

AN EVALUATION OF INTERNAL EFFICIENCY OF
JUNIOR SECONDARY EDUCATION IN OYO STATE
BETWEEN 1986 AND 1990

BY:

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A B S T R A C T

The major problems facing educational system in Nigeria are those of resource allocation and resource utilisation. This study took stock of the resources in the Junior Secondary Schools in Oyo State and evaluated the degree of internal efficiency of Junior Secondary Education.

The study focussed on:

- 1) making a critical analysis of the extent to which resources are made available to Junior Secondary Education in Oyo State;
- 2) identifying the extent to which the resources are being utilised;
- 3) finding the extent to which Junior Secondary education graduates are being admitted to technical and teacher training colleges;
- 4) determining the extent of wastage rate reduction and improvement in students academic performance during the period;
- 5) finding the extent to which the system is internally efficient; and

- 6) identifying causes of inefficiency, and suggesting recommendations for the elimination.

To achieve these objectives, five research questions were raised and four hypotheses were tested.

In providing answers for the research questions and testing the hypotheses, two sets of instruments: An Evaluation of Efficiency Questionnaire (EEQ I) for Principals and EEQ II for Guidance Counsellors were developed. Information was also collected from the Examinations Department, and also the Statistics Division of the Ministry of Education, Ibadan.

For data analysis, simple percentages were used to determine the growth trend, the reconstructed cohort method was employed to determine the wastage rates and wastage ratios, Chi-square, Spearman's Rank-Order Correlation Coefficients and t-test were used to determine the relationship between the internal and external efficiency of schools under study and to test the hypotheses.

The findings show, among other things that:

- 1) the resources available for Junior Secondary Education in the area under study were not adequate.

There were inadequate number of technical and science teachers. Physical and material resources were also inadequate;

- 2) some technical workshops, technical equipment and teachers were found not to be fully utilised;
- 3) there were inadequate technical and teacher training colleges for those aspiring to proceed in technical and teacher training education. Up to 1990, both technical and teacher training colleges were able to admit 6.3 per cent of the total population of junior secondary education graduates of Oyo State and 21.7 per cent of the proportion that were not qualified for academic courses;
- 4) the teaching of most of the technical and vocational subjects had not started;
- 5) the internal efficiency of Junior Secondary Education between 1986 and 1990 was far from being perfect;
- 6) between 1986 and 1990, the internal efficiency of Junior Secondary Schools showed an improving trend. The wastage ratio decreased from 1.16 in 1988 to 1.07 in 1990; and the wastage rate decreased from 8.7 per cent in 1988 to 4.7 per cent in 1990;

- 7) there was a significant relationship in the internal and external efficiency of the schools studied;
- 8) internal efficiency between schools in the areas of focus had no significant difference;
- 9) student-teacher ratio was found to be normal in the study area. The average was found to be 21:1.

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D E D I C A T I O N

This work is dedicated to the Almighty God who made possible my educational attainment.

To my children Bukola, Segun, Adeola, Aderonke, Adekunle and Adesola.

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C E R T I F I C A T I O N

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CHAPTER ONE

I N T R O D U C T I O N

Background to the Study

Since the introduction of formal education into Nigeria, technical education appears to have been seriously neglected.

Prior to the implementation of the national policy on education, the educational system of the country was the 6-5-2-3 type consisting of a 6-year primary, 5-year secondary, 2-year higher school, (optional) and a 3-year university education. This system, as criticised by many Nigerians, was not designed to meet the demands of a fast growing independent nation like Nigeria in the areas of high level manpower development and technological take-off. The system led to situations whereby graduates from universities were unable to secure employment.

According to Bajah¹,

the system produced mostly job-seekers in a society with few jobs to offer and consequently most of the school leavers were unemployed.

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1. Bajah, S. T.: Implementation of the New Senior Secondary School Chemistry Curriculum: Key-note Address, Paper Presented at the STAN National Chemistry Workshop, Enugu April 27th - May 2nd, 1986.

Investigations therefore started as to the type of educational system that could be adopted in the country.

Evolution of the 6-3-3-4 System

The Federal Military Government instituted the National Curriculum Conference (NCC) in 1969 and this was held in Lagos as an attempt to bring about improvement in the educational system of the country. The participants at the conference included Nigerian educationalists and consumers of education and end-products.

There were also international bodies like the United Nations Educational Scientific and Cultural Organisation (UNESCO), the Canadian International Development Agency (CIDA), the Curriculum Renewal and Educational Development Overseas (CREDO) and the United States Agency for International Development (USAID).

From the deliberations of the NCC, a national policy on education emerged and this was incorporated into the final recommendations made to the government. The recommendations were that the philosophy, goals, objectives and purpose of education be stated. However, in 1972, the National Council on Education (NCE) deliberated on the draft national policy as recommended by the NCC. A seminar to make proposals for the national policy was later held in

June 1973 under the chairmanship of Chief S. O. Adebayo. The participants at the seminar included educational and professional experts from the universities, commerce, Nigerian Union of Teachers (NUT), Conference of Principals, Religious organisations, Labour Unions, National Union of Nigeria Students (NUNS) and a number of international bodies. The reports of the seminar were handed over to the Federal Ministry of Education Lagos for comments. The report was then referred to the state governments, the National Education Research Council (NERC) and the Joint Consultative Committee (JCC) for their comments. The seminar report and comments made on it were later considered for final ratification by the NCE. The government white paper, the National Policy on Education was published in 1977 and later revised in 1981.

The policy stipulates a 6-3-3-4 system of education which depicts a 6-year primary, 3-year Junior secondary, 3-year Senior secondary and a 4-year university education. The policy which is self-reliance and self-sufficiency-oriented began to be implemented in 1982 in ten out of the existing nineteen states then. It however, took off in Oyo State in 1986.

There was a restructuring of secondary education into two tiers which brought a lot of changes not only in the fundamental structure but introduced new elements into the curriculum as well as in the management of schools.

According to the policy, Nigeria's educational system would be¹

... flexible enough to accommodate both formal and non-formal education at certain points in the system. The first six years will be for general basic education, followed by three years of general education with prevocational subjects. The next three years will be for general education leading to some marketable skills apart from training in the sciences and humanities. The next four years will be for university education and professional courses of varying durations.

This system is a radical departure from the former system where we had five years of full secondary education. For instance the introduction of vocational courses is a deliberate shift in emphasis from literary to science oriented education. Also, a new mode of assessment technique for students' educational achievement has been introduced.

1. Federal Government of Nigeria: National Policy on Education, Lagos, Federal Ministry of Information, Printing Division, pp. 47-48; 1981.

This is termed continuous assessment whereby pupils are assessed not only through examinations but also using the regular work done in class as a supplement.

The two-tier system has also brought a number of changes in the management of secondary schools. On admission, students go through a 3-year course at the end of which they sit for the external examination for the award of the Junior Secondary School Certificate. On completion of Junior Secondary School, the students may either be promoted to the Senior Secondary Class, seek admission in other schools which run the senior secondary if they so wish or in the alternative proceed to technical and teacher training colleges. This system also resulted in grouping the courses available into technical, commercial, arts and science subjects. Some schools are allowed to run only the JS programme while others are permitted to run both JS and SS programmes.

In support of the need for this radical change in secondary education system, the World Bank (1990), remarked that secondary education is important to development because it provides students with a bridge to higher education, while preparing young people for employment and enabling them to continue learning throughout their

life time. From the research conducted by the World Bank, it was discovered that in many developing countries, there are more secondary school graduates than can be absorbed by institutions of higher education or the labour market. The unfortunate result is high unemployment and under-employment among educated people.¹ In response, countries often increase their commitment to vocational school in the expectation that it will ease students' transition to work. But this approach has been effective only in rapidly industrializing economies.

In order to solve the problems, secondary education has been vocationalised more than before. Junior Secondary Education which has provision for prevocation as well as academic courses is designed to move the recipients to the realm of practice, applicability and functionality. The curriculum has been diversified to bring into focus such technical and vocational subjects as woodwork, metalwork, electronics, mechanics, local crafts, home economics, business studies, introductory technology, to mention a few.²

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1. The World Bank Publication: The Dividends of Learning: World Bank Support for Education, p. 23, 1990
 2. Federal Government of Nigeria: (National Policy on Education), p. 17, 1981.

The general aims of education are influenced by the particular circumstances of a country's prevailing condition and stage of development (UNESCO, 1971).

The National aims and objectives of education are well stated in the National Policy on Education (1981) as:

1. the inculcation of national consciousness and national unity;
2. the inculcation of the right type of values and attitudes for the survival of the individual and Nigerian society;
3. the training of the mind in the understanding of the world around; and
4. the acquisition of appropriate skills, abilities, competence both mental and physical as equipment for the individual to live and contribute to the development of his society.¹

The aims and objectives stated above have been influenced by the national objectives of the country which are as follows, the building of:

1. a free and democratic society;
2. a just and egalitarian society;
3. a united, strong and self-reliant nation;

1. NERC: The National Policy on Education, Revised Edition, Yaba-Lagos: NERC Press, p. 8, 1981.

4. a great and dynamic economy;
5. a land of bright and full opportunities for all citizens.

It is the hope of the government that the above aims would be achieved through functional education. Government therefore introduced the National Policy on Education which is believed would aid the transformation of the country into a technologically-developed and self-reliant nation.

The success of the current educational policy therefore, can only be determined by the extent to which the goals for which the policy was laid down are achieved. This, in turn, is dependent upon how the programme is executed.

Statement of the Problem

The Junior Secondary component of the 2-tier system of secondary school education was launched in Oyo State with a view to taking care of all the observable lapses and problems of the previous system (6-5-2-3) in terms of wastages and poor performance due to poor quality of teachers and inefficient use of the available resources.

But since the scheme began in Oyo State in 1986, it seems as if the objective of the new system of education for the Junior Secondary schools in the state would be

difficult to realise. This may be due to uneven distribution of physical, human and material resources, rapid increase in the prices of textbooks, unreliable source of power to operate technical equipment, poor condition of some school buildings, poor transportation system, irregular payment of teachers salary, frequent transfer of teachers and rural/urban migration of both teachers and students.

Before and during the period of this study, in almost all the secondary schools in Oyo State classrooms were overcrowded with students. A classroom meant for forty pupils were shared by eighty or more students. New intakes were asked to provide chairs and tables for themselves. Students were found roaming the streets and school premises on the grounds that there were no teachers to teach them. Free periods were common on the time-table of many schools. Majority of the schools had no library and where libraries existed, there were few books on the shelves. Most of the students lacked basic textbooks especially in English and Mathematics. Teaching aids were grossly inadequate in schools covered by the study. During terminal and promotion examinations pupils were found running after questions instead of reading

their text-books. Preparatory classes organised in some schools after the school hours were poorly attended by the students. Some teachers and principals were attending school irregularly. Students were always engaged on the farm in rural areas. Majority of the students could not express themselves in simple English. Teachers had series of strikes because of irregular payment of salaries and deprivation of their fringe benefits. Some schools were not even inspected by the school's inspectors from the Ministry of Education. Cases of indiscipline such as truancy, late coming to schools, fornication, theft and thuggery were noticed among the students. The percentage pass mark or cut-off point for admission into Junior Secondary schools ranged between twenty to forty percent in the rural areas and forty per cent above in urban centres.

The uncondusive learning environment may have caused educational wastages. The promotion rates may have been low where materials are short in supply and where teachers' morale have been lowered. There may have been high rates of repetition and a considerable percentage of school

children may have dropped out without completing their courses. The system may have become internally inefficient.

In view of these observed problems, one would doubt the possibility of achieving the objectives of Junior Secondary schools in the state.

The conditions of schools as observed above, prompted the researcher to conduct a research to investigate the Internal Efficiency of Junior Secondary Education between 1986 and 1990 in Oyo State. This forms the focus of this study.

Research Questions

The problems observed above have led to the following questions which the research has attempted to answer.

1. How adequate are the available resources for the Junior Secondary Schools in Oyo State between 1986 and 1990?
2. Are the available resources being fully utilised?
3. Are the new technical subjects introduced and taught effectively?
4. Are those aspiring to proceed further in technical and teacher training education being fully admitted?
5. Is Junior Secondary Education Internally Efficient?

Objectives of the Study

The study is designed to achieve these major objectives:

1. Making a critical analysis of the inputs and outputs of Junior Secondary School in Oyo State.
2. Finding out the extent to which resources are made available to Junior Secondary School in Oyo State.
3. Determining the wastage rates in Junior Secondary School in Oyo State during the period under study (1986 - 1990).
4. Identifying causes of inefficiency (if any).
5. Determining the effect of the internal efficiency on the external efficiency of the schools.
6. Determining the percentage of the Junior Secondary school graduates that are admitted to technical and teacher training colleges.
7. Providing plausible policy recommendations for better school management in the state.

Definition of Terms

The terms used in this study lend themselves to varied interpretations. It is therefore necessary to provide definitions for such terms. This

would clear up misconceptions and ambiguities.

Resources: These are the sum total of everything that goes into the education system. The resources are human, physical, material and financial.

Physical and Material Resources: These include buildings, stationery, audio visual equipment, reprographic equipment, technical and laboratory equipment.

Educational Wastage: The proportion of students who enrol for course but can not complete it successfully because they withdraw before taking the examination or because they fail the examination.

Dropouts: Students who registered in school but withdraw from it for any reason other than transfer to another school.

Withdrawal: This refers to dropping out of a student from a programme before the completion of the programme.

Retention: This refers to the completion of a programme of study within the prescribed period allocated by the National Policy.

Human Resources: These are the students teaching and the non-teaching staff in the school.

Financial Resources: These refer to funds available for Junior Secondary Schools. These may be Parents

Teachers' Association levies, grants and free donations.

Educational Inputs: These refer to student enrolments, teachers employed as well as physical, material and financial resources available in the school.

Educational Output: This refers to the students who have acquired relevant skills and have completed the Junior Secondary school cycle successfully.

Evaluation: This refers to a systematic process of measuring the performances of a given programme.

Efficiency: This refers to the capacity of the system to turn out graduates with minimal wastage. It is the optimal relation between inputs and outputs of a given system.

Internal Efficiency: This refers to the extent to which an educational system is able to minimise the number of student-years a child spends, before successfully completing an educational programme. In other words, it is the extent to which repetition and drop-out rates can be minimized.

Perfect Internal Efficiency: This refers to a situation in which educational wastage is nil or the number of pupil-years spent by repeaters and dropouts is zero.

External Efficiency: This refers to the extent to which an educational system meets the broad aims and objectives of the society or the profitability of government investment on the system and the usefulness of the products to the society.

Community-based School: This refers to a school established by the members of a community.

Government-based School: This refers to a school established and financed by the government.

Open System: is a system that has fixed rules and regulations that guides the organisation.

Repetition refers to a year spent by a student doing the same work in the same grade as in his previous years in school.

Failure refers to the inability of a student to pass examination set at the end of course work.

Attrition: The rate at which student drop0out at school.

Delimitation of the Study: This study is limited to some randomly selected secondary schools in Oyo State. All the 615 secondary schools in the state could have been used but because of time, financial and other constraints, it would be limited to just a sample of fifty of the six hundred and fifteen schools.

Since the study does not cover all the state secondary schools, there is a limit to which applications and findings can be generalised.

Significance of Study

The deleterious effects of educational wastages at the secondary level underscore the need for intensive and continued research on the internal efficiency of secondary education in countries where such studies are still relatively lacking.

In Nigeria, as in many parts of the developing countries where educational expansion is still in progress and where the wastage problem is acute, the need for such studies can hardly be overemphasised. Infact, one of the ways of further increasing the enrolment figures and ensuring improvement of the internal efficiency is by reducing failure and dropout rates.

In Nigeria, schooling at the secondary school is not totally free and compulsory mainly because of the prohibitive costs of providing places for every child. It is important, therefore, that maximum use be made of the available resources. A study of the internal efficiency of the school will, therefore, be of great interest and

one of the ways of effecting this, is by evaluating the inputs and outputs of a given level of education.

Studies on the evaluation of internal efficiency will provide **information** of importance to the theorist who is attempting to understand how and to what extent institutional factors influence student behaviour with respect to dropping out and retention.

The information will also be useful to educational administrators and institutional planners for decisions concerning the allocation of scarce resources among many competing educational programmes, the siting of schools and the expansion of educational facilities.

Educational policy makers will also find such information useful in formulating educational policies, while educational researchers will also benefit from such studies by gaining more understanding of the phenomena and drawing the implications for further studies.

The study will supply information on the current problems affecting the efficiency of Junior Secondary Education in Oyo State.

Although this study was carried out in Oyo State, it is hoped that educational administrators, planners and

other educators in the other states of the Federation will find the results and conclusions instructive for their own situations.

Educational planners in the state will hopefully find the study useful in planning flows of students within the state's Junior Secondary system to meet the quantitative demands of manpower, and in allocating resources to secondary and other levels of education.

The Junior Secondary school has been chosen for the study not because other levels are not of equal importance but mainly because the problem of wastage has remained virtually uninvestigated at this level of education in Oyo State.

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The review of literature on the evaluation of Internal Efficiency of Junior Secondary Education attempted to cover examination of some studies, experiments and philosophical suggestions on planning, management and measurement of educational efficiency as follows:

- a) Studies on the 6-3-3-4 system
- b) Studies of wastage in Education
- c) Measurement of Withdrawal, Failure, and Retention
- d) Studies on Resources such as physical, material, human and financial
- e) Studies on the measurement of educational efficiency
- f) Appraisal of literature review

Studies on the 6-3-3-4 System

The literature on the 6-3-3-4 system of education revealed that it was introduced to bring about a new development in the country.

The former system of education (the 6-5-2-3) having been criticised by Bajah¹ as not being designed to meet the demands of a fast growing independent nation like Nigeria

1. Bajah, S. T.: Op. Cit.

became modified with the new system. It is a belief that for a country to develop technologically, the practical method of learning is the key and not just the theoretical aspect as experienced in the old system of education.

The 6-3-3-4 system of education is also expected to provide a situation in which skilled and self-employable manpower is created for the country. In other words, the system is intended to be a functional one. Obi, added to this when he wrote that:

the 6-3-3-4 system underpins the close monitoring of the ... domains of the pupils, and making out of them men and women who would not wait for government white-collar jobs before creating gainful employment for themselves.¹

The secondary component of the system aims at the following:

1. Preparation for useful living within the society and
2. Preparation for higher education.²

In specific terms, the secondary school should aim at the following:

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1. Obi, F.: "6-3-3-4, Progress, Problems, Prospects", Sunday Times, 7th April, 1991, p. 11.
 2. Federal Government of Nigeria: National Policy on Education, p. 16, 1981.

- a) provide an increasing number of primary school pupils with the opportunity for education of a higher quality, irrespective of sex, or social, religious, and ethnic background;
- b) diversify its curriculum to cater for the differences in talents, opportunities and roles possessed by or open to students after their secondary school course;
- c) equip students to live effectively in our modern age of science and technology;
- d) develop and project Nigerian culture, art and language as well as the world's cultural heritage;
- e) raise a generation of people who can think for themselves, respect the views and feelings of others, respect the dignity of labour and appreciate those values specified under our broad national aims and live as good citizens;
- f) foster Nigerian unity with an emphasis on the common ties that unite us in our diversity;
- g) inspire its students with a desire for achievement and self-improvement both at school and in later life.

The school curriculum became not only widened but also enriched. Sofolahan, buttressed this when he mentioned that:

to be able to achieve the specified objectives of this level of the policy, and the particular need for every Nigerian student going through the skill is expected to use his hands and to appreciate the dignity of labour, the long list of subjects in paragraph 19 of the policy has been enumerated.¹

This in essence aims at providing the students with a large number of options depending on their interests and aptitudes. The expansion of the curriculum for deeper knowledge of the courses in the curriculum called for the lengthening of the secondary school period from five to six years of learning.

The idea of the Junior Secondary education according to Sofolahan² is:

to expose students... to a wide variety of subjects for each student to identify his area of interest, so that he can go into greater depth in those areas during the last three years of senior secondary education.

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1. Sofolahan, A.: "The 6-3-3-4 system of Education and the universities" Keynote Address delivered at the University of Ibadan Campus Seminar, 9 March, 1987, p. 2.
 2. Sofolahan, A: Op. Cit. p. 3.

This exposure is regarded to be necessary so that the student would be able to make a rational decision on his choice of career.

Osokoya¹ also highlighted the importance of the 6-3-3-4 system of education when he gave reasons for the derivation of the system. He mentioned that the system aims at:

acquisition of skills, appreciation of the dignity of labour, solving the country's problems of illiteracy, manpower shortage and promoting scientific and technological advancement.

The policy therefore aims at giving the nation a sense of direction. Literature has also revealed that Nigeria is not the only country in West Africa where a change in the educational system has been embarked upon. Ghana, Sierra Leone and Gambia had changed their educational policies in line with Nigeria. The 3-3 component of the secondary education though new in Nigeria has been given trial in some other countries. For example, the system has been put into practice in North America and the United States.

Studies of Wastage in Education

Literature on educational wastage in many countries of the world is replete with studies on the personality

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1. Osokoya, O.: History and Policy of Nigerian Education in World Perspective, Ibadan, A.M.O. Publishers 1989, p. 98.

traits of dropouts. There is a scarcity of published studies on this issue in Nigeria. The few studies on wastage rates available to the investigator focus on primary, secondary education and as well as distance learning (e.g. Okedara¹, Ejieh², and Aderinoye³).

Most of the published studies on wastage in education from the United States focus on the incidence of dropping out.

Kaplan and Luck⁴, referring to the work of Curley and his colleagues, stated that during the 1960s, approximately eight million students dropped out of school in the United States without receiving a high school diploma, and that in

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1. Okedara, J. T.: A Comparative Study of Formal and Non-formal Educational Wastage in Ibadan Institute of Education, University of Ibadan, 1981.
 2. Ejieh, M. U. C.: Wastage Rates and Associated School Factors in Selected Anambra State Secondary Schools, Unpublished Ph.D Thesis, Faculty of Education, O.A.U. Ile-Ife, 1983.
 3. Aderinoye, R. A.: Retention and Failure in Distance Education. The Experience of National Teachers Institute (NTI) Kaduna, Unpublished Ph.D Thesis, University of Ibadan, 1992.
 4. Kaplan, J. L. and Luck, E. C.: "The Dropout Phenomenon as a Social Problem", The Education Forum, 1977, 42 (1), 4 - 56.

1970-71, only 78.8 per cent of the high school students of 1967 graduated in their classes. A study by French¹, reports that about 25 per cent of the secondary school population in the United States withdrew without graduating.

Ejeh² investigated the incidence of wastage in Anambra State secondary schools using a reconstructed cohort from 1975/76 to 1980/81 academic years. His findings revealed that:

- i) dropout rates in the sampled schools ranged from 2.08 per cent to 64.62 per cent while repetition rates ranged from 2.44 per cent to 87.50 per cent;
- ii) the dropout rate for the secondary school system was 26.98 per cent and the repetition rate was 27.79 per cent;
- iii) the incidence of dropout and repetition among the students was highest in class five;
- iv) the overall wastage rate among the cohort was 63.20 per cent in a seven year period;

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1. French, J. L.: "Characteristics of High Ability Dropouts", Bulletin of National Association of Secondary School Principals, 1969, 334, 67.
 2. Ejeh, M. U. C.: Op. Cit.

- v) there was no significant difference in either dropout or repetition rates between boys' schools and girls' schools.

The researcher identified school location, total student enrolment, sex composition of the student body, proportion of qualified teachers and number of subjects offered as factors of wastages in Anambra State secondary schools.

In order to reduce wastages, the investigator suggested that the government should strive to reduce the greater attraction held by urban schools in the state for students. That government should recruit more qualified teachers into the secondary schools and make concerted efforts to give some professional training to the unqualified ones.

Aderinoye¹ conducted a research on Retention and Failure in Distance Education in Nigeria. He made use of the Distance Learners of the National Teachers' Institute (N.T.I.) Kaduna. The study determined the factors leading to wastages among distance learners of the Teachers' Grade II programme of the National Teachers' Institute Kaduna with a view to finding possible solutions to

1. Aderinoye, R. A.: Op. Cit.

reducing the failure rate and increase the rate of retention. He made use of Chi-square and analyses of variance (ANOVA) to determine the influence of the various factors on the failure and retention rate of the Teachers' Grade II distance learners.

His findings revealed the following factors:

- a) different educational background of the learners;
- b) the course materials;
- c) the quality of teachers;
- d) the environmental variables;
- e) financial inadequacies of the learners;
- f) social responsibilities and
- g) poor motivation on the part of the government.

Based on his findings, he suggested that:

- i) the entry qualification of learners for a particular course of study be uniform;
- ii) the cost of materials be highly subsidized by the government or the employers of the learners;
- iii) distance learners be motivated and encouraged during the course through appropriate reward system;
- iv) qualified and trained course writers be employed to write course materials for the learners.

- v) study centres be adequately equipped with support materials to facilitate better learning environment for the learners;
- vi) course materials be produced and distributed early enough for learners' use;
- vii) tutorial masters, supervisors and others involved in the programme be promptly paid their honorarium to motivate them; and
- viii) the various government policies should take into consideration the implication on the working populace.

Richard Powell,¹ et. al. chose a range of variables to measure factors predisposing students toward success, withdrawal and failure in their first Athabasca University course. These variables which included marital status, need for success, need for support, literacy level, financial stability, concrete study, gender, previous education, children's age with their composition were based on a four Likert scale of measurement. Although this set of discriminating variables was developed in the

1. Powell, R. et. al.,: Research at Athabasca University Success and Retention Programme. Research in Distance Education, vol. 2, 9 - 10.

light of existing literature on student success in distance education, not all factors were addressed because of difficulty in measurement.

The variables which were included in the discriminant model can be used to construct a reasonably detailed profile of potentially successful and unsuccessful students.

From the study, students who rated themselves highly on various measures of persistence were more likely to succeed in their studies than students who rated the consequences of not passing as serious were more likely to pass their first course. Successful completers tended to rate their chances of succeeding in their studies higher than those who eventually withdrew from or failed their courses.

Respondents who indicated that they needed support from others to complete difficult tasks and who said they found it important to discuss course work with other students were numbered among the unsuccessful group. Student literacy as measured by a close test was also related to student failure and withdrawal.

In addition, respondents who rated themselves as well organised in terms of time management skills, and said they generally had the time to do what they intended to

do were also likely to succeed. Similarly, students who rated the value of their formal and informal learning as high in terms of preparing them for university studies tended to succeed and persist in their study. Female students were more likely to succeed than male students. However, in a previous analysis when the mean completion rates of the course chosen by students in the model, was included, gender ceased to be a significant predictor variable. This suggests that gender differences in completion rates are, at least partly, explainable by course choice.

The set of factors that predict student failure and retention among a particular population would not necessarily apply to other population and other institutions. Indeed, the analytic framework as proposed in predisposing model vary according to institutional factors and life changes. In an institution where students do not meet in classes or tutorial, premium is placed on independent study, organisational ability and the existence of outside support structure in predicting failure and retention.

Thus, the discriminant model classified 69 per cent of the respondents correctly in terms of their success and retention.

The study indicated that a substantial amount of the variance of completion behaviour is explained by predisposing model. However, the explanatory value, though significant does not account for all of the variance in completion. Therefore, the interaction of institutional factors and changes in life circumstances, with student predisposing characteristics should provide a clearer picture of student retention and failure. The model becomes most useful to determine factors that could affect student's failure and retention.

In a study carried out by Sloan¹ at the University of Kentucky where 135 students, an approximate one third of students in that institution discontinued their distance studies subsequent to enrolment and prior to completion.

The most frequent reasons for enrolling in the first place were to meet a degree requirement for self-improvement, and for certification purposes. A small number of (10) were repeating because of failure or low grade and a few scattered additional reasons were given.

1. Sloan, D.: Survey Study of Correspondence Drop-outs and Cancellations, University of Kentucky, Lexington.

Major reasons given for non-completion were job interference, with study, lack of time, taking residence classes at same time and loss of interest, (found correspondence study uninteresting) although only 12 students gave response.

In response to a request to suggest ways to reduce failure and withdrawal, responses were limited. Twelve students suggested time extension, eight asked for reduction in number of lessons, eight asked for more lessons through response from instructors and eight asked for more lessons with detailed explanation.

Pulley at the University of Missouri also studied the failure and withdrawal situation. He surveyed 243 students who had discontinued their correspondence study enrollments at that institutions. The principal reason for enrolling to satisfy degree requirements and self-improvement, were the same as in the study of Sloan. The same is true of reasons given for discontinuing as:

1. Employment interfered with time for study.
2. Lack of direct contact with instructor and too much work.

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1. Pulley, J.: Drop-out Situation at the University Missouri in Gayce B. Chulds. Recent Research Development in Correspondence Instructions. ICCE Paris. 1971.

In another study carried out by Elizabeth¹, student reacted to questionnaires sent to two groups of students, namely those who had started but had done no work for some time, and those who were progressing well. Returns were received from 358 students. Principal reasons for registering for corresponding instruction instead of classroom instruction were:

- i) that some were in military service;
- ii) that some were living in far distant places from the school;
- iii) that some were working; and
- iv) that some had finished all other requirements for graduation.

Students who were not progressing gave as reasons:

1. their conditions of having job;
2. inability to have time;
3. that residence work will take too much time.

Only 22 responses were made concerning what the study centre could do to help the student most. The most frequent response was that the course was quite satisfactory as it was. Next in order, were requests for better

1. Elizabeth, C. A.: Society to Encourage Studies at Home in Mackenziel et. al., The Changing World of Corresponding Study, Pennsylvania University Press, London.

directions, more comments on papers, more information about final examinations and extension of time.

Analysing the economic benefits of vocational training organised to prevent failure and withdrawal, Corazzin¹ argued that benefits to be measured are the marginal increase in life-time income which result from graduating from high school rather than dropping out at the tenth or eleventh grade level.

These increases in life time income are only the direct benefits associated with the investment in education. Thus his conclusion was that if public decision-makers are willing to consider vocational education as an investment, and to count every vocational graduate as having been saved from failing or withdrawing from schools, the investment is worth undertaking.

Educational Wastage and School Factors

The phenomena of failure, repetition and dropping out of school are multidimensional, with a number of intellectual, educational and social characteristics of the students interacting with a number of factors in the school to determine the outcome. Each variable may not have more than

1. Corazzin, A. J.: "The Decision to invest in Vocational Education: An Analysis of costs and benefits" The Journal of Human Resources, 1968.

allow level of correlation with dropping out or failure and as such, educational wastage cannot be readily ascribed to one major cause. That school factors (usually subsumed under what some educators and writers refer to as institutional characteristics) influence the probability that a student will continue in school has been indicated in a number of recent works. (Dyer¹, Pascarella and Terenzini², Wegner and Sewell,³ and Ejieh⁴).

With regard to the influence of these factors, Tinto⁵ comments that:

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1. Dyer, H. S. "School Factors and Equal Educational Opportunity" Harvard Educational Review, 1968, 38 38 - 56.
 2. Pascarella, E. T. and Terenzini, P. T.: "Interaction Effects in Spady's and Tinto's Conceptual Models of College Dropout", Sociology of Education, 1979, 52 197 - 210.
 3. Wegner, E. L. and Sewell, W. H.: "Selection and Context as Factors Affecting the Probability of Graduation from College, American Journal of Sociology, 1965 9, 46 - 52.
 4. Ejieh, M. U. C.: Op. cit.
 5. Tinto, V.: "Dropouts from Higher Education: A Theoretical Synthesis of Recent Research", Review of Educational Research, 1975, 45 89 - 125.

... it is not surprising that characteristics of the institution even at the aggregated level have been shown to relate to differential rates of dropout. It is the characteristics of the institution ... that place limits upon the development and integration of individuals within the institution and that lead to the development of academic and social climates, or 'presses' with which the individual must come to grips.

Various institutional characteristics have been examined with regard to the dropout phenomenon by various investigators mainly at further and higher levels of education.

School Location: In a study of educational wastage in Chile, Berr¹ found the geographical location of a school to be one of the most important factors associated with wastage. Williams² in a similar study on primary education, reported a much higher wastage rate in the public rural schools than in the public urban schools in Guatemala.

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1. Berr, H.: "El Problema del Poblado de Chile" Cited in Brumer M. A. and Pauli L. Wastages in Education: A World Problem, p. 37 Paris UNESCO 105, 1971.
 2. Williams, T. D.: "Wastages Rates and Teacher Quality in Guatemalan Schools" Comparative Education Review, 1965, 9, 46 - 52.

Beinstock¹, in his study of job markets for the high school dropouts, found among other things, that the percentage of students leaving school prematurely in rural non-farm areas was 8.9, in rural farm areas 11.3, and in urban areas 14.1. This findings do not agree with that of Williams in Guatemala.

Type of School This refers to the sex composition of the student body.

Yudin, Ring, Nowaskiswka and Reinemanns² in their study of randomly selected groups of dropouts and college bound students in a Philadelphia high school, found significant sex differences among the two groups. There was a greater proportion of females among the college bound students and a greater proportion of males among the dropouts.

Contrary to these findings some studies such as those by Astin³ and Spady⁴ found significantly higher dropout

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1. Beinstock, H. "Realities of the Job Market for the High School Dropout" in Schreiber, D. (ed.), Profile of the High Dropout, New York: Vintage Books 1968.
 2. Yudin, L. W. Ring, S.I. Nowakiwska, M. and Heinemann, S.H.: "School Dropout or College Bound: Study in Contrast" Journal of Educational Research, 1973, 67 (2)
 3. Astin, A. W. "The Impact of Dormitory Living on Students" Educational Record 1973, 54 204 - 210.

rates among girls than boys in colleges.¹ Other studies report no significant differences in the dropout rates of both sexes. Such were the findings made by Thomas² who studied the phenomenon in a high school and Peng and Fatters³ who observed no sex differences in withdrawal rates in four year colleges but with respect to two-year colleges, they found that females were more likely to withdraw than males.

The School Size: The size of the school is a factor that has been of some concern to policy-makers in their attempt to obtain information about the 'critical size' - the

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1. Spady, W. Dropouts from Higher Education Towards Empirical Model Interchange Country 1971.
 2. Thomas, R. J. "An Empirical Study of High School Dropouts in regard to Ten Possibly Related Factors". Journal of Educational Sociology, 1954, 28.
 3. Peng, S. S. and Fatters, W. B.: "Variables involved in Withdrawal during the first two years of college: Preliminary findings from the National Longitudinal study of the High school class of 1972" American Educational Research Journal, 1978, 15 (3).

enrolment figure that will make for efficiency of operation, which implies among other things, reducing the dropout and repetition rates. School size is often seen as an indicator of the level of student-teacher interaction and student participation in school activities. Studies summarised by Feldman and Newcomb¹, report the following effects of size: (1) large schools reduce students' confidence in their popularity with others and in their scholastic ability; (2) students in large colleges are less likely to report that their colleges constitute friendly and cohesive communities; (3) students in large schools have less contact with their teachers outside the classrooms than those in small colleges.

Against this background, one would expect the dropout and repetition rates to increase with the size of school. This expectation has been met in the study by Astin and Panos in which a slight positive relationship was found between size and dropout rate.

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1. Feldman, K. A., and Newcomb, T. M.: "The Impact of college on students" cited in Kamens, D.H. "The College 'Character' and College size: Effects on Occupational Choice and College Attrition, Sociology of Education, 1971 44 (3) 271.
 2. Astin, A. W. and Panos, R. J.: "Attrition among College students" American Educational Research Journal 1968, 5 57 - 72.

In support of this finding, Nelson¹ categorized institutions as below or above a given size and found the smaller institutions have lower dropout rates than larger ones.

Teacher Quality: The importance of qualified teachers in any school system is so widely acknowledged that the point needs not be overemphasised.

To stress the importance of this factor, Williams² after studying wastage in Guatemalan primary schools vis a vis teacher qualification, hypothesized that

... when the proportion of "qualified" teachers falls below 33% (with a teacher-student ratio of approximately 1 to 35) the resources devoted to education have been almost completely wasted.

In some studies of wastage, the students' major reasons for withdrawing from school centred around the incompetence of lack of professional training by some teachers.

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1. Nelson, A. C.: "College Characteristics Associated with Attrition" The Personnel and Guidance Journal, 1966, 44; 1046 - 1050.
 2. Williams, D. T.: Op. Cit.

The UNESCO¹ 1967 study on educational wastage in Asia revealed "lack of interest in learning" by the students as one of their reasons for leaving school prematurely. It was suggested that such lack of interest stemmed from, among other factors, ill-conceived teaching methods which minimise chances of students' meaningful learning.

Sando², in a comparative study of early school leavers found that dropouts expressed less satisfaction than non-leavers with their teachers' interest in them, their relationships with their teachers and their teachers' knowledge of their special needs.

Curriculum: In a study of wastage on the world scale undertaken for the International Bureau of Education by Brimer and Pauli,³ unsuitability of the curriculum was shown to be one of the major causes of dropping out of school. This finding comes as no surprise as it is in the curriculum

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1. UNESCO "The Problems of Educational Wastage" Bulletin of the UNESCO Regional Office for Education in Asia, 1967, 1 (2).
 2. Sando, R. F.: "A Comparative study of Early School leavers" Ph.D Dissertation, University of California, 1952.
 3. Brimer, M. A. Pauli, L.: Op. cit.

that most of the child's expectations about his intellectual development and possibly, preparation for future careers are supposed to be catered for in the school. When a student feels that what is offered in the school curriculum is in no way relevant to his needs or expectations, he may either withdraw from the school or seek transfer to another school where these will be better met.

Residence in school Dormitory

Many research findings show that students who live in dormitories are less likely to withdraw from school than those who live off-campus. Astin¹ for instance in a study of the impact of dormitory living on students, found that living in a dormitory compared with living at home, had positive benefits on the student's educational courses.

Measurement of Withdrawal, Failure and Retention

The UNESCO² publication of 1970 defined educational wastages as failure, withdrawals and repeaters, and described three methods of measuring them, namely,

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1. Astin, A. W.: Op. cit
 2. UNESCO: The Statistical Measurement of Educational Wastage, Dropouts, Repetition and School Retardation, Paris: UNESCO 1970.

apparent cohort method, reconstructed cohort method and the true cohort method. Apparent cohort method uses either cross sectional year-class data, (enrolment in all classes in a single year) or a time-series data (data on enrolment in successive classes in successive years) or class-wise enrolment without repeaters. The method provides only a rough estimate of educational wastage, for it does not make the assessment of repetition of classes possible. The reconstructed cohort method is based on successive year-class data on enrolment and repeaters which are given a fully cycle of cohorts. The drop-outs, repeaters, and promotion rates are calculated.

Through this method one can calculate the unit cost of wastage, the input-output ratio and the index of internal efficiency. The Reconstructed Cohort Method is an improvement over the Apparent Cohort Method. Yet, the Reconstructed Cohort Method presents only estimated and not actual wastage pictures. The True Cohort Method calls for longitudinal study of a group of pupils from the beginning class to the final class. Through the method, answers are found to the following questions:

- a) How many pupils leave a school, and at what point?
- b) How many pupils transfer in and out of school?

- c) How many pupils migrate to other countries?
- d) How many pupils repeat classes and with what frequency?
- e) How many pupils die?
- f) How many pupils rejoin a school after dropping out?
- g) How long do all those who ultimately complete the course successfully take to do so?

Though most scientific, the True Cohort Method is time-consuming and expensive to operate. It requires the use of continuous record cards by a teacher, who must compile detailed information on every pupil in a cohort. Perhaps as a result of its expensive nature, the True Cohort Method is not popular. For instance, UNESCO 1982 conducted a statistical evaluation of wastages in primary education in thirty three African member states, using Apparent and Reconstructed Cohort Methods. The study depicted changes in the internal efficiency of a given country educational system overtime. However, the result could not be compared in all countries, due to diversity in the educational systems and practice. Nigeria was not included in the study due to lack of required data.

Sapara carried out a review of methodologies for computing educational wastages, highlighting strengths and weaknesses of each method. He added an Asian Model and illustrated his points with the calculation of repeater, dropout, promotion and graduation rates, through progression process, as pupils move from a beginning class to a final class.

Like the Reconstructed Cohort Method, the Asian Model leads to estimating wastages. Thus the model provides an alternative strategy to the Reconstructed Cohort Method.

Mayer¹ described voluntary (e.g. due to unemployment) and involuntary (e.g. on account of illness), dropouts with regards to elementary and secondary education in the state of Oregon (USA). Having studied the magnitude of the problems for the period 1947 to 1963, he showed that pupils' attendance rates diminished, but at a much slower pace than enrolments increased. His work failed to take repeaters and transfers into consideration.

1. Mayer, W. J. and Van Dalen, D. E.: Understanding Educational Research, New York McGraw-Hill.

Studies on Physical and Material Resources

Adeboyeje¹ carried out a research on the management of school physical facilities in Ondo State of Nigeria. From his findings, he discovered that school physical facilities and funds were inadequately provided and that shortage of these resources was one of the causes of industrial action embarked upon in 1982 by Ondo State Branch of Nigeria Union of Teachers.

Banjo² and Taiwo³ remarked that a rapid increase in both primary and secondary schools enrolment without a corresponding increase in the provision of educational facilities have contributed to poor performance of students in education.

The All Nigerian Conference of Principals of Secondary Schools held in July 1977 at the University of Lagos noticed that inadequate supply of physical facilities and equipment was a perennial problem. They went further to explain that inadequate accommodation, chairs and books, have caused

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1. Adeboyeje, R. A.: The Management of School Physical Facilities in Ondo State Nigeria: Unpublished Ph.D Thesis, University of Ife, Ile-Ife 1984.
 2. Banjo's Report: Report of Banjo Commission on Educational System in Western Nigeria, Ibadan Government Printers, pp. 14 - 19, 1961.
 3. Taiwo, C. O.: Taiwo's Report on Primary Education System in Western State, Ibadan Government Printer, pp. 2 - 16, 1968.

riots among students in some schools in Nigeria.¹

Nichols² emphasised the needs of a modern elementary classroom in his study. He asserted that:

A classroom that is suitable has much more than good lighting, good heating, desks and chairs and chalkboard. We know that children learn best through the practical application of facts. So to learn however requires the presence of working facilities.

The school physical plants planning as an investigative concept has been subjected to a lot of research by Engelhardt³ N. L. in an attempt to assess its effects on pupils' academic performances in New York. He discovered that adequate physical plants have positive results on the pupils' performance.

Coombs⁴ also stressed the importance of physical facilities in his identification of the major components of an educational system. He noted that:

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1. ANCOPSS: Principals Report on Discipline and Motivation of Schools held at the University of Lagos, July 12 - 13, 1977, Daily Sketch, February 9 1978, p. 5.
 2. Nichols, J. E.: "Planning Small Town and Rural Schools" Childhood Education: February 6th, 1946
 3. Engelhardt, N. L.: A Complete Guide for Planning New Schools: New York, 1961, Macmillan Book Publishing Corporation.
 4. Coombs, P. H.: The World Educational Crisis: New York Oxford University of Illinois Press Urban Chicago, London, 1968.

The acute scarcity of resources (school physical facilities) has constrained educational systems from responding more fully to new demands.

The need for effective translation of educational programmes into physical facilities motivated Bareither and Schillinger¹ to review other researches on physical facilities to be able to discover facts and the overlooked areas of school facilities. They concluded that:

The translation of the educational programme into physical facility requirements involves a constant evaluation and re-evaluation of the enrolment projections, changes in educational programmes, inventory of existing facilities dependent upon departmental requirement.

In a similar study conducted by Adeogun² on "School Physical Plant Planning and Maintenance" in Irewole Local Government of Oyo State, it was discovered that most of the secondary schools in the local government had no sufficient classrooms.

Studies have revealed the importance of physical facilities to instructional activities in the school. Overbaugh³ in her study on the relationship of the physical

1. Bareither and Schillinger: University Space Planning: University of Illinois Press Urban Chicago, London, 1968.
2. Adeogun, A.A/: School Physical Plant Planning and Maintenance, Unpublished M.Ed. Thesis, University of Ile-Ife, Ile-Ife, 1985.
3. Overbaugh, B.: School Facilities: The Relationship of the Physical Environment to Teacher Professionalism Texas A and M University. Dissertation Abstract International vol. 51, No. 1, 1990, p. 1466-A.

environment to teacher professionalism, revealed that physical environment affects teachers in their performance as professionals. She mentioned further that the most important environmental features which affect teacher performance are classrooms, furniture and class equipment. However, for all the schools adequate provision of instructional materials is important. These materials are purchased using the grants given to the school by the government.

Studies on Human Resources

Studies have revealed that teaching staff in some educational institutions are inadequate both in quality and in quantity. One of such studies was carried out by Amoo¹ in Osogbo Local Government of Oyo State. His findings revealed that there was a wide gap between the demand and supply of qualified teachers in the state, particularly in Osogbo Local Government area before the implementation of free secondary education. Shortage of qualified teachers was 44 per cent in 1979/80 session, 56 per cent in 1980/81, and 51 percent in 1981/82. The study found that planning

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1. Amoo, A. O.: The Demand and Supply of Teachers of Secondary Schools: Unpublished M.Ed. Dissertation, University of Ibadan, Nigeria, 1982.

for teachers supply by number and qualification for the take-off of free secondary education was inadequate and that the situation was likely to worsen unless efforts were geared up for emergency training of well qualified teachers.

Jemibewon¹ in his budget speech remarked that there was an acute shortage of manpower resource in Oyo State. This according to him had hindered development in construction, agriculture, education, health and other sectors in the state. He further remarked that available natural and financial resources must be supported by capable manpower resource to pave way for rapid economic growth.

Similarly, Lewis² remarked that industrialisation and technological progress in general pre-supposes the availability of certain skills partly of a generalised nature. Obviously, most of these skills cannot be acquired by illiterates, but by educationally trained people. If education is to fulfil the aim of the development of its

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1. Jemibewon, D.: Oyo State 1976/77 Budget Speech and Memorandum: Ministry of Publication and Information, Ibadan, p. 10, 1984.
 2. Lewis, A. W.: Education and Economic Development: In the Final Report of the Conference of African States on the Development of Education in Africa (Addis Ababa, 1961, UNESCO), p. 14.

products to meet the societal demands, adequate and qualified teachers have to be produced and supplied to schools. Hence human resources are now regarded appropriately as the wealth of a nation.

Studies on Financial Resources

The achievement of educational goals depends on adequate financial support. The government supports secondary schools financially through the provision of grants. These grants are used for purchasing instructional materials needed to carry out teaching-learning activities and also paying staff emoluments.

That finance affects the achievements of goals of a school was highlighted in the study conducted by Highett¹. The study revealed that inadequate finances were constraints to attainment of school effectiveness in Alberta Canada.

Barnes² study on overcoming blockages of implementation revealed that budgetary problems are part of the major obstacles to successful implementation of school-based

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1. Highett, N.T.: "School Effectiveness and Ineffectiveness?: Parents, Principals' and Superintendents Perspective", University of Alberta (Canada), Ph.D Dissertation, Dissertation Abstract International, vol. 50, No. 11, p. 3422 - A, 1990.
 2. Barnes, R. G.: "School-based Management at K-6 Level: Overcoming blockages of Implementation Seattle University", Dissertation Abstract International, vol. 50, No. 11, p. 3422-A, 1989.

management at the K-6 level in Seattle. This highlights the fact that well-prepared budget enhances successful implementation of a programme.

Studies have also revealed that a decline in finance always has effect on the operating standards of a school.

Fraitas¹ from his study on the effects of enrolment and declining financial resources on instructional programme and supervisory practices revealed that financial decline had a negative effect on the quality of instruction.

Studies on the Measurement of Educational Efficiency

A viable educational system requires an efficient management of resources because it is only an organisation which accomplishes the results intended to be accomplished that is described as efficient and effective.

The term efficiency usually connotes a measurable quantity. According to Anderson²:

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1. Fraitas, D. J.: "The Effects of Declining Enrolments and Declining Financial Resources on Instructional Practices in Massachusetts Public System", Boston University School of Education, Dissertation Abstract International, vol. 44, No. 5, p. 1265-A, 1983.
 2. Anderson, C. A., and Mary, J. B.: Education and Economic Development, Chicago, 1966, p. 209.

... the concept of efficiency is used most exactly by physicists and engineers who define the term as the ratio of the effective work produced to energy expended in producing the work—that is output divided by input. To physicists and engineers the work produced and the energy expended are measurable quantities.

The idea of applying the concept of efficiency to education immediately raises an important question. How can efficiency in education be measured?

According to Thomas:¹

... such terms as cost-benefit, cost effectiveness, cost quality, rate of return, program budgeting, input-output and economic value of education reflect the attempts of economists to analyse national resources in quantifiable terms.

In education, economists have attempted to measure instructional activities and their benefits to the nation in financial units. The major technique used in measuring the production capacity of the educational system is to find out the number of pupils in the various categories during and at the end of the stipulated duration of study. Some of those who were enrolled at the initial grade may not end the course due to one reason or the other. Thomas²,

1. Thomas, J. A.: Efficiency in Education: A Study of the Relationship between Selected Inputs and mean test scores in a sample of senior High Schools, Unpublished Ph.D Dissertation Pala Alto Calif Stanford University, 1962.

2. Thomas, J. A.: Op. cit.

asserted that there is as yet no adequate method of applying the rigorous, scientific concept of efficiency to the educational process. Nevertheless, he remarked that if efficiency is defined as the maximization of output for a given input level or the minimization of input for a given level of output, the input-output ratio becomes a useful tool. He identified inputs as the active resources and output as the products of the system.

Hallack¹ believed that education production can be quantified. He suggested two methods of quantification.

They are:

- a) the number of examination success or academic performance, and
- b) attendance.

Under (a), the simplest units to count are the number of examination successes, or more generally, the number of pupils reaching a certain standard of education. Under (b), he asserted that the practice is to consider either production capacity in terms of the number of teachers, classes or places, or attendance itself by reference to the number of pupil-years (or more simply of pupils or the average daily attendance) (ADA).

1. Hallack, J.: The Analysis of Production Costs Expenditures, UNESCO, IIEP, p. 41, 1969.

In another study, Patwari¹ adopted a cohort analysis to measure educational efficiency. He regarded school leavers who were certificated as output in the sense that they had used up basic input which were student years. He contended that any system can be considered efficient if it produces maximum output with minimum possible input. He based his analysis on the hypothetical flow of 1,000 pupils through the primary level in Ibadan from 1973/74 to 1980/81 and their various promotion, repetition and dropout rates.

Patwari², however, concluded that maximum efficiency is never attained in any country. This, he attributed to wastage, especially caused by repetition.

Tracing the history of Nigerian educational development since 1960, Adesina³ identified some impediments to its growth. He suggested that efficiency and effectiveness of the educational system can be increased. This in his own opinion would enhance education to contribute meaningfully

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1. Patwari, A. O.: Application of Statistical Techniques to Educational Problems in Nigeria, Unpublished paper, Department of Educational Management, University of Ibadan, 1981.
 2. Patwari, A. O.: Op. cit.
 3. Adesina, S.: Education for Development, The Challenges of the 1980s," in Adesina, S. et. al., (Eds.) Nigerian Educational Trends and Issues, Ile-Ife, University of Ife Press, pp. 30-42, 1983.

to national development and growth. He remarked that the impressive figures seen on papers cannot be equated to educational achievements in Nigeria. Rather, he said the internal efficiency and the overall effectiveness of the educational system should be subjected to serious questioning and scrutiny. He opined that wastage is recorded when an investment does not yield the desired gain or products, or when investment produces result that is considered to be lower than the targeted value.

He revealed that the national cumulative wastage rate has been fluctuating between 55 per cent and 70 per cent with variation from state to state. He also identified the elements of wastage as dropouts, repetition and failure at the end of the course.

This study is to some extent guided by the study, especially on the quantification of efficiency. In a related development, Fafunwa¹ pointed to the three main educational problems that are facing the educational system. These problems are stay-outs (these are children who never

1. Fafunwa, A. S.: "Drop-ins and Drop-outs in the Nigerian Educational System" in Adesina, S. S., et. al. (Eds.) Ibid, pp. 122 - 132.

got to school), the drop-outs and drop-ins (those who went into the system, stayed there till the end of courses, but whose achievements were very low as determined by the certification system.

Nwankwo¹ also identified two types of efficiency, viz: internal and external efficiency. He observed that means or inputs are made available and combined so as to produce the desired outputs with as little effort and cost as possible. He identified the output of the educational system as the graduate of the system, who requires many inputs to be produced. The inputs are identified as classrooms, text-books, teachers, furniture, etc. which all cost money and can be expressed as expenditure per student per year. He remarked that the basic unit of measuring input in education is the student years.

Nwankwo² was of the view that the cohort analysis can be used to measure the internal efficiency of the educational system. This, he described as the school history of a group of students entering school in class one together in a particular year and tracing them through the educational cycle.

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1. Nwankwo, J. I.: Educational Planning Theory and Methods Nigeria, Izharsons, Lahore Karachi Pakistan, pp. 138 - 189, 1981.
 2. Nwankwo, J. I.: Op. cit.

He discovered from research conducted that wastage in the flow of students is manifested quantitatively in the form of dropout and repetition, while the quality of learning is determined by the inputs and outputs of the education system. He asserted that inefficiency in student flow is often accompanied by inefficiency in the use of available resources, such as teachers, facilities and students space.

In a similar vein Zaki¹ remarked that the concept of efficiency is used to analyse production which in economic terms is defined as a process of transformation in which one kind of goods or service is transformed into another. This concept of transformation which is central to production theory, can be applied in principle to all areas of economic activity including education. He remarked that when people speak about improving the efficiency or productivity of education, they generally refer to changes in the transformation of inputs into outputs.

He asserted that education is viewed as a productive activity combining various inputs of capital and labour to transform this set into outputs. The inputs of education to him can be summarised as teachers, materials, and

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1. Zaki, W. M.: Efficiency and Wastages. Mimeograph The Department of Educational Management University of Ibadan, 1981.

buildings and these are used to transform one set of outputs (i. e. secondary school graduates).

Durosaro¹ related resource allocation to the internal efficiency of secondary education in Bendel State. He identified repetition, dropouts and failures as the factors of wastage. In the study, he investigated the relationship between resource allocation and internal efficiency of secondary education between 1975 and 1983. The findings in the study revealed that:

- a) wastage rate on secondary education recurrent expenditure was estimated to be 19.19 per cent of the total recurrent expenditure. Out of this, repetition accounted for 4.05 per cent, 0.687 per cent to drop-outs and 14.45 per cent to failures of students. He also discovered that total recurrent expenditure and wastage rates on secondary education in the state showed significant correlation over the period of study, thus as the resource allocation increased, wastage rate decreased.

1. Durosaro, D. O.: Resource Allocation and Internal Efficiency of Secondary Education in Bendel State, Nigeria, Unpublished Ph.D. Thesis University of Ibadan, 1985.

Another study was conducted by Adeyemi¹ on Resource Situation and Internal Efficiency of Technical Colleges in Nigeria. He made use of twenty four technical colleges in the sampled states. The findings showed, among other things that:

- a) the technical colleges were highly internally efficient. The wastage ratio was 1.04 while the wastage rate was 2.7 per cent.
- b) the internal determinants of cost showed no significant relationship with cost of wastages on technical colleges.

Ojo² carried out a study to investigate student wastage in Nigerian universities. He did this by explaining the marginal efficiency of investment in university education and the impact of wastage on manpower planning. Six faculties were used for the study whereby new enrolled students in the first year were sampled. The research did not include irregular students in the study. Students are irregular in the sense that they have inadequate

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1. Adeyemi, J. O.: Resource Situation and Internal Efficiency of Technical Colleges in Nigeria, Unpublished Ph.D. Thesis, University of Ibadan, 1989.
 2. Ojo, F.: Student Wastage in Nigeria Universities (Mimeo), Department of Educational Administration, University of Lagos, 1980.

records, and they were transferred from other universities or to other universities and student in preliminary year. All these groups were removed from the study because the researcher wanted to have a unique cohort of students who were expected to spend three years for graduation.

The results of this study showed that the major causal factors of wastage in Nigerian universities were lack of interest in the course selected, inadequate guidance and counselling, poor level of commitment on the part of some lecturers, inadequate resource materials and of course, finance.

In 1981, Okedara¹ carried out a wastage related investigation in Ibadan. In his study, he used sixty adult learners as experimental group and 369 pupils that enrolled in Abadina Primary School I, University of Ibadan as the control group.

The findings revealed that wastage rates were higher in the experimental group than in the control group. Not only this, it was discovered that the internal efficiency of the control group was much higher than that of experimental group. In addition, the researcher discovered that the percentage of wastage caused by illness and learning diffi-

1. Okedara, J. T.: A Comparative Study of Formal and Non-formal Educational Wastage in Ibadan. Institute of Education, University of Ibadan 1981.

culties were similar to both groups. He discovered a similar result for repeaters.

On the other hand, he discovered that the percentage of wastage due to finance and delinquency of truancy differed greatly for the two groups.

In a similar vein, Oguntoye¹ used forty-nine students of secondary schools which sat for West African School Certificate Examination in June 1977 to measure the performance of secondary schools in Ogun State of Nigeria. He carried out a step-wise regression analysis of the variables. He used expenditure per pupil, average teacher salaries, school size, frequency of enrolment, student-teacher ratio, teachers qualifications, boarders and the performance in West African School Certificate Examination as output measure. Oguntoye came up with a report in which he discovered that the result showed small regression coefficient and t-values for all the variables with the exception of the school size.

Zaki² remarked that the concept of efficiency is used to analyse production which in economic terms is defined as a process of transformation in which one kind of goods or

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1. Oguntoye, A. O.: "Input-Output Analysis in a Nigerian Secondary School System" in Lagos Education Review, vol. 3, 1983, pp. 99 - 110.
 2. Zaki, W. M.: Educational Planning, (Mimeo), Department of Educational Management, University of Ibadan, 1981.

service is transformed into another. This concept of transformation, which is central to production theory, can be applied in principle to all areas of economic activity including education. He remarked that when people speak about improving the efficiency or productivity of education, they generally referred to changes in the transformation of inputs into outputs.

He asserted that education is viewed as a productive activity combining various inputs of capital and labour to transform one set of outputs into another set of outputs. The inputs of education to him can be summarised as teachers, materials, and buildings and these are used to transform one set of outputs (e.g. Junior Secondary School graduates) into another set of outputs (e.g. Senior Secondary graduates).

In 1986, Akintayo¹ carried out a study on Comparative Efficiency of Workers' Education and Students' Education at the University of Lagos. The findings of the study revealed that:

- a) the input per programme completer is cheaper for workers' education than for students' education;

1. Akintayo, M. O.: Comparative Efficiency of Workers' Education and Students' Education at the University of Lagos. Unpublished Ph.D Thesis Department of Adult Education, University of Ibadan, 1986.

- b) workers' education is more cost effective in terms of minimization of expenditure relative to programme objectives than students' education;
- c) the private internal rate of return to workers' education is higher than that to students' education;
- d) workers' education is more efficient than students' education programme at the University of Lagos.

While the study conducted by Akintayo¹ revealed that workers' education is more efficient than students' education, Okedara² discovered that students' education is more efficient than adults' education.

Adaralegbe³ was of the opinion that education cost had risen in equal proportion to the increase in demand for education at all levels and unit cost increased in response to the inflationary trends in recent year. He remarked that educational managers should be more concerned than before for efficient planning, control, administration, supervision, financial management of the nation's educational system.

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- 1. Akintayo, M. O.: Op. cit.
 - 2. Okedara, J. T.: Op. cit.
 - 3. Adaralegbe, A.: "Efficiency in Educational Administration", Inaugural Lecture Series, 34 Ile-Ife, University of Ife Press, 1979.

He came up with some criteria which could be employed for quantifying efficient performance of post primary institutions such as school drop-outs, repeaters and completers of the system who did not obtain the terminal certificate.

With regards to the term "evaluation" Beeby¹ sees evaluation as the systematic collection and interpretation of evidence leading as part of the process to a judgement of value with a view to action. He stressed further that the process of evaluation implies the need to compare the object under evaluation with a similar object which might be used as a standard for comparison.

Appraisal of Literature

The preceding literature review has highlighted very important issues which have implication for the present study. From the reviewed literature, it is revealed that not much work has been done in the area of the measurement of efficiency of Junior Secondary Education in Oyo State.

The review of literature on the 6-3-3-4 system has also revealed that Nigeria is not the only country where a change in the educational system was been embarked upon and that the scheme was embarked upon to provide a situation in

1. Beeby, C. E.: The Meaning of Evaluation, Paper Delivered at Evaluation Department of Education, Welhintons, New Zealand, 1975.

which skilled and self-employable manpower is created for the country rather than the production of graduates who search for white-collar-jobs after leaving school.

From the review of literature on withdrawal, failure and retention, it was revealed that the concepts were defined differently from one environment to another and that their causes differed greatly. Both Elizabeth,¹ Sloan² and Pulley³ identified job and lack of time as factors causing withdrawals and failures of adult learners.

As regards the measurement of efficiency in education, the review studies and works agreed that the production of the educational system is the final products which reflects the ultimate efficiency, and that input-output model is the basic analytical model used to determine the degree of efficiency of educational system. They also agreed that internal efficiency of education was easier to measure as against the more complex external efficiency as could be seen in Thomas⁴ and UNESCO⁵.

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1. Elizabeth, C. A.: Op. cit
 2. Sloan, D.: Op. cit
 3. Pulley, J.: Op. cit
 4. Thomas, J. A.: Op. cit
 5. UNESCO,: Op. cit.

The indicators of wastage on what some authors called elements of wastage were identified as dropouts, dropins, repetitions, stay-outs, failure, under-employment as we can see in Fafunwa¹, Adesina,² Durosaro,³ Adaralegbe⁴ and Okedara⁵.

With regards to educational wastage and school factors, Dyer⁶, Pascerella, and Terenzini⁷, Wegner and Sewell⁸, Ejieh⁹, Tinto¹⁰, Beer¹¹, Beinstock¹², Yundi¹³, Astin¹⁴, Spady¹⁵, Thomas¹⁶ and Feldman¹⁷ identified the following factors as causes of wastages in schools:

School location, school size, type of school, teacher quality, curriculum and residence in the dormitory.

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1. Fafunwa, A. S.: Op. cit
 2. Adesina, S.: Op. cit
 3. Durosaro, D. O.: Op. cit
 4. Adaralegbe, A.: Op. cit
 5. Okedara, J. T.: Op. cit
 6. Dyer, H. S.: Op. cit
 7. Pascerella, E. T. and Terenzini, P. T.: Op. cit
 8. Wegner, E. L. and Sewell, W. H.: Op. cit
 9. Ejieh, M. U. C.: Op. cit
 10. Tinto, V.: Op. cit
 11. Beer, H.: Op. cit
 12. Beinstock, H.: Op. cit
 13. Yundi, L. W.: Op. cit
 14. Astin, A. W.: Op. cit
 15. Spady, W.: Op. cit
 16. Thomas, R. J.: Op. cit
 17. Feldman, K. A.: Op. cit.

Similarly, the causal factors of wastage were identified as: Low financial allocation to education, indiscriminate proliferation of schools, quantitative expansion substituted for qualitative expansion and inadequate syllabi. Others were lack of interest in the course selected, inadequate guidance and counselling, poor level of commitment on the part of some teachers, inadequate resources, parents occupation as seen in Hajela and Tikwal¹, Sloan², Yoloye³, Okedara⁴ and Nwankwo⁵

However it seems not much work has previously been done in the area of evaluation of internal efficiency of Junior Secondary Education in Nigeria. Most of the work reviewed were based on Primary, Senior Secondary, Technical, Formal and Non-formal education and tertiary institutions.

Theoretical Framework

In a study of this nature, it is necessary to conceptualise the relationships and distinctions among variables.

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1. Hajela and Tikwal;: Op. cit
 2. Sloan, D.: Op. cit
 3. Yoloye, E. A.: Op. cit
 4. Okedara, J. T.: Op. cit
 5. Nwankwo, J. I.: Op. cit

According to Nwankwo,¹ the theoretical framework

... forms the hub on which findings of the study and the discussions of such findings revolve. Without adequate frame of reference the results of an investigation sound shallow and highly intangible. But when the results of a study find solace in existing or created sound theory or when such findings tend to disprove some theoretical assumptions, they tend to generate greater concern and more attention.

In an attempt to provide a good background for this study, the concepts of evaluation, efficiency, wastage and the systems theory and the relationships that exist among them were discussed.

Concept of Evaluation: Evaluation is the systematic and objective way of estimating the worth, quality, importance and relevance of a system with a view to rating, correcting, improving or changing it. According to Lindsay,² performance embodies two concepts of effectiveness and efficiency. The first deals with the congruence between outputs and goals or other criteria, while the latter links outputs and inputs.

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1. Nwankwo, J. I.: Introduction to Research Operations in Education and Social Sciences, Karachi, Izharzous Press Ltd, 1988, p. 270.
 2. Lindsay, A. W.: Institutional Performance in Education: "The Efficiency Dimension" Review of Educational Research, Summer 52 (2), 1982. pp. 175 - 189

Performance, he says, involves the notion of accomplishment, attainment and the execution of tasks. Junior secondary education being a public service needs to be evaluated, so as to justify its establishment and government's financial investments in it over the years, and also to draw the attention of the people and government to its problem areas with a view to finding solutions to them.

The second theoretical concept is based on evaluation which deals with the "WHAT", the "WHY", and the "HOW" of a programme. It is a process of ascertaining or judging the value of something by careful appraisal. Evaluation is therefore a process of clarifying a confused situation, measuring progress towards a target or analysing reasons which are useful for decision-making. This study is designed to evaluate the performance of Junior Secondary Education in Oyo State and see whether the system is internally efficient or not.

The evaluation of an educational system is multivariate in nature and it is therefore difficult to use a model. However since no one model is exclusive of others, there is therefore the tendency to combine elements from different models while evaluating the system.

The study is both a formative and summative evaluation. It is summative because the examination of the roles of the independent variables may lead to some judgements to be passed on the performance of the system while it is the formative because the inputs needs to be related to output to determine the degree of efficiency of the school system. The exploratory evaluation models which focus on the assessment of merit of an organisation will be used. They take into account not only the goals and objectives of the programme but also the process as well as the outcomes. Among the models are Scrivens, Stakes' Model and Discrepancy Evaluation Model. In these models, observations are carried out on the various elements, variables or effects and judgement is finally made on the basis of the analysis of the observation.

Concept of Efficiency: The word 'efficiency' is an evaluative term. When it is used, a favourable disposition towards desirable tasks, aims or functions is expressed.

In literature, there are two classical models of efficiency: the mechanical model and the economic model. The concept of mechanical efficiency arises mainly from considerations in Physics and Mechanics. Efficiency in this context is given by ratio of energy input to output.

Economic theory defines efficiency generally, as the ratio of actual output (AO) to potential output (PO), that is $E = AO : PO$. In this context, economic efficiency refers to the ratio of useful output to useful resources. Technically, this refers to the value of output per unit of resource value. Resources are valued in the market according to their contribution to the production of goods and services. Then, a system is economically efficient if it succeeds in rationing out its scarce resources and the scarce products of the resources in the most desirable way. Economic efficiency stresses cost-consciousness and its major elements include cost control, avoidance of waste and rational allocation of resources.

Efficiency in education refers to the capacity of the system to turn out graduates with minimal wastage. It has been observed that the concept of efficiency can be used in several contexts in education. The different meanings with which it can be used in education include the following as enumerated by Kamat¹:

1. Efficiency of the total expenditure on education, as an alternative to other: welfare or non-welfare activities;

1. Kamat, A.: Efficiency of Education in Pandi, H.N. (ed.) Measurement of Cost, Productivity and Efficiency NCERT, New Delhi, 1969.

2. Efficiency of the allocation of a given national budget on education over its different parts such as primary, secondary and higher education;
3. Efficiency of expenditure within a section or level of education; and
4. Efficiency of expenditure within a level, measured in terms of the actual output, that is trained people produced.

The use of efficiency in this study focussed on education being treated as a type of input-output process. There are obvious limitations in the application of the efficiency concept to education. Raymond Callahan¹ notes this weakness and points out that procedures in business and industry cannot be translated to activities in the public sector without change. He attempts to resolve the problem by developing a model of analysis that is specific to education and which emphasizes outcomes as well as costs.

The virtual monopoly that public owned-schools have over the educational industry impedes the expression of consumer choice, a mechanism that otherwise might reveal public preference for school outputs. In this case, the

1. Callahan, R.: Education and the Cult of Efficiency Chicago, University of Chicago, 1962, p. 15.

drive for existence of only public-owned schools in many States of the Federation may not permit the full application of the efficiency criterion. Other problematic issues affecting the application of efficiency as identified by Okedara¹ include:

1. Lack of agreement on the expected product or aim of education.
2. An attempt to maximise equality and liberty.
3. Labour intensive nature of education.
4. The relationship between school inputs and school outputs, conventionally measured by achievement scores, and
5. Inability to control external influences like innate endowments and socio-economic background.

The popular methods of measuring efficiency come to education via, the discipline of Economics and the field of Business. Policy-makers, planners, managers, economists and administrators can use models within technical schemes in assessing educational efficiency. These include: Management by Objectives (MBO), Planning Programming and Budgeting System (PPBS), Systems Analysis, Programme

1. Okedara, J. T.: Op. cit.

Evaluation and Review Technique (PERT), Performance Contracting, Capacity Utilisation, Production Function Analysis, Cost Effectiveness Analysis, Input-Output Model, Linear Programming Models, Regression Analysis, Growth Accounting Model and the Rate of Return Analysis.

For the purpose of this study, the input-output model and the systems analysis have been applied to determine the internal efficiency of Junior Secondary Education in Oyo State between 1986 and 1990.

For this study, internal efficiency of Junior Secondary Education is the capability of the system to produce graduates with minimum wastage. External efficiency of Junior Secondary education programme is the profitability of government investment on the system and usefulness of the products to the society.

The Systems Theory: The proponent of this theory Ludwig¹ contended that it was not enough to understand the parts only but that it was also important to understand the relationship among the parts.

A system may simply be defined as complete elements in mutual interaction, or put differently, a system is a series of interrelated and interdependent parts, such

1. Ludwig, Von Bentabuffy, : "General System Theory" in General Systems, vol. 1, 1956.

that the interaction of any part (sub-system) affects the whole system.

In this study, the systems theory rests on the fact, that, every open system has different parts, performs different functions, but in such a way that each part interacts with and is interdependent on the other parts and the other system (environment) around it. Therefore, what affects one part, affects the other parts in the system and its environment.

In relation to Junior Secondary Education which is an open system, the inputs include students enrolled, physical/technical materials, financial and human resources in terms of teaching staff. The output refers to the number of students graduating from the system. Education in this model is viewed as a productive activity combining various inputs of capital and labour to transform one set of output (primary school leavers) into another set of output (junior secondary school graduates). If the inputs are available, adequate, relevant and are properly utilised, there is possibility that the output will be good and efficient. If on the other hand, the inputs are inadequate and poor in quality the conversion or transformation process may somehow be adversely affected and this may likely lead to inadequate and poor quality of output and an inefficient

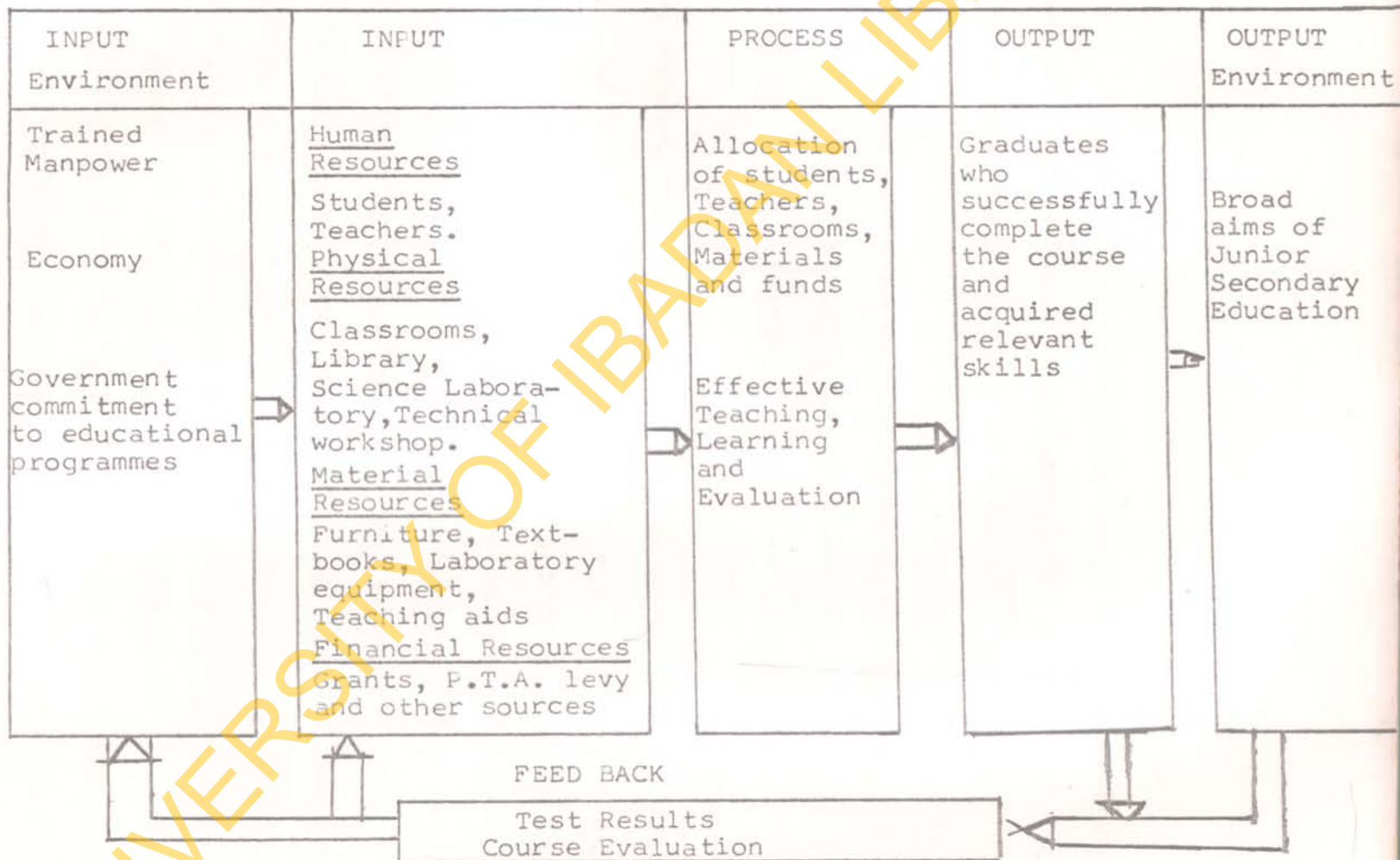
system of education. This application of system theory will enable us to see how the environment influences the inputs and how the quality of inputs determine the quality of output.

Figure 1 on page 78 illustrates the system approach. Thomas¹ asserted that there was yet no adequate method of applying the rigorous, scientific concept of efficiency in the evaluation of an educational programme but he agreed that we could apply systems approach, using input-output ratio.

The model shows the resources which are provided in the form of inputs into Junior Secondary Education system. These resources include human resources which are students, teachers and non-teaching staff, physical resources which are classrooms, library, science and technical laboratories, material resources which are furniture, textbooks, science and laboratory equipment and financial resources which are funds from government, P.T.A and other sources like donations, etc.

The process of transformation of the active resources include allocation of students, teachers, classrooms, materials, funds, effective teaching, learning and evaluation.

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1. Thomas, J. A.: Efficiency in Education, A Study of the Relationship between selected Inputs and Mean test Scores in a Sample of Senior High School. Unpublished Ph.D Thesis Dissertation, Pala Atto, Calif, Stanford University, 1962.

Figure 1: The Input-Output Model of the Educational System

Source: Adapted from Owolabi, S. O.: Education Resource in the World, Mimeograph, Department of Educational Management, University of Ibadan, Ibadan, p. 4, 1990.

The inputs available to Junior Secondary school as indicated in the model are influenced by general environment such as political influences, government policies, state of the economy and the school environment such as the quality of teachers, school finance, school size, material resources and school policies. If these environmental factors exert positive influence on the inputs and individual students are prepared to work there is likely the possibility that the system would be efficient.

This inturns may lead to effective allocation of students, teachers, classrooms, materials, funds effective teaching, learning and evaluation which are pre-condition for external efficiency of any given system of education. The adequacy of the transformation of the processed inputs will lead to the quantity and quality of graduates to be produced.

The process is cyclic in nature. The transformation of the inputs with evaluation leads to output with a feed back to the society which determines the effectiveness of the system.

The final products, which forms the output of the processed resources include the graduates who successfully complete the course and acquired relevant skills.

The Concept of Wastage in Education

Some educators, notably educational philosophers, might disapprove of the use of the term 'wastage' which comes from the language of economics in education that is considered to be purely an individual growth process. They may adopt more favourable attitude toward the use of the terms 'failure in school', 'repetition', 'dropping out', or 'premature school leaving', 'not qualifying', 'attrition'. The term 'educational wastage' include all these and much more, at least in theory, for it can generally appear in the following forms:

In the failure of a system of education to provide universal education;

In failure to recruit children into the system;

In failure to hold children within the system;

In failure of the system to set appropriate objectives;

In inefficiency in the achievement of objectives¹.

Wastage exists in the first form above as a country that fails to provide universal education for her citizens leaves vast quantities of her human resources undeveloped.

1. Brumer, M. A. and Pauli, L.: Op. Cit

The second form of wastage is almost non-existent in most of the developing countries where the demand for education is greater than the provision, and in some developed countries where primary and secondary school attendance is compulsory. However, failure to recruit these children into the system of further and higher education after compulsory secondary education where the facilities exist, represents some wastes.

The third form of wastage manifests itself in children already recruited into the system of education, leaving it before the successful completion of any particular cycle in which they are enrolled. This is familiar incident of dropping out of school, or student attrition. The phenomenon leads at least to a loss of some talents to the country, and under-utilisation of facilities and resources allocated to education.

Wastage exists in the forth form above when countries set educational objectives that are not appropriate to their economic, political, cultural, and social needs. The internal efficiency of an educational system may remain high, but failure to achieve a balance between the necessity to fit education to the individual needs of the children and the production of trained manpower represents the ineffectiveness of the educational system.

The last form of wastage listed can be viewed in terms of a lower output per unit of time than the system is designed to achieve. In educational parlance, this means the failure of children admitted into the educational systems to achieve the standards set for them. In many educational systems, when it is realised that a child has not achieved the standards set for him in a particular class or grade, he is made to repeat that year. The child, if he eventually graduates from that particular cycle, does so no longer within the minimum time for the completion of the cycle. When a child repeats a class, not only is the first year spent in that class wasted to him, but he also occupies two year-grade places where the system plans only one.

Even in those system where it is assumed that learning is continuous and consequently promotion is automatic, it still becomes necessary to plan that some children attain various levels of achievement at certain ages if the manpower requirements of their economies are to be met. So long as these children take more years than planned to attain these levels of achievement, wastage occurs.

These various forms of wastage do not lend themselves to easy quantification except the third and fifth forms. In this work the term 'educational wastage' refers only to these two forms - the incidence of dropping out or attrition, and repetition of grades or classes in an educational system.

Dropping out and repeating class in school all involve some cost to the individual and to the society. Vaizey, like other educational economists, elaborating on these costs specifies that repeating a year involves extra teaching costs, plus income forgone by the student. The unit cost of keeping a student in school is quite different from the unit cost of a graduating student from the school. In a system where there is wastage, the average cost of sustaining a graduate is usually very high compared to the expected cost of maintaining a student in the system.

Some educators argue that dropping out of school hardly represents a total loss to the student and that to many of them especially in higher education, dropping out is a temporary phenomenon and another step in obtaining a degree (Fervin 1966). The writer shares the same views but the essential point is that from the educational economics and planning perspectives, dropping out represents at least

a waste of material resources and inefficiency of an educational system, especially where the system is selective, for not only has a dropout left a place in the educational system unoccupied, but he also prevented another student who could have utilized that place, perhaps more fully, from gaining entry into the system.

Research Hypotheses

For this study, the following hypotheses were used:

- H_{01} There is no significant difference between the Perfect Internal efficiency and the Internal efficiency of Junior Secondary Schools in Oyo State.
- H_{02} There is no significant difference between the wastage ratios of urban and rural Junior Secondary Schools in Oyo State.
- H_{03} There is no significant difference in the efficiency of community-based and government-based Junior Secondary Schools in Oyo State.
- H_{04} There is no significant difference between the Internal efficiency of Junior Secondary Schools located in rural areas of Oyo State.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter describes the research design and procedure used. In this study, the descriptive survey research design was adopted.

And according to Nwankwo¹:

The purpose of descriptive research is to describe systematically the facts, qualities and characteristics of a given population, event, or area of interest as factually and accurately as possible to answer the question asked by the problem under investigation.

The study therefore carries out a detailed analysis of the inputs and output of junior secondary schools in Oyo State in order to determine whether the system is efficient or not and to know the steps to take to make it efficient.

The major variables identified in this study are:

- (a) the student enrolment figures;
- (b) the quality of physical and material resources;
- (c) the quantity and quality of teaching staff;
- (d) financial resource; and

1. Nwankwo, J. I.: Mastering Research in Education and in Social Sciences. Bisi Books, Nigeria Ltd., p. 9, 1984,

- (e) the output of junior secondary education in terms of the final examination results of 1988, 1989, and 1990 sets.

A close examination of each of the above variables reveals that only a descriptive research survey method can be used to:

- (i) analyse the factual and perceptual data on the existing situation;
- (ii) identify problems and justify current conditions and practices;
- (iii) make comparisons and evaluations; and
- (iv) also project or plan for future enrolment.

Local Government Sample: Ten out of the forty-two local government areas of Oyo State in 1990 were chosen for this study and this number represents 23.8 per cent of all the local government areas in the state.

The ten local governments were selected from the five administrative provinces of the state. The provinces are Ibadan/Ibarapa, Oyo, Osun, Ife, and Ijesa.

Out of the ten local governments that were chosen, Ibadan Municipal was included as a deliberate sample while the remaining nine local governments were chosen

by random sampling. Ibadan Municipal as a deliberate sample is necessary because it is the state capital, the largest administrative unit in the state and the most thickly populated area of the state. If Ibadan Municipality is not chosen, the sample can not be representative enough.

Table 1: Local Government Sample

S/N	Administrative provinces	No. of Local Government available	No. of Local Government sampled	Names of Local Government sampled
1	Ibadan/Ibarapa	08	02	Ibadan Municipal and Ifeloju
2	Oyo	06	02	Oyo and Kajola
3	Osun	21	04	Osogbo, Iwo, Ayedaade and Ede
4	Ife	03	01	Ife Central
5.	Ijesa	04	01	Ilesa

School Sample:

All the six hundred and fifteen secondary schools in the State during 1990/91 school year formed the sampling

frame for the study. Using stratified random sampling technique fifty schools were selected from the ten Local Government Areas of the state. These represented 21 per cent of the total population.

Table 2: Schools Sampled

S/N	Local Government Areas	No. of Schools available	Total No. of schools sampled
1	Ibadan Municipal	93	20
2	Ifelaju	14	03
3	Osogbo	12	03
4	Ayedaade	17	04
5	Iwo	10	02
6	Ede	10	02
7	Oyo	20	04
8	Kajola	14	03
9	Ife Central	26	05
10	Ilesa	21	04
	Total	238	50

Fig. 2. Map of Oyo State Showing the Ten Sampled Local Governments by 1991

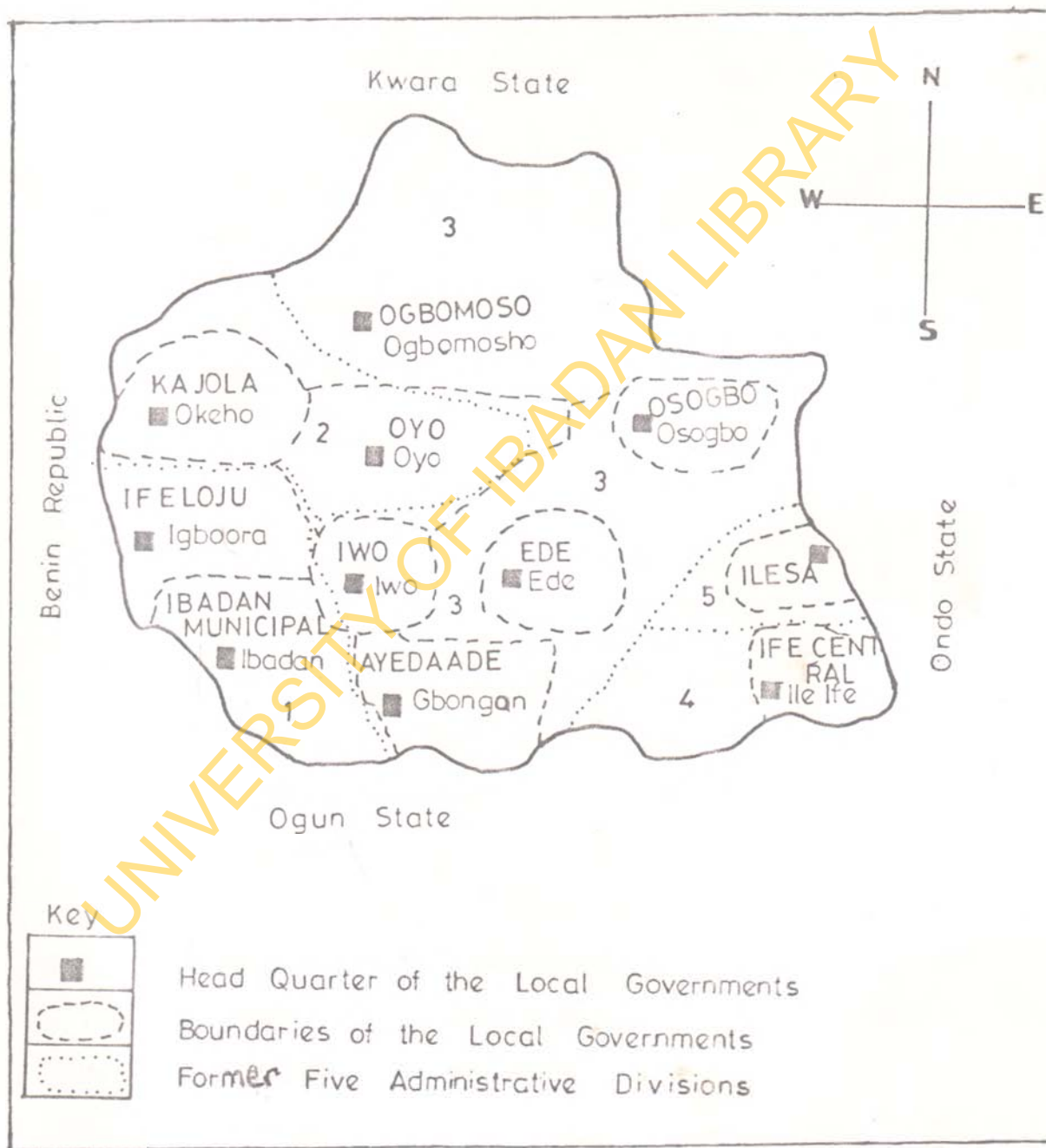


Table 3: Sampling Techniques

Sampling Structure	Selection Method	Sample size
State divided into five administrative zones	Cluster sampling	05
Selection of Local Government		
a) Ibadan Municipal	Deliberate Sampling	01
b) Nine other Local Governments	Random Sampling	09
Number of schools chosen	Stratified Random sampling	50
Number of Principals sampled	Stratified random sampling	50
Number of Guidance Counsellors sampled	Random sampling	50

Research Instrument

The instrument for the study is titled "An Evaluation of Efficiency Questionnaire" (AEEQ). The questionnaires were in two versions. One version AEEQ form I (for principals of secondary schools, and AEEQ form II (for Guidance Counsellors of secondary schools). The versions were divided into three and two sections respectively.

AEEQ Form I: This comprised questions on personal data, Principal's perception and the stock of inputs of junior secondary education.

AEEQ Form II: This was designed for the Guidance Counsellors of secondary schools to collect factual information on physical, human, financial resources and causes of drop-outs in secondary schools in Oyo State.

The Pilot Study

The investigator conducted the pilot study that involved five secondary schools in Irewole Local Government Area of Oyo State in June 1990. The purpose of the study was to test the effect of wording and item sequencing and to determine the appropriateness of each item in the first draft of AEEQ Form I and II in measuring the major variables of the study.

The instruments were administered on the Principals and Guidance Counsellors of the sampled schools.

In this study, the face and content validity of the instruments were ascertained.

Face Validity: This was carried out by giving the instruments to five colleagues and three lecturers in the

Department to ascertain that all the variables of the study are adequately catered for by the items of the instruments.

Content Validity: This was carried out by giving the instruments to a group of experts from different departments of the faculty to rate the extent to which the items on the questionnaire appear to measure the opinion sought. All the five experts agreed that the items appeared to measure the intended outcomes but suggested minor modifications.

Instrument Reliability: The test-retest reliability method was adopted for the instruments of this study. The AEEQ Forms I and II were administered after a time lag of three weeks between the first and the second tests. The response of each Principal and Guidance Counsellor on both occasions were compared and reliability coefficient was found to be $r = 0.66$. The instruments can be said to be reliable since they provide identical result when administered twice.

Administration of Research Instruments

AEEQ forms I and II were administered on the principals and Guidance Counsellors of the selected Schools personally by the investigator. Each school was visited for the collection of Junior Secondary School enrolment figures and the final examination results of 1988, 1989 and 1990 sets.

The collection was done in the Ministry of Education between January 5th to 28th 1991. The researcher paid several visits to many of the schools and where the Principals were not available the Vice Principals were used to fill the questionnaire.

Method of Data Analysis:

In this study the following methods were adopted

- a) The use of Reconstructed cohort Analysis for the determination of repeaters, drop-outs, completers, wastage rate, drop-out rate, wastage ratio and the index of internal efficiency. By this method, once the total enrolment in a particular class and the number of repeaters in that class in a given year are

known, it is possible to 'reconstruct' the movement of the pupils from the previous class in the previous year. It is possible to derive the number of pupils promoted from the previous class in the previous year and the number that dropped out of school after completing or attempting that particular class.

Thus, in a base year, g , in class one, x , of a school, the total enrolment E_g^x is made up of those repeating class one in that year plus those newly admitted into that class in the same year i.e.

$$E_g^x = A_g^x + R_g^x \text{ ----- (i)}$$

where E_g^x = enrolment in class x in year g

A_g^x = number of pupils newly admitted into class x in year g and

R_g^x = number of pupils repeating class x in year g .

In the following year $g + 1$, the total enrolment in the next higher class $X + 1$ will be made up of pupils promoted from class x after year g and those repeating class $X + 1$ in year $g + 1$. The number of pupils promoted from class x to class $X + 1$ in year $g + x$ can be derived as follows:

$$P_g^x = E_{g+1}^x + 1 - R_{g+1}^x + 1 \text{ ----- (ii)}$$

where P_g^x = number of pupils promoted from class

x to class X + 1 after completing year y.

$E_{g+1}^x + 1$ = total enrolment in class X + 1 in
year g + 1 and

$R_{g+1}^x + 1$ = the number of pupils repeating class
X + 1 in year g + 1.

The number of pupils who dropped out of the school system is derived by subtracting from the enrolment in class x in year g, the number of pupils promoted and those repeating i.e.

$$D_g^x = E_g^x - (P_g^x + R_g^x + 1) \text{ ----- (iii)}$$

where D_g^x = the number of pupils that dropped out of the school system during or after completing year g.

- (b) figures and percentages were used for the analysis of the junior secondary education final examination results to compare the quantity and the performance of the graduates of 1988, 1989 and 1990 sets.
- (c) Chi-square and t-test were used for testing the significance between the efficiency of schools within Urban and rural areas.

Spearman's rank-order Coefficient of Correlation r_s is expressed as:

$$r_s = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

where D = difference in the ranks of the two scores (one for each variable) for each subject.

N = the number of pairs of scores.

Σ = summation operation

T test for two Independent variables

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left[\frac{\sum X_1^2}{N_1} - \frac{(\sum X_1)^2}{N_1} + \frac{\sum X_2^2}{N_2} - \frac{(\sum X_2)^2}{N_2} \right] \left[\frac{1}{N_1} + \frac{1}{N_2} \right]}}$$

where \bar{X}_1 = mean of group 1

\bar{X}_2 = mean of group 2

N_1 = number of scores in group 1

N_2 = number of scores in group 2

$\sum X_1^2$ = sum of the squared score values in group 1 (square before summing).

(x_1)² = square of the sum of the score values in group 1 (sum before squaring).

(x_2)² = square of the sum of the score values in group 2 (sum before squaring).

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CHAPTER FOUR

ANALYSIS OF DATA

The objective of this study is to make a critical analysis of the inputs and outputs of Junior Secondary Education in Oyo State in order to identify the degree of internal efficiency of the system and to identify the causes, if there is inefficiency, and suggest solutions for its elimination.

The analysis of the data collected are presented under the following headings:

- (a) The enrolment figures between 1986 and 1990.
- (b) The quantity of physical and material resources.
- (c) The quantity and quality of teaching staff between 1986 and 1990.
- (d) The wastage ratios of junior secondary schools sampled between 1986 and 1990.
- (e) The output of the sampled schools in terms of the final examination results of the 1988, 1989 and 1990 sets.
- (f) The relationship between the internal efficiency between urban and rural schools in the sampled population.
- (g) The relationship between the internal efficiency of schools within urban and those in rural areas.

The analysis of the research questions and hypotheses are presented below.

Question One: How adequate were the available resources for the Junior Secondary Schools in Oyo State between 1986 and 1990?

Oyo State Ministry of Education policy stipulates that there should be a ratio of one teacher to a class of 40 pupils in the primary school and a ratio of one teacher to a class of 20 pupils in the secondary school.

The answers to the above question are shown on Tables 4, 5 and 6. Table 4 shows that the number of teachers available in the study area were below the required number. There were one thousand three hundred and ninety teachers (67.6%) instead of two thousand and fifty five.

On table 5, the number of teachers by qualification in the local governments sampled were indicated. The figures obtained were expressed in percentages. The N.C.E. holders constituted 58.89 per cent, graduates with teaching qualification, 23.9 per cent, graduates without teaching qualification, 12.48 per cent, H.N.D. and N.C.E. technical constituted 2.5 per cent of O.N.D 2.2 per cent.

Table 4: Stock of Teachers in the 50 Schools Sampled

S/N	Local Government Area	No. of Schools Sampled	No. of Teachers Available	No. of Teachers Needed
1.	Ibadan Municipal	20	600	860
2.	Ifelaju	03	70	105
3.	Osogbo	03	88	132
4.	Ayedaade	04	84	140
5.	Iwo	02	60	78
6.	Ede	02	56	80
7.	Oyo	04	90	144
8.	Kajola	03	64	96
9.	Ife Central	05	168	230
10.	Ilesa	04	110	190
Total		50	1,390	2,055

Total number of Teachers required = 2,055

Total number of Teachers supplied = 1,390

Difference between requirement and supply = 665

Percentage difference = $\frac{665}{2055} \times \frac{100}{1}$

= 32.4%

Table 5 depicts inadequate number of technical and vocational teachers in the area under study for the teaching of technical and vocational subjects between 1986 and 1990.

From Figure 3, it could be seen that the N.C.E. holders formed the largest group in the sampled schools. This were followed by graduates with teaching qualification.

Next were graduates without teaching qualification and finally the smallest groups were the H.N.D., O.N.D and technical teachers. The analysis showed that the proportion of graduate teachers with teaching qualification and the technical and vocational teachers were very small, being 23.9 per cent and 4.7 per cent respectively.

As shown on Table 6 page 104 it was only in Ibadan Municipal and Kajola local government areas where pupil-teacher ratio of 24:1 exceed the standard pupil-teacher ratio of 22.8:1 as indicated in the National Policy on Education for secondary schools. In the other local government areas under study, the pupil-teacher ratio ranged between 13:1 to 22:1. The average pupil-teacher ratio in the ten local government areas sampled was calculated to be 21:1. This implied that student-teacher ratio on the whole was normal with the exception of Ibadan Municipal and Kajola which exceeded the standard set for the state.

Table 5: Number of Teachers by Qualification in the Ten Local Government Areas

S/N	Local Government Area	Graduate with Teaching Qualification	Graduate without Teaching Qualification	N.C.E. Holders	H.N.D and N.C.E Technical	O.N.D	Total
1.	Ibadan Municipal	970	587	2,224	80	82	3,943
2.	Ifelaju	026	021	163	07	13	230
3.	Osogbo	107	044	289	14	21	475
4.	Ayedaade	064	026	186	10	9	295
5.	Iwo	095	025	202	11	9	342
6.	Ede	049	036	164	10	2	261
7.	Oyo	166	052	437	20	5	680
8.	Kajola	034	009	132	7	6	188
9.	Ife Central	234	128	375	19	12	768
10.	Ilesa	149	060	492	22	14	737
Total		1,894	988	4,664	200	173	7,919
Percentage		23.9	12.5	58.9	2.5	2.2	100

Fig. 3: Bar Chart Showing the Number of Teachers by Qualification

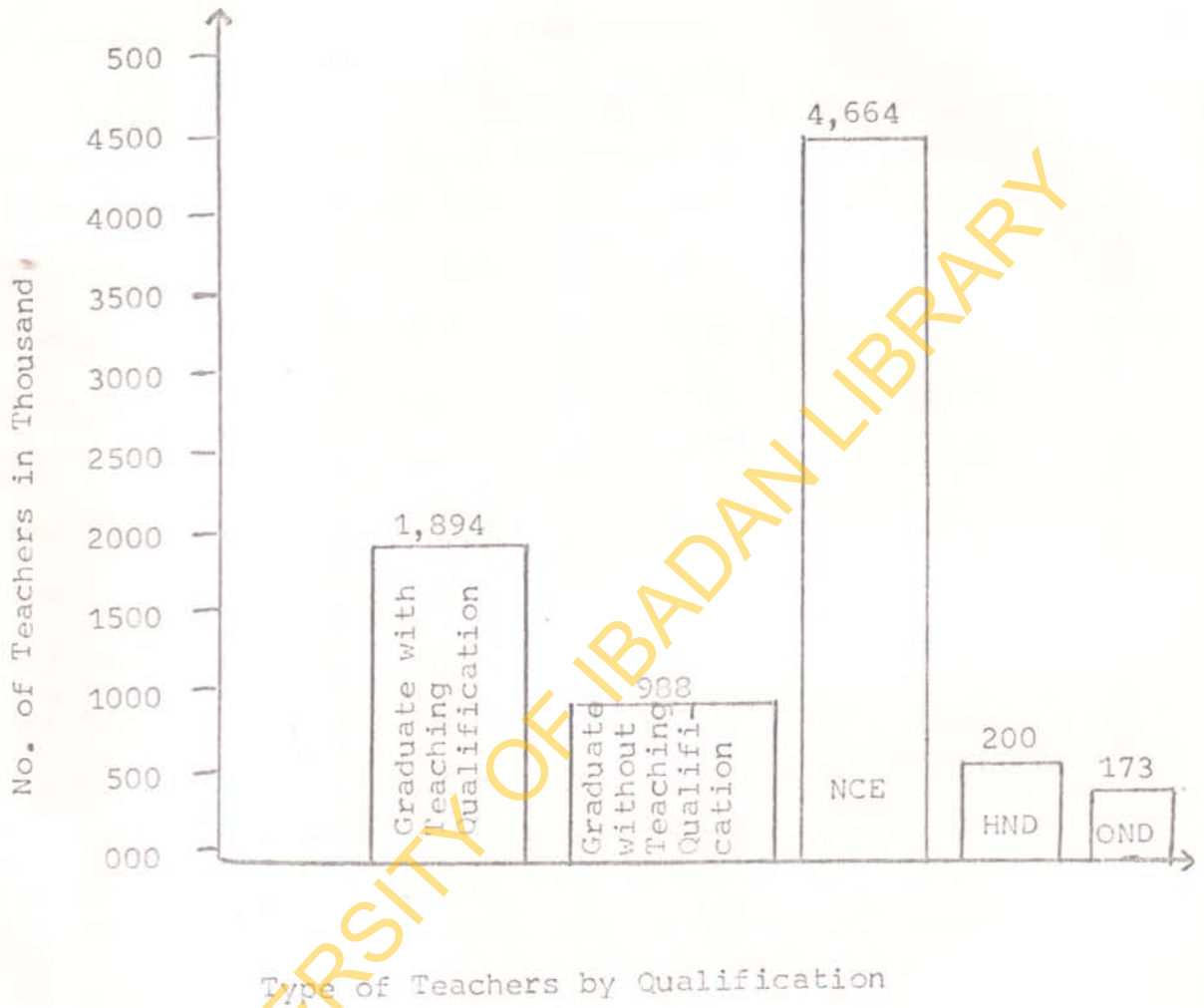


Table 6: Student-Teacher Ratio in the Ten Local Government Areas Sampled

Local Government Area	Student Population	Teachers' Population	Student/Teacher Ratio
Ibadan Municipal	95,930	3,943	24:1
Ifelaju	3,420	230	15:1
Osogbo	6,647	475	14:1
Ayedaade	5,793	295	20:1
Iwo	4,573	342	13:1
Ede	4,386	261	17:1
Oyo	9,484	680	22:1
Kajola	4,596	188	24:1
Ife Central	15,733	768	20:1
Ilesa	11,503	737	16:1
Total	162,065	7,919	21:1

A close examination of Table 6, might lead one to conclude that teachers were adequate in the area under study, but such a conclusion might be misleading.

During personal interviews with some Principals, it was discovered that no school in the area of study had adequate number of teachers in subjects like English Language, Mathematics, Integrated Science and Introductory Technology.

This might have reflected in the poor quality of passes obtained from those subjects in 1988, 1989 and 1990.

Table 7 shows the stock of equipment in the sampled schools. Adequate number of chairs and lockers were available in sixteen schools (32 per cent) out of the fifty schools sampled. There were enough classrooms in thirty (60 per cent) out of the fifty schools. Only twelve schools (24 per cent) had Science Laboratories. Technical workshops were available in thirty-four out of the fifty schools under study (68 per cent) in Oyo State.

Science laboratories were fairly equipped in twenty out of the fifty schools (40 per cent). Forty of the schools had libraries but only twenty four of the

Table 7: Computed Stock of Equipment in the Sampled Schools During 1990/91 Session

	Items of Equipment	Schools well Equipped	Schools not well Equipped
1.	There are adequate number of chairs	16	34
2.	There are enough classrooms	30	20
3.	There are adequate laboratories for Science	12	38
4.	Technical workshops are available	34	16
5.	Science laboratories are well-equipped	20	30
6.	There is a library	40	10
7.	Library is well-stocked	24	26
8.	There are enough instructional materials	06	44
Total		182	218
Percentage of Responses		45.5%	54.5%

schools' libraries were equipped with few books (48 per cent). Only six of the fifty schools had enough instructional materials (12 per cent).

On the average, 45.5 per cent of the respondents agreed that the equipment specified on Table 7 were provided while 54.5 per cent of the respondents reported that the equipment were not adequately provided.

From the table, it can be seen that physical and material resources were not adequately provided in many of the schools used for the study between 1986 and 1990.

Question Two: Are the available resources being fully utilized?

Table 8 reveals that classrooms, chairs and teaching staff were fully used in the sampled schools.

Libraries were adequately used in only fifteen schools (30 per cent), Science laboratories in forty schools (80 per cent), Technical equipment in six schools (12 per cent), Technical workshop in twenty four schools (48 per cent), and Technical teachers were fully utilized in twenty schools (40 per cent).

The items that were not fully utilized as shown on the table are technical workshops, technical equipment and technical teachers. During the investigation, it

was discovered that some schools which had technical workshops were not equipped with technical materials. Where the equipment were provided, the machines were not installed. In some of the schools where the machines were installed, there was no electricity for their operation.

Some of the schools under the study reported cases of the technical equipment being vandalized by thieves. From the table, one can infer that technical workshops, equipment and teachers were not adequately provided and used in most of the schools sampled.

Table 8: Utilization of Resources in the Sampled Schools

Resources	Schools where Resources were utilized	Schools where Resources were not utilized
1. Classrooms	50	-
2. Chairs and lockers	50	-
3. Teaching staff	50	-
4. Technical workshops	24	26
5. Technical equipment	06	44
6. Technical teachers	20	30
7. Science laboratories	40	10

Question 3: Are the new technical subjects introduced and taught effectively?

Table 9: Schools where Technical Subjects were Offered

Subjects	Schools where offered		Schools where not offered	
	No.	%	No.	%
1. Introductory Technology	45	90	05	10
2. Technical Drawing	20	40	30	60
3. Metal Work	04	8	46	92
4. Woodwork	10	20	40	80
5. Business Studies	24	48	26	52
6. Local Crafts	08	16	52	84
7. Fine Art	14	28	36	72

It is observed from table 9 that apart from Introductory Technology which was taught in forty five of the schools sampled, other technical subjects were not given proper attention and even not included on the school time-table.

During interviews with some Principals of the schools concerned, it was discovered that the subjects were not offered because there were no qualified teachers to teach them.

Table 10: Student enrolment in Technical Colleges between 1988 and 1990

Schools	Enrolment			
	1988	1989	1990	Total
1. Government Technical College, Igboora	128	130	139	397
2. Government Technical College, Ile-Ife	96	106	120	322
3. Government Technical College, Ogbomoso	102	110	107	319
4. Government Technical College, Osogbo	194	190	204	588
5. Government Technical College, Oyo	150	240	262	652
6. Government Technical College, Saki	54	63	69	186
Grand Total	724	839	901	2464

Table 11: Student enrolment in Teachers Colleges between 1988 and 1990

Colleges	Enrolment			
	1988	1989	1990	Total
1. Divisional Teachers' College, Saki.	740	790	891	2,421
2. Divisional Teachers' College, Ipetu	602	760	870	2,232
3. Baptist College, Iwo	900	1,120	1,171	3,191
4. Local Authority Teachers' College, Iseyin.	580	590	618	1,788
5. Local Authority Teachers' College, Osogbo.	800	801	940	2,541
6. Divisional Teachers' College, Ejigbo	544	583	647	1,774
7. U.M.C., Molete, Ibadan	260	294	318	872
8. Local Authority Teachers' College, Iyana-Offa.	658	704	849	2,211
Grand Total	5,084	5,642	6,304	17,030

Table 12: A Comparison of the Admission Figures into Technical and Teachers' Colleges in Oyo State between 1988 and 1990

Year	Total output of JSS	Total output not qualified for S.S.S.	No. admitted into technical colleges	No. admitted into Teachers' Colleges	Total Admission into Technical and Teachers Colleges	Technical and Teachers Colleges Enrolment Ratio = $\frac{\text{Column 6} \times 100\%}{\text{Column 3}}$
(1)	(2)	(3)	(4)	(5)	(6)	$\frac{\quad}{1}$
1988	101,709	40,553	724	5,084	5,808	14.32%
1989	92,275	23,677	839	5,642	6,482	27.38%
1990	113,308	25,571	901	6,304	7,205	28.18%
Grand Total	307,292	89,802	2,464	17,030	19,495	21.7%

Question 4: Are those aspiring to proceed further in technical and teacher training education being fully admitted?

The answer to this question is provided on Table 10, 11 and 12. The enrolment ratio according to Table 12, refers to the ratio of total number admitted into technical and teachers' colleges to the total number of students expected to be admitted.

As shown on Table 12, only (14.32 per cent) were admitted into technical and teachers' colleges in 1988, 22.38 per cent in 1989 and 28.18 per cent in 1990.

On the average, for the three years only 21.7 per cent were admitted into technical and teachers' colleges in Oyo -state. Though, there might be some students of Oyo State origin who could have been admitted into Technical and Teachers' Colleges in other parts of the country, such a population would be very small because of quota system.

The analysis on Table 12 revealed that more outputs of JSS should be admitted into technical and teacher training colleges.

Question 5: Is Junior Secondary Education Internally Efficient?

This question can be solved by employing the cohort analysis model. This was done by relating the input of a cohort which is in terms of student years, to the

total output which were graduates of the cohort studied. After this, the figures obtained were then related to the ideal input-output ratio, which is also in terms of student years. When actual input-output ratio is related to ideal input-output ratio, the quotient obtained forms the wastage ratio. If the quotient is equal to 1, it means, the system is perfectly efficient but if it is greater than 1, it is inefficient. The extent of deviation of the quotient from 1 indicates the extent of wastage. A quotient of 2 indicates that the system is turning out graduates at twice the amount it ought to have cost.

The cohort analysis was based on the Evaluation of Efficiency Questionnaire (EEQ).

Tables 13, 14 and 15 show the student flow rate from the sampled secondary schools for the 1986/88 cohort, 1987/89 cohort and 1988/90 cohort respectively.

Table 13: Student flow rates for 1986/88 Cohort

Flow Rates	Grades			
	JSS I	JSS II	JSS III	Percentage Average
Promotion Rate	86	91	97	91.3
Repetition Rate	9	6	-	5.0
Dropout Rate	5	3	3	3.7
Wastage Rate	14	9	3	8.7

Table 14: Student flow rates for 1987/89 Cohort

Flow Rates	Grades			
	JSS I	JSS II	JSS III	Percentage Average
Promotion Rate	88	93	98	93.0
Repetition Rate	9	5	-	4.7
Dropout Rate	3	2	2	2.3
Wastage Rate	12	7	2	7.0

Table 15: Student flow rates for 1988/90 Cohort

Flow Rates	Grades			
	JSS I	JSS II	JSS III	Percentage Average
Promotion Rate	92	94	99.8	95.3
Repetition Rate	6	4	-	3.3
Dropout Rate	2	2	0.2	1.4
Wastage Rate	8	6	0.2	4.7

The cohorts were selected to show the flow rates between 1986 and 1990. The flow of these cohorts is presented on the models in Figures 4, 5, and 6 on pages 121, 122 and 123.

The first set of the cohort graduated in 1988, second set graduated in 1989 and the third set graduated in 1990.

The flow diagrams were constructed on a number of assumptions:

1. a student was allowed to repeat only twice.
2. there would be no additional new entrants into the cycle in subsequent years.

From the models, the student-years used by the output of junior secondary education were calculated as follows:

Total inputs from the evolution of 1986/88 cohort were as follows:

JSS I	1986	=	12,074	student-years
JSS II	1987	=	10,799	student-years
JSS III	1988	=	<u>9,743</u>	student-years
Total		=	<u>32,616</u>	student-years

Total output from the evolution of 1986/88 cohort was calculated as below:

1986/87	=	8,283
1987/88	=	<u>1,081</u>
Total	=	<u>9,364</u>

The ideal input-output ratio is $\frac{3}{1}$ for this type of education, since the student is expected to spend a minimum of three years to complete the course in a normal situation.

The actual input-output ratio of the evolution of the cohort was calculated as below:

$$\frac{\text{Input}}{\text{Output}} = \frac{32,616}{9,364} = 3.48$$

The wastage ratio was then calculated as follows:

$$\frac{\text{Actual Input-Output Ratio}}{\text{Ideal Input-Output Ratio}} = \frac{3.48}{3} = 1.16$$

Since the quotient of the wastage ratio is greater than one, the system is not internally perfectly efficient.

Calculation of total inputs from the evolution of 1987/89 cohort are as follows:

JSS I	1987	=	10,282	student-years
JSS II	1988	=	9,357	student-years
JSS III	1989	=	<u>8,537</u>	student-years
Total		=	<u>28,176</u>	student-years

Total output from the evolution was calculated as below:

1987/88	=	7,502
1988/89	=	<u>800</u>
Total	=	<u>8,302</u>

$$\frac{\text{Input}}{\text{Output}} = \frac{28,276}{8,302} = 3.39$$

$$\text{Wastage Ratio} = \frac{3.39}{3} = 1.13$$

The quotient of the wastage ratio shows that the system is not internally perfectly efficient.

Calculation of the total inputs of the 1988/90 cohort are as below:

JSS I	1988	=	11,324	student-years
JSS II	1989	=	10,692	student-years
JSS III	1990	=	<u>10,018</u>	student-years
	Total	=	<u>32,034</u>	student-years

Total output from 1988/90 evolution of cohort is shown below:

1988/89	=	9,222
1989/90	=	<u>760</u>
Total	=	<u>9,982</u>

$$\frac{\text{Input}}{\text{Output}} = \frac{32,034}{9,982} = 3.21$$

$$\text{Wastage Ratio} = \frac{3.21}{3} = 1.07$$

The result also indicates that the system is not yet internally perfectly efficient.

Table 16: Comparison of the Wastage Ratios of the Cohort

	Input-Output Ratio	Calculated Wastage Ratio	Perfect Wastage Ratio
1986/88 sets	3.49	1.16	1
1987/89 sets	3.39	1.13	
1988/90 sets	3.20	1.07	

From table 16, the analysis of the wastage ratios shows that the system was not internally perfectly efficient over the years but tends towards perfection. The degree of internal efficiency increased from 1988 to 1990 with a consequent reduction of wastage ratio from 1.16 to 1.07.

The above results can also be confirmed from the analysis of the final examination results of the sampled schools for 1988, 1989 and 1990 as shown in table 17 below.

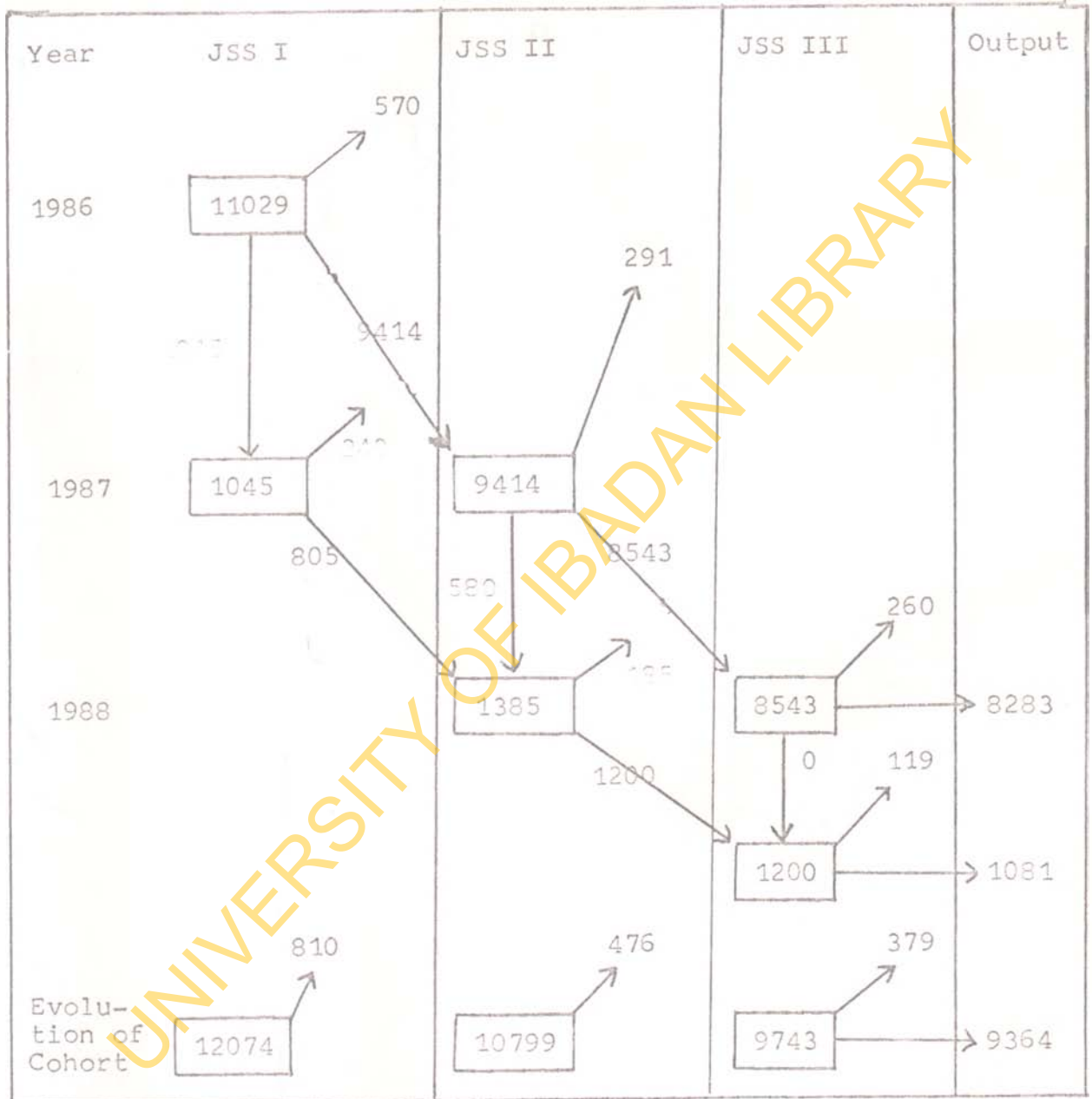
Table 17: Computed results of the sampled Schools for 1988, 1989 and 1990

Year	Total Enrolment	Total No. of Passes	Total No. of Failures	Percentage Passes	Percentage Failure
1988	8,269	4,972	3,397	60	40
1989	7,502	5,577	1,925	74.34	25.6
1990	9,212	7,133	2,079	77.43	22.57
Total	24,983	17,682	7,301	70.7	29.2

As shown in table 17, 60 per cent of passes was obtained in 1988, 74.34 per cent was attained in 1989 and 77.43 per cent was recorded in 1990. This shows that there was improvement in the system over the years. As the percentage of passes increased from 60 in 1988 to 77.43 in 1990, the percentage of failures decreased from 40 in 1988 to 22.57 in 1990.

From the analysis, one can conclude that the system is not internally perfectly efficient but moved towards perfection.

Fig. 4: Flow chart showing a reconstructed cohort of the 1986/88 JSS output of the schools used for the study



KEY:

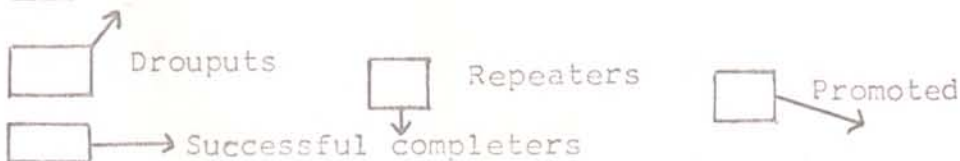


Fig. 5: Flow chart showing a reconstructed cohort of the 1987/89 JSS output of the schools used for the study

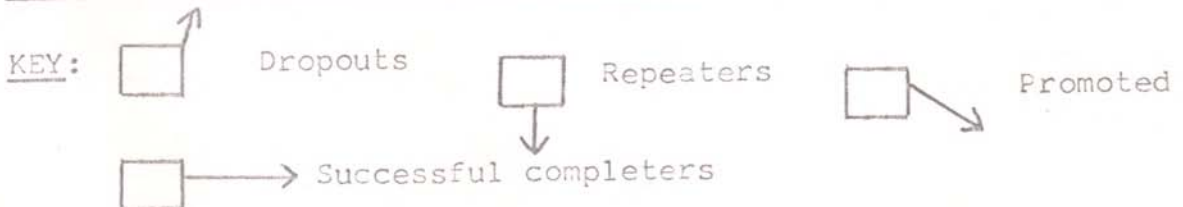
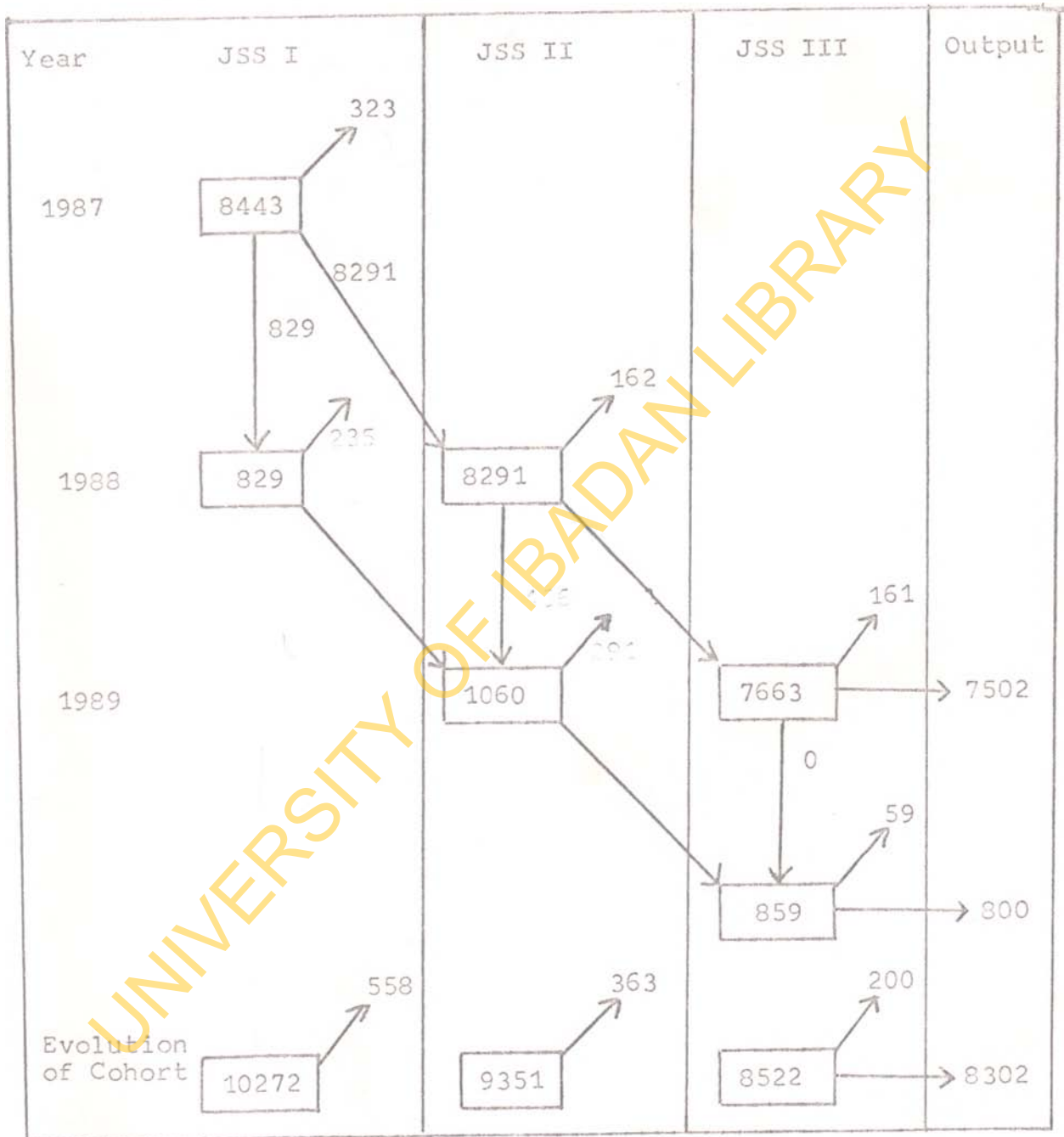
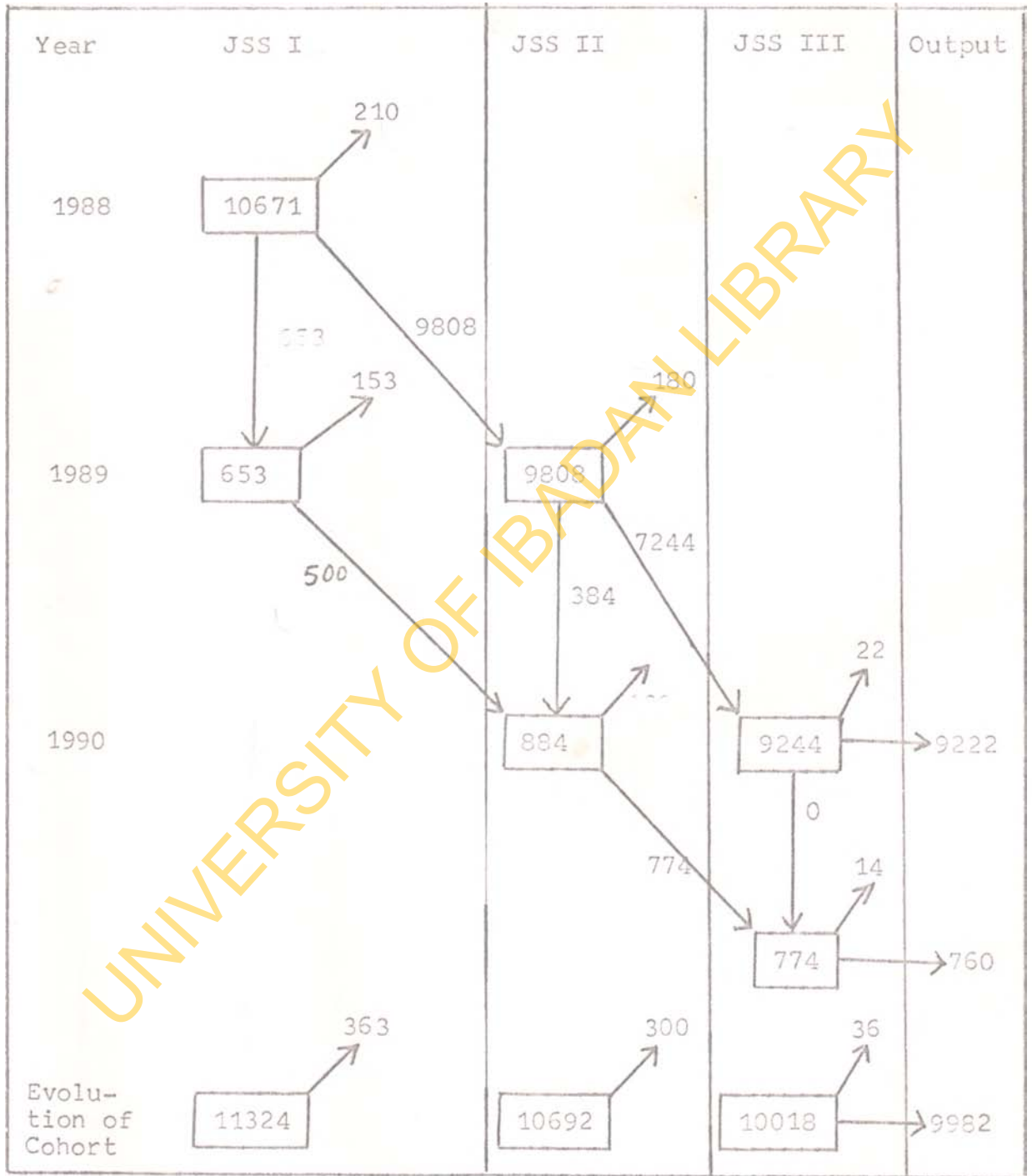


Fig. 6: Flow chart showing a reconstructed cohort of the 1988/90 JSS output of the schools used for the study



KEY:



Dropouts



Repeaters



Promoted



Successful completers

Hypothesis One: There is no significant difference between the perfect internal efficiency and the internal efficiency of Junior Secondary Schools in Oyo State.

The answer to this hypothesis is presented on table 18. The wastage ratios of the cohorts used in the study and shown in Figs. 4, 5 and 6 were determined. The quotients of the wastage ratios obtained were compared with the wastage ratio of the perfect internal efficiency which is denoted by numerical number one.

Since the quotient obtained in each of the cohorts 1.16, 1.13 and 1.07 is greater than one, it can therefore be concluded that there is a difference between the internal efficiency of Junior Secondary Education in Oyo State and that of perfect internal efficiency.

Hypothesis one is therefore rejected.

Table 18: Comparison of the Wastage Ratios with the Perfect Wastage Ratio

Year	Wastage Ratio	Perfect Wastage Ratio
1986/88	1.16	
1987/89	1.13	1
1988/90	1.07	

Hypothesis Two: There is no significant difference between the wastage ratios of urban and rural Junior Secondary Schools in Oyo State.

In order to test this hypothesis, the fifty schools sampled were divided into urban and rural. Schools in Ibadan Municipal, Ile-Ife and Osogbo were regarded as the urban schools. The schools sampled in Ayedaade, Ifelaju, Kajola, Ede, Oyo, Ilesa and Iwo Local Governments were regarded rural. There are twenty seven schools under urban and twenty three schools under rural areas.

The wastage ratios for the three sets of cohorts were computed separately for urban and rural schools. The quotients of the wastage ratios obtained from the three sets of cohorts for urban were related to those obtained from rural areas.

The results revealed that the wastage ratios for urban and rural in the three sets of cohorts were not the same. This is shown in table 19 below.

The figures obtained from table 19 revealed that schools in the rural areas were more efficient than schools in urban areas.

Table 19: Comparison of the Wastage Ratios of Urban and Rural Schools for the three sets of Cohorts

Year	Zone	Actual Input-Output ratio	Wastage ratio	Perfect wastage ratio
1986/88 set	Urban	3.54	1.18	1.0
	Rural	3.39	1.13	
1987/89 set	Urban	3.48	1.16	1.0
	Rural	3.24	1.08	
1988/90 set	Urban	3.36	1.12	1.0
	Rural	3.03	1.01	

To test for the significance of the relationship between the internal efficiency of schools in urban and rural areas, the Chi-Square method was used. Chi-Square was calculated and tested at 5 per cent level of significance.

Table 20: A comparison of the Outputs of Junior Secondary Education for the three sets of cohorts

Session	1986/88	1987/89	1988/90	Total Output
Urban	5,992	5,319	6,532	17,843
Rural	3,372	2,983	3,450	9,805
Total	9,364	8,302	9,982	27,648

$$\chi^2_{cal} = \frac{\sum_{i=1}^n (O_r - e_r)^2}{e_i}$$

$$\text{Where } e_i = \frac{R_t \times C_t}{T}$$

O_i = ith observed value

e_i = ith expected frequency

R_t = Row total

T = Grand total

From the table Chi-square calculated is less than the table value = $\chi^2_{cal} < \chi^2$ i.e. 5.559 < 5.991. Since the calculated value is less than the table value, then we accept the hypothesis that there is no significant difference in the wastage ratio of urban and rural schools in Oyo State.

Hypothesis Three: There is no significant difference in the efficiency of community-based and government-based Junior Secondary Schools in Oyo State.

For testing this hypothesis, two schools were chosen from urban zone. The selected schools are Government College and Loyola College Ibadan. Government College is denoted with letter 'A' while Loyola College is denoted with letter 'B'.

The wastage ratios of the two schools were calculated separately for the three sets of cohorts. The values of the wastage ratios obtained from school 'A' were related to school 'B'. For 1986/88 and 1987/89 sets, the internal efficiency of both schools were not the same. But for 1988/90, the internal efficiency of the two schools were the same.

In order to accept or reject the hypothesis, the output of the two schools were further subjected to statistical analysis with the use of Chi-square method.

Table 21: A comparison of the wastage ratios of schools A and B for the three cohorts from urban area

Year	School	Actual Input-Output Ratio	Wastage Ratio	Perfect Wastage Ratio
1986/88 set	A	3.5	1.16	1.0
	B	3.3	1.10	
1987/89 set	A	3.16	1.05	1.0
	B	3.18	1.06	
1988/90 set	A	3.12	1.04	1.0
	B	3.12	1.04	

Table 22: Outputs of community-based and government-based schools

Name of Schools	1986/88 Graduates	1987/89 Graduates	1988/90 Graduates	Total
Government College 'A'	242	259	352	853
Loyola College, Ibadan 'B'	370	404	393	1167
Total	612	663	745	2020

Since χ^2 of 12.224 > 5.991 at 5% level of significance, we reject the null hypothesis. In other words, there is a significant difference between the internal efficiency of community based school and government based school.

Hypothesis Four: There is no significant difference between the internal efficiency of Junior Secondary Schools located in rural areas of Oyo State.

The findings on this hypothesis are presented in tables 23 and 24. Like the procedures employed to test hypothesis three, the researcher made use of the two schools chosen from the rural areas of the study.

In a similar way, Odeonu High School from Ayedaade local government and Oke-Ato High School from Kajola local government were chosen. The schools were represented with letters 'A' and 'B' respectively. The wastage ratios of the schools were computed separately for the three sets of cohorts. The quotients of the wastage ratios of school 'A' were compared with school 'B' in order to reject or accept the hypothesis. For the three cohorts, the wastage ratios were not the same. Therefore, one can remark that there were differences between the internal efficiency of the schools in the rural areas of the study.

Table 23: A comparison of the wastage ratios of schools 'A' and 'B' for the three cohorts from rural area between 1986 and 1990

Year	School	Actual Input-Output	Wastage Ratio	Perfect Wastage Ratio
1986/88 set	A	4.65	1.65	1.0
	B	3.35	1.12	
1987/89 set	A	3.28	1.09	1.0
	B	4.14	1.38	
1988/90 set	A	3.58	1.19	1.0
	B	3.38	1.13	

In order to test the hypothesis further, the Chi-square method was adopted as done for hypotheses two and three. The outputs used are indicated in table 24 below.

Table 24: Outputs of School A and School B

School	Graduates 1986/88	Graduates 1987/89	Graduates 1988/90	Total
Odeomu High School (A)	84	86	72	242
Oke Ako High School, Igangan.	93	84	82	259
Total	177	170	154	501

Since Chi-square calculated i.e. X^2_{cal} is less than the Table value at 5% level of significance i.e. $0.559 < 5.991$, we accept the null hypothesis that there is no significant difference between the internal efficiency of schools in rural areas of Oyo State.

Major Findings

Based on the data analysed, the main findings of this study were:

1. The resources available to Junior Secondary Schools in the area under study were not adequate. There were inadequate number of science and technical teachers in the state

secondary schools. The physical and material resources were not adequately provided.

2. Some technical workshops technical equipment and technical teachers were discovered not to be fully utilized in the study area.
3. There were inadequate number of technical and teacher training colleges for those aspiring to proceed in technical and teacher training programme. Up to 1990, both technical and teacher training colleges were able to admit 6.3 per cent of the total population of junior secondary education graduates and 21.7 per cent of the proportion that were not qualified for academic courses.
4. The teaching of most of the technical and vocational subjects have not started.
5. The efficiency of Junior Secondary Schools in Oyo State between 1986 and 1990 were not internally perfect.
6. Between 1986 and 1990, the internal efficiency of Junior Secondary Schools in Oyo State showed an improving trend. The wastage ratio decreased from 1.16 in 1988 to 1.07 in 1990 and the wastage rate decreased from 8.7 per cent in 1988 to 4.7 per cent in 1990.

7. There was no significant difference between the internal efficiency of schools in urban and rural areas of Oyo State.
8. Internal efficiency between schools in urban area were significantly different.
9. Internal efficiency between schools in rural areas were not significantly different.

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CHAPTER FIVE

SUMMARY AND CONCLUSION

This chapter is presented under the following sub-headings:

1. Summary
2. Discussion of findings
3. Conclusions
4. Recommendations
5. Suggestions for further research

1. Summary

This study is an attempt at analysing the inputs and outputs of Junior Secondary Schools in Oyo State between 1986 and 1990 to determine the degree of internal efficiency.

Fifty schools were chosen from ten different local governments area in the State. Data on enrolments of students between 1986 and 1990 were collected in addition with the final results of 1988, 1989 and 1990 sets.

The data collected were analyzed with the use of percentages reconstructed cohort method, chi-square, spearman co-efficient of correlation and T. Test.

For the collection of data, two sets of instruments were developed and oral interview were conducted where necessary to throw more light on the study.

A descriptive research survey design was adopted for the study. The summary of findings are:

1. Resources available to Junior Secondary Schools in Oyo State between 1986 and 1990 were not adequate.
2. Only 21.7 per cent of Junior Secondary School graduates were admitted into technical and teacher training colleges between 1988 and 1990.
3. The wastage ratio of Junior Secondary Schools in the State decreased from 1.16 in 1988 to

1.07 in 1990 while wastage rate decreased from 8.7 per cent in 1988 to 4.7 per cent in 1990.

4. The internal efficiency of Junior Secondary Education between 1986 and 1990 were far from being perfect.

2. Discussion of findings

In this Chapter, the findings of this investigation are discussed in terms of the research questions and hypotheses.

(i) Availability of Resources for Junior Secondary Schools between 1986 and 1990

From the analysis of the data collected, it was discovered that qualified teachers were not adequately provided and physical and material resources were in short supply. This

finding is also in agreement with those of Adeboyeje (1984), Coombs (1968), Adeogun (1985) and Amoo (1982). They all discovered that physical, material and human resources were not adequately provided in schools.

According to the National Policy on Education, the Blue Print of 1978/79 page 23, it is stated that the ideal situation expected in our secondary schools should be:

- a) a 40 percent transition rate from primary to secondary schools;
- b) an average class size of 35;
- c) a pupil-teacher ratio of 22.8:1, an average that takes into consideration the fact of smaller groups of pupils in pre-vocational subjects;
- d) an attrition rate of teachers of 10 per cent each year.

From the analysis of the data collected and from the personal visits made to the sampled schools, it was discovered that the ideal situation specified in the National Policy for

our Junior Secondary Schools has not been achieved and may not be achieved in the nearest future.

(ii) Utilization of Resources

This study discovered that classrooms, chairs, lockers and teaching staff were fully utilized while technical equipment, workshops and science laboratories were not fully utilized. There were some of the schools where classrooms, chairs and lockers were over-used. The causes of the over-use of the resources were attributed to:

- a) Inability of the parents to provide enough chairs and tables for their children; and
- b) increase in the school intake by the government without corresponding increase in the number of classrooms provided.

In the case of technical workshops and equipment that were not fully used, it was discovered that manpower to operate the equipment were not enough and that the technical equipment supplied to schools by the government were not

installed in many cases. In some schools where they were installed, there was no electricity to operate the machines. There were some schools where the equipment had been stolen away by thieves or vandalized.

(iii) Teaching and Learning of the new Technical and Vocational Subjects

It was discovered that technical and vocational subjects recommended in the National Policy on Education were not fully offered in most of the schools covered by the study.

During interviews with some Principals, it was revealed that their inability to include the subjects in the school curriculum was due to (i) lack of qualified technical and vocational teachers to teach the subjects in their schools. (ii) inability to source base materials even where teachers were available. Such teachers were made to teach Mathematics or science subjects.

(iv) Admission of Junior Secondary School Graduates into Technical and Teacher Training Colleges

The study revealed that junior secondary school graduates who sought admission into technical and teachers' colleges between 1988 and 1990 were not fully admitted. Up to 1990, both technical and teacher training colleges were able to admit 21.7 per cent of the proportion that were not qualified for senior secondary class. Though, there might be some products of junior secondary schools of Oyo State who would have been admitted into technical and teachers' colleges in other parts of the country, such a population would be small because of the quota system used for admission.

(v) Internal Efficiency of Junior Secondary Education in Oyo State between 1986 and 1990

The internal efficiency of junior secondary education between 1986 and 1990 was not perfect but shows an improving trend. The wastage ratio decreased from 1.16 in 1988 to 1.07 in 1990. The percentage of successful graduates increased from 60 per cent in 1988 to 74.34 per cent in 1989 and to 77.43 per cent in 1990.

The analysis revealed that the system was not internally perfectly efficient but moved towards perfection as the number of passes increased from 60 percent in 1988 to 77.43 percent in 1990.

(vi) Relationship between the Internal Efficiency of Junior Secondary Schools and Perfect Internal Efficiency

From the findings of this study, it was discovered that there were differences between the internal efficiency of junior secondary education and that of perfect internal efficiency between 1986 and 1990. There were differences between the internal efficiency of schools in urban and rural areas since the wastage ratios obtained were not the same. The findings also revealed that efficiency between schools in urban areas were not the same and that community-based schools performed better than government-based schools. This implied that school location does not determine the resource allocation and the school performance.

3. Conclusions

From the above findings and discussions, the following conclusions can be made:

- iv) There was little difference between the former five-year system of education and the present 6-3-3-4 system since most of the technical and vocational subjects had not been taught or introduced in most of the schools covered by the study.
- v) The internal efficiency of junior secondary education between 1986 and 1990 were not perfectly efficient.
- vi) There was no significant difference between the efficiency of urban and rural schools which implied that the 40 per cent cut-off point for admission into urban schools as against 15 to 20 percent for rural schools had no positive relationship with the performance of students from urban areas.
- vii) There were differences in the internal efficiency of schools located within urban area.
- viii) The average student-teacher ratio in the area covered by the study was found to be 21.1 which was normal compared with the

ideal student-teacher ratio of 22.8:1 as specified in the National Policy on Education (Blue Print of 1978/79).

4. Recommendations

In view of what the investigator discovered from his findings and their implications to this study, it is considered pertinent to make some useful recommendations which would be of importance to improving the efficiency of junior secondary education in Oyo State and also in Nigeria as a whole. The study revealed an inadequate provision of physical, material, and human resources to schools. This situation does not augur well for a nation aspiring to attain technological heights. Adequate resources should be made available to schools.

Government should try to train more science and technical teachers for the teaching of technical and vocational subjects in the junior secondary schools. The deflection of such trained teachers should be halted through attractive rewards.

In an attempt to meet the demand of those willing to proceed further in technical and teacher education, government should substantially expand enrolment in those colleges.

The study showed very minor wastage ratios for the three sets of cohorts. Efforts should be intensified to eliminate wastages to increase internal efficiency through adequate planning and effective management of resources.

To bridge the gap that exists between demand and supply of teachers in Oyo State Secondary Schools, the government should encourage the Teaching Service Commission to supply teachers according to the needs of individual schools, through increased funding by the State Government.

Attempts should be made to carry out more studies both at the State and Federal levels on the evaluation of internal efficiency of our educational system at all levels. This would help draw the attention of educational planners to the need for effective allocation and utilisation of resources in order to eliminate or reduce wastage to the barest minimum.

5. Suggestions for further Research

In this study, the investigator limited the scope of his research to all the Junior Secondary Schools in Oyo State. The present study could be replicated in order States of Nigeria.

It is worthwhile conducting a longitudinal study of a particular cohort in which each student can be followed throughout his career in the Secondary School, in order to get more accurate data on repetition and dropping out in the State's Secondary Schools and elsewhere in the country.

It is also necessary to further investigate the impact of resource allocation as it affects the performance of Junior Secondary Schools in Oyo State and other States of the Federation.

It will be appropriate to find out reasons why many of the students in the state prefer repeating J.S.S. 3 rather than dropping out.

Our knowledge of causes of inefficiency may be further increased by designing a multi-variate analytical study aimed at determining the impact of each group of school variables on the overall performance of Junior Secondary School graduates.

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APPENDIX I

AN EVALUATION OF EFFICIENCY QUESTIONNAIRE (AEEQ)
FORM I (FOR THE PRINCIPALS)

Dear Sir/Ma,

This is a questionnaire in which a variety of information is requested from you on the Efficiency of Junior Secondary Education. Kindly respond to every item of the questionnaire as candidly as possible.

SECTION A

Personal Data

1. Status:
2. Working Experience

Less than 1 year	1 - 4 years	5 - 10 years	11 - 20 years	Above 20 years
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3. Name of School:
.....
4. Location of School:
.....

SECTION B:

Perception of school principals on the efficiency of junior secondary education.

Instructions: Kindly indicate the extent to which you agree or disagree with each of the following statement.

- Note that SA = Strongly Agree
 D = Disagree
 A = Agree
 SD = Strongly disagree

In my school:

	SA	A	D	SD
5. There are adequate number of chairs and tables for the students ...				
6. There are adequate number of classrooms ...				
7. There are laboratories for physics, Chemistry and Biology ...				
8. The laboratories are adequately equipped. ...				
9. There is technical workshop ...				
10. There is a library ...				
11. The library is well stocked and used ...				
12. There are instructional materials like TV and radio sets ..				
13. There are enough qualified teachers				
14. There are enough number of technical teachers				
15. The technical equipments are fully utilized ...				
16. There is constant flow of electricity for generating power for the use of technical equipment ...				

- (i) Students are occupied with too much work at home which are not connected with their studies
- (j) Inability of students to have necessary textbooks
23. Educated parents are not interested in sending their children to technical colleges.
24. Students are interested in technical work ...
25. There is no guidance counsellor in my school
26. Continuous assessment is not properly organised and conducted
27. The filing of continuous assessment forms waste too much of the teachers' time thereby reduce efficiency and effectiveness. ...

SA	A	D	SD

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SECTION C

Data on the quantities of resource materials in your school.

28. State the number of classrooms in each of the forms during 1989/90 session.

No. of classrooms	JSS 1	JSS II	JSS III	SS I	SS II	SS III
Total No. available						
Total No. required						

29. Give the number of teaching staff available and the number that is required in your school.

School Year	Graduate teaching qualification	Graduate without teaching qualification	N.C.E Teachers	H.N.D, O.N.D, N.C.E. Technical Teachers
No. of Trs required				
No of Trs available				

30. Which of these facilities are available in your school? Indicate the quantity of each item.

32. Supply the following information on the final junior secondary education examination held in your school in 1988, 1989 and 1990.

Name of School and year	Total No. of candidates registered	No. of passes in English & Mathematics with at least five credits	No. of those who were not qualified for SS Class
1986/88 set			

Name of School and year	Total No. of candidates registered	No. of passes in English & Mathematics with at least five credits	No. of those who were not qualified for SS class
1987/89 set			

Name of school and year	Total No. of candidates registered	No. of passes in English & Mathematics with at least five credits	No. of those who were not qualified for SS class
1988/90 set			

APPENDIX II

AN EVALUATION OF EFFICIENCY QUESTIONNAIRE (AEEQ)
FORM II (FOR GUIDANCE COUNSELLORS)

Dear Sir/Ma,

This is a questionnaire in which a variety of information is requested from you on the efficiency of junior secondary education.

Kindly respond to every items of the questionnaire as candidly as possible.

SECTION A

Personal Data

1. Status:

2. Working Experience

Less than 1 year	1 - 4 years	5 - 10 years	11 - 20 years	Above 20 years
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3. Name of school:

.....

4. Location of school:

.....

SECTION B

Perception of school Guidance Counsellors on the efficiency of junior secondary education.

Instructions: Kindly indicate the extent to which you agree or disagree with each of the following statements.

Note that: SA = Strongly Agree
 D = Disagree
 A = Agree
 SD = Strongly disagree

In my School:

	SA	A	D	SD
5. There are adequate number of chairs and tables for the students				
6. There are adequate number of classrooms				
7. There are laboratories for Physics, Chemistry and Biology				
8. The laboratories are adequately equipped				
9. There is technical workshop				
10. There is a library				
11. The library is well stock and used				
12. There are instructional materials like TV and Radio sets				
13. There are enough qualified teachers				
14. There are enough number of technical teachers				

	SA	A	D	SD
g) Poor admission criteria to JSS class one ...				
h) Persistent failure of students				
i) Students are occupied with too much work at home which are not connected with their studies				
j) Inability of students to have necessary textbooks ...				
23. Educated parents are interested in sending their children to technical colleges ...				
24. Students are interested in technical work ...				
25. There is no guidance Counsellor				
26. Continuous assessment is not properly organised and conducted				
27. The filling of continuous assessment forms waste too much of the teachers' time thereby reduced efficiency.				

UNIVERSITY OF IBADAN, IBADAN, NIGERIA

DEPARTMENT OF EDUCATIONAL MANAGEMENT

Head of Department
PROFESSOR J. I. NWANKWO
B.sc. (UNN); Ph D. (Ibadan)
PDS, Stanford, California USA.



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Head of Department: Ext 1282, 2083
Secretary: Ext. 1282
TELEX: CAMPUS 31128 NG
NUC LONDON OFFICE: 180 TOTTENHAM
COURT ROAD LONDON WIP 9LE

Our Ref _____

11th April, 1990.

Your Ref _____

TO WHOM IT MAY CONCERN

The bearer Mr. Samuel A. ADEGUN is a Postgraduate Student in this Department for 1989/90 Session. He is conducting a research as part of his thesis.

I should be grateful if you could give him any information or data he required from your Department/Office/Section. The information will be used exclusively for academic purposes and will be treated with strict confidentiality.

Dr. S. O. Owolabi
Supervisor.

DEPARTMENT OF EDUCATIONAL
MANAGEMENT
UNIVERSITY OF IBADAN.

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UNIVERSITY OF IBADAN, IBADAN, NIGERIA

DEPARTMENT OF EDUCATIONAL MANAGEMENT

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 NUC LONDON OFFICE: 180 TOTTENHAM
 COURT ROAD LONDON W1P 8LE

Our Ref: _____

11 April, 1990.

Your Ref: _____

The Secretary to the Military Government,
 and Head of Service,
 Oyo State, Nigeria,

at: The Ministry of Education,
 Research and Planning Unit Secretariat,
 Ibadan.

Sir,

LETTER OF INTRODUCTION.

This is to introduce to you Mr. Samuel Adeogun, a candidate for the doctoral (Ph.D) degree in the above department at this University.

Mr. Adeogun is working on "Planning for Input and Output variables for Junior Secondary Education in Oyo State".

To complete his research successfully, Mr. Adeogun needs to collect the latest factual and perceptual data on resource materials for secondary education in the state, the nature of which is clearly specified in his questionnaire.

All information obtained would be kept strictly confidential by the researcher.

Access to the data thus would not be allowed to anyone except the student, his supervisor and the university research committee.

Your Co-operation in the data collection efforts by Mr. Adeogun would be highly appreciated.

Sincerely,

for Professor J.I. Nwankwo
 Head of Department.

DEPARTMENT OF EDUCATIONAL
 MANAGEMENT
 UNIVERSITY OF IBADAN.

Telephone(s)

Telegram: SEC MIL GOV

Ref.: SP/C.86/1/T/113



Military Governor's Office,
Government House,
P.M.B. 5129,
Oyo State, Nigeria.

29th August, 1990

OFFICE OF THE MILITARY GOVERNOR

Mr. Samuel Adeogun,
Department of Educational Management,
University of Ibadan,
Ibadan.

Application for Permission to Collect Data from the
Ministry of Education and Some Secondary Schools in
Oyo State

I am directed to refer to your letter dated 6th June, 1990 on the above subject-matter and to inform you that the Secretary to the Military Government has granted you permission to collect all the required information needed to complete your Ph.D Thesis titled "Planning for Input and Output variables of Junior Secondary Education in Oyo State" from the Ministry of Education and other Secondary Schools of your choice in Oyo State.

2. A copy of this letter is being endorsed to the Honourable Commissioner, Ministry of Education for her information and necessary assistance.

(P. O. Fajinni)
for Secretary to the Military
Government

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