the State of Oklahoma. A total of 280 copies of questionnaires were distributed and returns of 231 were received, constituting a 82.5 percent return. Data were analyzed using the percentages, frequency distribution, mean response, rank order, and overall mean response.

Findings of the Study

The findings of this study were reported and described in five sections. Each section specifically dealt with an objective for the study.

The first section was "To identify the severity of some stumbling blocks against effective occupational and technical program development in the Nigerian educational system." A twelve-item questionnaire was developed. Item 10, which is, "Too much attention to ethnic and special interest groups," was identified to have had the most severe effect on program development in Nigeria. A total of 195 participants (84.4 percent) identified it as the strongest stumbling block, with a mean response of 4.277. "Inability to relate results and problems elsewhere to the Nigerian situation," was ranked second, with a mean response of 3.753, while "Lack of organizational structure to translate research results into a meaningful term for decision-makers," was ranked third. The least identified stumbling block was item five, which is "Lack of qualified personnel to provide research support for program development," and had a mean response of 2.909.

The highlight of Section one is a clear indication that ethnicity or tribalism is a chronic disease which has penetrated into the Nigerian system of education, affecting its socioeconomic development. The study also indicated that Nigeria has qualified personnel comparatively, but these personnel have never been put into proper perspective, utilized properly, or given a chance, because of tribal or ethnic blindness among Nigerians.

The second section which was designed to obtain responses from the participants on program content of four chosen vocational programs, was reported in two parts. One, the Medical Assistant program and the Mechanical Technology program.

The first section was "To identify the severity of some stumbling blocks against effective vocational and technical program development in the Nigerian educational system." A twelve-item questionnaire was developed. Item 10, which is, "Too much attention to ethnic and special interest groups," was identified to have had the most severe effect on program development in Nigeria. A total of 195 participants (84.4 percent) identified it as the strongest stumbling block, with a mean response of 4.277. "Inability to relate results and problems elsewhere to the Nigerian situation," was ranked second, with a mean response of 3.753, while "lack of organizational structure to translate research results into a meaningful term for decision-makers," was ranked third. The least identified stumbling block was item five, which is "lack of qualified personnel to provide research support for program development," and had a mean response of 2.909.

A probable conclusion in section one, is that ethnicity or tribalism has penetrated into the Nigerian system of education, affecting its socioeconomic development. The study also indicated that Nigeria has qualified personnel comparatively, but these personnel have never been put into proper perspective, utilized properly, or given a chance, because of tribal or ethnic blindness among Nigerians.

The second section which was designed to obtain responses from the participants on program content of four chosen vocational programs, was reported in two parts. One, the Medical Assistant program and the Mechanical Technology program.

Two, Vocational Agricultural and Eoelectronic Technology. It was found through the study that the four programs were perceived as adequate and necessary for vocational training. The Medical Assistant program and Mechanical Technology program had an overall mean response of 4.173, while Vocational Agriculture and Electronic Technology had an overall mean response of 4.331. An implication which can be inferred from this section is that participants perceived these programs as necessary and required programs in Nigerian intermediate manpower development.

The third section, which was designed to obtain responses from the participants on the probable modification of the Ordinary National Diploma awarded by Polytechnic Institutions in Nigeria to an associate degree, revealed that a total of 153 participants (66.3 percent) responded positively, while 67 participants (29 percent) responded negatively, and 11 (4.18 percent) were undecided. A probable conclusion which can be drawn from this section is that the participants in the majority supported the modification of the Ordinary National Diploma to an associate degree, since both have a two-year duration of study. Further, many higher institutions both in Nigeria and overseas do not accept OND as equal to an associate degree for students who want to continue their studies. Thus, it would be better to standardize it to an associate degree, so that students can find it an easy access in continuation of their studies.

The fourth section, which concerned the extent to which

respondents preferred the award of "Bachelor of Technology" by Nigerian polytechnics to "Higher National Diploma." It was found that the majority of the participants, 207 or 89.6 percent favor the award of Bachelor of Technology over the Higher National Diploma. Both have a four-year duration of studies, but B. Tech. is more acceptable than HND by the Nigerian public (Banjo, 1974).

An implication on this section shows how much the Nigerian public is concerned about a college degree, other than certificates. Further, HND is the highest diploma which a Nigerian technician can receive on graduation from polytechnic institutions. There is a tendency that their programs and curricula are not expanded beyond the value attached to their diploma, therefore, to break this barrier, it will be fair to expand it to the B. Tech. program level so as to allow the graduates upward mobility in the world of technology.

The fifth section reports perceived responses on, "Who should be involved in occupational and technical program development." It was found that community, business and industry, and school personnel should be involved in occupational program development. There was strong disagreement by the respondents that "Politicians should be involved." A probable implication from this section could be that Nigerians want their national educational goals to be tailored and established on the needs of the society, rather than on political grounds.

Recommendations

Based on the findings of this study and possible conclusions drawn, the following recommendations are made with the intent of restructuring and facilitating the educational programs for the intermediate manpower development in Nigeria.

1. It is recommended that vocational and technical program development should be the exclusive right of the federal government, so as to streamline and harmonize the educational objectives of the nation and fight against tribal or ethnic blindness, which was identified as the number one stumbling block to effective occupational program development.

2. That the Federal and State governments, in collaboration with the universities, should establish an organizational structure which will help translate research findings into meaningful terms for decision-makers.

3. That the Federal and State government, in addition with the business and industries, should accept utilization and meaningful employment of Nigerian qualified personnel in program development, without ethnic, tribal or political bias, since it was shown in the study that Nigeria does not lack qualified personnel, only that they are not given the opportunity because of political or ethnic bias.

4. That an occupational and technical program development should be accepted and enforced as a cooperative effort of the industry, community, and the school.

5. That employers of labor in Nigeria should endeavor to supply the training institutions with forecasts of their manpower requirements to enable the institutions to plan their production of graduates.

6. That programs offered in vocational and technical institutions should reflect national and students' occupational interests.

7. That every program offered either at the Polytechnics or Vocational and Technical Institutions, should have members of an Advisory Committee, constituting employers from business, and industry, School personnel, and a representative from the Ministry of Education and public services commission.

8. That a continuous re-evaluation of programs be done from time to time because of changing technology.

9. That a research should be done to determine the levels of two-year and four-year postsecondary Vocational and Technical programs offered in Nigerian polytechnics, so as to award both an associate and a B. Tech. degree, in place of the Ordinary National Diploma (OND) and Higher National Diploma (HND). This will help the graduates with an upward mobility in technology fields.

10. A comparative study of intermediate manpower development (problem/solution) elsewhere is recommended, so that the results can be related to the Nigerian situation.

According to Nwamadi (1984), "technological development is not achieved in a vacuum." It is only through a properly conceived and established system that the economic and social

growth of a nation is attained. The advance nations like the U.S.A., Britain, France, Japan, West Germany, and South Korea, propounded a traditional and an acceptable pattern of education that had eventually oriented their citizens to a meaningful goal (Nwamadi, 1984).

This study indicated that Nigeria has the resources and qualified personnel to pilot its educational system, if given the opportunity.

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APPENDICES

APPENDIX A

QUESTIONNAIRE USED FOR THE SURVEY

DEMOGRAPHIC INFORMATION

1. Classification
 Undergraduate Graduate Other
2. What age group do you fall in?
 18-22 23-27 28-32 Over 32
3. Your geographic location in Nigeria.
 N.W. S.W. N.E. S.E.

Instruction: Please rate the following statements (1-40), using this scale of preference:

- 5 - Strongly agree
- 4 - Agree
- 3 - Undecided
- 2 - Disagree
- 1 - Strongly disagree

Part I (1-12)

	5-Strongly agree	4-Agree	3-Undecided	2-Disagree	1-Strongly disagree
The following statements are stumbling blocks; please rate each according to its perceived severity to effective vocational and technical program development in the Nigerian educational system.					
1. The system lacks sufficient time to study problems related to manpower development in Nigeria.					
2. The system lacks ability to identify causal factors underlying vocational education problems.					
3. There are no defined measurable goals and objectives on manpower development problems in Nigeria.					

	5-Strongly agree	4-Agree	3-Undecided	2-Disagree	1-Strongly disagree
4. The national educational objectives and projects are not clarified in the eyes of the public by the Nigerian government.					
5. The system lacks qualified personnels to provide research support for program development.					
6. There is difficulty in defining exactly what the problem is.					
7. There is no organizational structure to translate research results into meaningful terms for the decision-makers.					
8. The decision-makers are not well trained in decision-making skills.					
9. The wrong variables are studied and decisions are based on them.					
10. There is too much attention on ethnic or special interest groups in developing programs.					
11. There is overwhelming pressure from non-educational sources.					
12. Inability to relate results and problems elsewhere to the Nigerian manpower development situation.					

PART II (13-24)

	5-Strongly agree	4-Agree	3-Undecided	2-Disagree	1-Strongly disagree
Please respond according to your perception on the program content of the four chosen vocational programs.					
13. The medical assistant program content should include: Anatomy, physiology, related disorders, and disease.					
14. Office practices, medical terminology and human relations.					
15. Clinical practices, surgical asepsis, X-ray and pharmacology.					
16. Individual shop safety.					
17. Engine rebuilding, and brake repairs.					
18. Electrical System repairs.					
The vocational agricultural program content should include:					
19. Agricultural mechanics.					
20. Supervised experience programs.					
21. Leadership programs.					
The electronic technology program content should include:					
22. Basic electronics, including source of electrical energy.					

	5-Strongly agree	4-Agree	3-Undecided	2-Disagree	1-Strongly disagree
23. Fundamentals of direct and alternating currents.					
24. Basic wiring.					
Part III (25-28)					
Rate the following perceptions on the possibility of modifying the Ordinary National Diploma program to the Associate Degree level.					
25. The Ordinary National Diploma program in Nigeria Polytechnics is equal to the Associate Degree awarded by the American Junior Colleges.					
26. The Ordinary National Diploma program is equal to Area Vo-Tech Certificate awarded by American Area Vo-Tech institutions.					
27. The Ordinary National Diploma program should be modified to the Associate Degree program.					
28. The Ordinary National Diploma program should remain as it is without additional modification in standards.					
Part IV (29-32)					
Rate the following statements to determine the standard of a 4-year program, diploma awarded, in Nigerian Polytechnics.					
29. Nigerian Polytechnics should award a diploma equivalent to a college degree.					

	5-Strongly agree	4-Agree	3-Undecided	2-Disagree	1-Strongly disagree
30. The Bachelor of Technology degree should be awarded by the Polytechnics.					
31. The breath of knowledge acquired from a Bachelor of Technology program in polytechnics must be that required by their employer.					
32. The Higher National Diploma awarded by the Polytechnics is not readily acceptable as equivalent to a college degree by the Nigerian public, and thus should be eliminated.					
Part V (33-40)					
Respond to the following questions which seek to understand the body of persons that should be involved in Vocational-Technical program planning.					
33. Politicians should determine what programs the institutions should offer.					
34. Administrators, and teachers only should determine what programs are to be offered.					
35. It is only an expert who should design the programs.					
36. Programs offered in vocational and technical should reflect community, state, and national interest.					
37. Program development should be a cooperative effort of the community, school, and industry.					
38. Program development should be influenced or should reflect the interest of business and industry.					
39. Program development should reflect students' occupational interests.					
40. It is only the industrial sector that should determine the program development.					

APPENDIX B
QUESTIONNAIRE COVER LETTER
TO RESPONDENTS



Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

STILLWATER, OKLAHOMA 74078
CLASSROOM BUILDING 406
(405) 624-6275

Box 2191
University Station
Enid, OK 73701
8/20/84

Dear Fellow Nigerian Student,

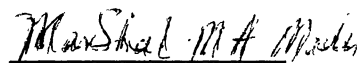
I am conducting a survey study with the intent of gathering information to be used in developing a model for a two-year vocational and technical program in Nigeria. Further, the model is intended to help restructure and facilitate educational training programs in Nigerian intermediate manpower need in its labor force.

This is an opportunity for you to share your views, having known the conditions as they were in Nigeria. Please assist me in this effort by completing the enclosed questionnaire. If you want to mail it back to me, you are free to do so, but it will be best if you can leave it with the President of Nigerian Student's Association in your school.

I am appreciative of your effort and it will be most helpful if you could return the completed questionnaire to me before October 20, 1984.

Thanks for your cooperation.

Sincerely yours,


Marshal M. A. Madu

Enc.

VITA 2

Marshal Marcellinus A. Madu

Candidate for Degree of

Doctor of Education

Thesis: CONSIDERATIONS IN THE ESTABLISHMENT OF A TWO-YEAR
VOCATIONAL AND TECHNICAL EDUCATIONAL PROGRAM FOR
MANPOWER DEVELOPMENT IN NIGERIA

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in Umuaka, Imo State, Nigeria,
April 26, 1954, son of Madu and Onugo Irobiya.

Education: Had primary school education at St. Mary's
Catholic School, Umuaka; Received high school
education from St. Peter Claver's Junior Seminary,
Okpala-Aba, 1974; received B.A. (De ure) in Phil-
osophy from Bigard Memorial (Major) Seminary Enugu/
Ekot-Ekpene, 1978; received Bachelor of Arts degree
from Phillips University, Enid, Oklahoma, 1981;
received the Master of Education degree in Counsel-
ing Psychology from Phillips Univeristy, Enid,
Oklahoma, 1982; completed requirements for the
Doctor of Education degree at Oklahoma State Uni-
versity, Stillwater, Oklahoma, May 1985.

Professional Experience: Taught at Mary Mount's Girls'
College, Agbor, Bendel State, Nigeria, (1978-1979
academic session); internship, Enid State School,
Enid, Oklahoma, 1981; from 1983-1985, worked in
related field, with Oklahoma State Department of
Human Services, Enid State School, Enid, Oklahoma.

Professional Organizations: Member American Psychologi-
cal Association; member American Vocational Associ-
ation; member Iota Lambda Sigma Fraternity.