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Instructional Resources as a Factor in Educational Performance: A Case Study in Tanzania.

Modest A. Levira

A Thesis

in

the Department of

Education

Presented in Partial Fulfillment of the Requirements

for the Degree of Doctor in Philosophy at

Concordia University

Montreal, Quebec, Canada.

October, 2000

ABSTRACT

Instructional Resources as a Factor in Educational Performance: A Case Study in Tanzania

Modest Athmani Levira, Ph.D.
Concordia University, 2000

In recent years, there has been an increasing discontent in the Tanzanian community regarding what has been described as 'educational decline'. Although the causes have been, almost entirely, reported to be associated with the absence of instructional resources, the current education literature suggests the presence of other important variables that also affect educational performance.

This study set out to investigate two hypotheses: (1). There is a declining trend in educational performance that varies with school types and locations in Tanzania; (2). There are factors other than instructional resources that affect educational performance in Tanzania. To test these hypotheses the researcher selected data by using sampling methods. A sample of Sixteen Secondary Schools, accounting for 414 teachers and 480 students, were selected. A variety of instruments were used to collect the data: questionnaires, group discussions, interviews and school records. Records of the performance of students in the National Examinations were also an important source of information for the study.

To test the first hypothesis, trend and regression analyses were performed using national examinations performance data and data obtained from the sample of schools. Findings only partially supported the hypothesis. A significant declining trend was present only at one out of the four Zones studied. When analysed separately by 'Old' and 'New' schools, results revealed some polarity, with new schools generally showing increasing trend at one end, and old schools showing slightly declining trends in performance. Results also revealed performance differences by gender, with female students consistently under-

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To my wife Basilina;

And our sons: Beda and John;

And to all those who might find inspiration in my work.

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CHAPTER SEVEN

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List of Abbreviations

BEMP	=	Basic Education Master Plan
BEST	=	Basic Education Statistics of Tanzania
COBET	=	Complementary Basic Education for Tanzania (Programme)
DANIDA	=	Danish International Development Agency
DBSPE	=	District Based Support for Primary Education
DED	=	District Executive Director
DEO	=	District Education Officer
EMIS	=	Education Management Information Systems
ESR	=	Education for Self Reliance
ETP	=	Education and Training Policy
GCSE	=	General Certificate of Secondary Education
GDP	=	Gross Domestic Product
GNP	=	Gross National Product
IAE	=	Institute of Adult Education
IAEE	=	International Association for Evaluation of Educational Achievement
ICBAE	=	Integrated Community Based Adult Education
ICT	=	Information and Communication Technology
MOEC	=	Ministry of Education and Culture
MOF	=	Ministry of Finance
MOSTHE	=	Ministry of Science, Technology and Higher Education
NAEP	=	National Assessment of Educational Progress
NAC	=	National Arts Council
NKC	=	National Kiswahili Council
NEC	=	National Executive Council (of the ruling party)
NECTA	=	National Examinations Council
NGO	=	Non-Governmental Organization
NMT	=	National Museum of Tanzania
NSC	=	National Sports Council

OUT	=	Open University of Tanzania
PSLE	=	Primary School Leaving Examination
PMO	=	The Prime Minister's Office
PS	=	Permanent secretary
REO	=	Regional Education Officer
RQS	=	Regional Quota System
SDP	=	Sector Development Programme
SIDA	=	Swedish International Development Agency
SMC	=	Sector Management Committee
SMT	=	Sector Management Team
TES	=	Tanzania 'Elimu' Supplies
TIE	=	Tanzania Institute of Education
TLS	=	Tanzania Library Services
TRA	=	Tanzania Revenue Authority
TTC	=	Teacher Training College
TRC	=	Teachers Resource Center
TSC	=	Teachers Service Commission
UDSM	=	University of Dar es Salaam
UPE	=	Universal Primary Education
UNESCO	=	United Nations Education, Science, and Cultural Organization
UNICEF	=	United Nations International Children's Education Fund
VC	=	Vice Chancellor
VCR	=	Video Cassette Recorder
VTC	=	Vocational Training Center

CHAPTER ONE

Introduction

After 76 years of Colonial Administration, Tanzania (then Tanganyika) attained political independence in 1961. Three years later, Zanzibar, an Island off-shore in the Indian Ocean, also attained political independence. In 1964, Tanganyika and Zanzibar united and were renamed "United Republic of Tanzania". The United Republic of Tanzania maintains Federal relations between the two countries, a Unitary System of governance within each country, a Multi-Party system and democratic governance. With that type of arrangement, each country maintains its own System of Education independent of the other. This study examines and analyses "Instructional Resources as a Factor in Educational Performance" in Tanzania Mainland. It excludes Zanzibar.

The Study was prompted by recent sentiments expressed by the Tanzanian community regarding what has been described as a "decline" in educational outcomes in recent years (Malekela 1999). Inadequate instructional resources in schools have, almost to the exclusion of other factors, been perceived to be the underpinning variable responsible for the seeming decline (Mbilinyi, 1991; Chonjo, 1994; Omari & Mosha 1988). Yet the recent literature in education suggests the probable importance of other factors beyond instructional resources that may also affect educational performance. This study investigates both possibilities in the field.

The Context of the Problem

In recent years there has been a substantial increase in the volume of written criticisms as well as word of mouth and general public statements indicating growing dissatisfaction in the Tanzanian community regarding educational outcomes. The community education system is characterized by diminishing budget allocations to education (Materu & Omari 1997; Abayo & Kaijage, 1997), inadequate instructional resources in schools (Mbilinyi, 1991; Chonjo, 1994; Omari & Mosha 1988), and student's performances on the National examinations have been described as "declining" (Malekela 1999). The problem of decline goes back to the time of political independence in 1961.

Immediately after attaining political independence in 1961, Tanzania embarked on the reform of its system of education in order to incorporate educational capabilities essential to its socio-economic development. The reforms included, among other things, the formulation of a new philosophy of education, namely; Education for Self Reliance (ESR) (Nyerere, 1967a)[1]. That is, reform of the school curricula and teaching methods to address the question of education for relevance to socio-economic development (Komba, 1996; Nyerere 1967b).

They also included a national commitment for Universal Primary Education for all school-age children including children with disabilities (education for all) by 1980; commitment to adult education programmes (Functional Literacy); Health Campaigns

[1] A philosophy consistent with Socialism stipulated in the popular Arusha Declaration in January, 1967.

and commitment to increase teacher training output to meet the increasing enrolment demands (Materu & Omari, 1997). As well, the reforms were sought to overcome discrimination in educational opportunities based on class, religion, race, and ethnicity existing at the time of independence (Malekela,1983; Mbilinyi et al 1991; Murphy, 1991; Bendera, 1994; Mulugu, 1999). The Class stratification put in place by the social and political forces were the White ruling class (British) considered the top class; Indians and Arabs the second class and Natives at the lowest in the social echelon. Membership in these three social classes determined which school children could attend.

This problem of discrimination and its impact on education are discussed in Chapter Two. However, it suffices to point out here that, although western education became an agent of social change, its discriminative policies did not only force seekers of education to conditionally convert to Christianity, but has also left a legacy of an underlying attitudinal and procedural challenges to the advancement of the new administration.

The literature reveals that, unlike the Whites, Indian and Arab children, as well as African children in colonial Tanzania, had no access to education beyond the primary education level until 1950s (Cameroon & Dodd, 1970; Hunter, 1963; Mbilinyi, I991:28). That explains why at the time of political independence, Tanzania had limited trained personnel to take-over high skilled level manpower posts in the new government. It was to overcome these problems resulting from the Colonial Education System that immediately after political independence, the new government took to reforming the colonial education system it inherited.

The first few years of independence witnessed a rapid expansion in the physical infrastructure of educational institutions including schools for all education levels, but particularly Secondary and Tertiary or Post-Secondary Education.

The emphasis on Secondary and Post-Secondary Education was justified by what will be described later as inadequate supply of trained people to man higher level positions at the time of independence. The government also established Regional Libraries; a National Examinations Council; Curricula Development Unit; Professional Development and Research Institutions. Thus, the First Five Year Development Plan emphasized secondary and higher education to that effect. However, the policy changed later and emphasis shifted to Primary Education. This emphasis was reinforced by the policy of Universal Primary Education (UPE) described in Chapter two.

The Tanzanian population rose from 12,000,000 in 1961 to about 28,000,000 (1998 estimates). Enrolment for primary education had almost doubled twice over the first twenty years between 1961 and 1981, increasing from about half a million (486,470) in 1961 to over 3.5 million (3,530,622) (4,051,713) children in 1981. Enrolment in Secondary Education increased more than 21 fold from 11,832 in 1961 to 225,607 by the end of 1997 (BEST[2], 1998). During the same period between 1961 and 1997 there was a corresponding increase in teacher training output for both primary and secondary schools from a conservative estimate (by the researcher) of 45,000 teachers in 1961 to a total of

[2] BEST - Basic Education Statistics (Tanzania) published by the Ministry of Education showing basic information on education

122,374 teachers in 1999 (MOEC[3], 1999). Figures 1.1 & 1.2 show enrolment growth in every third year from 1961.

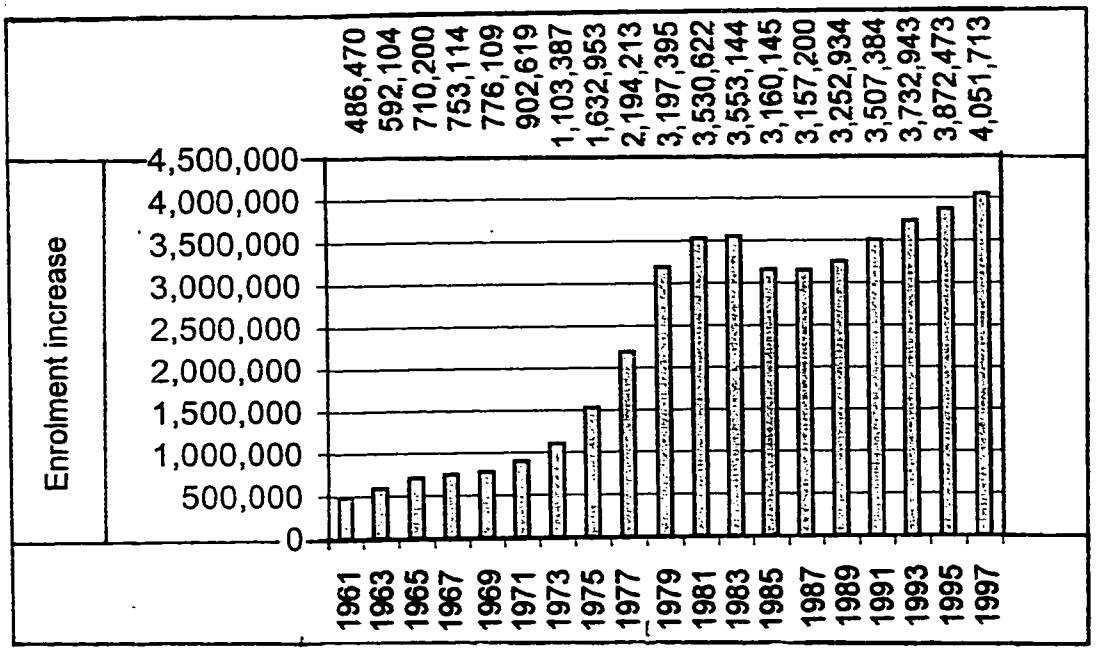


Figure 1.1: Primary School Enrolment in Two Year Periods.
Notice sudden growth between 1977 and 1980, the period of implementing Universal Primary Education and stabilization thereafter following the end of the backlog.

Gender imbalance in educational opportunities has, since independence, received considerable attention. Bendera (1997) argues that: "Unlike many other Sub-Sahara African countries, Tanzania does not seem to have a major problem of negative attitude against female participation in education, ...parents are willing to pay for girls' education in private secondary schools" (p.84).

[3] MOEC- Ministry of Education and Culture

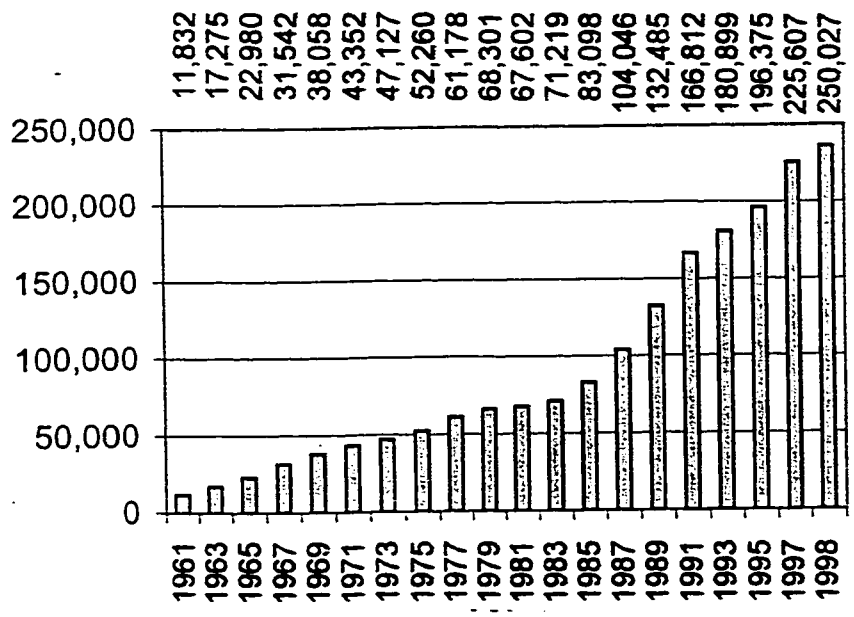


Figure 1.2: **Secondary School Enrolment in Two Year Periods.**
Notice a fast enrolment growth after liberalization in the mid-1980s.

A financial organization has also been created to provide support for financially underprivileged female students to attending secondary educational institution. The purpose is to change the attitude inherited along with the foreign system of education and reach a gender balance in educational opportunities throughout the education system. However, an attitude that had been well-rooted after seventy-five years of social distortion under a foreign administration is not reversible overnight. Some will even question how Tanzania, one among the poor countries, with over 50% of the people living under the poverty line (Omari 1996), dares to make such commitments.

Despite the accomplishments, Tanzania has suffered and continues to suffer serious socio-economic crisis. This has to a significant extent been externally imposed by multi-

national organizations and agencies, that have adversely affected her ability to provide socially desired services through the social sectors, including education, health and sanitation. Budgetary allocations for both development and recurrent expenditure across the social sectors have deteriorated drastically in the last ten years (Omari, 1997; Omari & Mosha, 1988; Materu & Omari, 1997).

In education, one witnesses decreasing budgetary allocations in the face of rapid increases in enrolment at all levels of schooling. This has affected not only the earmarked expansion of the school infrastructure, but more critically, it has greatly affected the supply of instructional resources believed to be the backbone of any teaching/learning process (Heinich et al, 1996; Brock, 1994; Bassett & Smythe, 1979). In their position paper, Mbilinyi et al (1991) note that "Tanzanian schools had not been well supplied with instructional resources necessary for effective implementation of the school curricula". A similar observation is reported by Chonjo (1995).

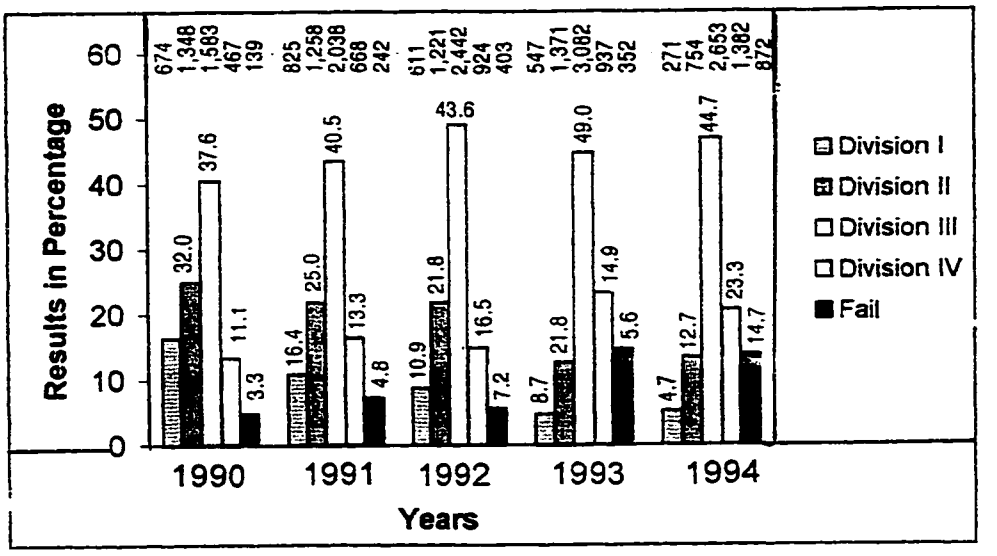
Rethinking the situation raises many questions. What, for instance, are the classroom teacher's and student's positions and what are their reactions to the reported shortages? What alternatives do they have? Even though empirical data may be lacking, current literature on education and public statements and "word of mouth" among people in Tanzania suggest a wave of community discontent regarding what has been described as a "declining" trend in educational performance (Malekela, 1999).

The Problem

The Tanzanian community, parents in particular, are very dissatisfied with the perceived "declining trend" in education evidenced by poor performance on the National Examinations outcome. Figure 1.3 presents an example of performance trends form Form VI (Grade 14) National examinations. Candidates obtaining the highest passes such as 1st and 2nd Divisions fell from 16% and 32% in 1990 to 4.7% and 12.6% in 1994 respectively and under-achievers fell to the 3rd Division which increased from 37.5% to 44.7% during the same period. Similar effects are observed at the lower levels (grade 12) as well as in Primary School Leaving Examination results (Malekela, 1999; MOEC, 1999).

Regarding English Language proficiency, some parents who are graduates of colonial systems that emphasized mastery of the language of the "Empire", argue that recent school graduates are comparatively less articulate and can hardly comprehend instructions in English as well as their parents and guardians could during their own school days. They boast of having been better writers of logical essays, and that they could better defend their positions in controversial debates than their children are capable of doing today. "What has befallen our System of Education?" - they wonder.

Yet, records within the literature on education seem rather confusing and inconclusive for two reasons. First, studies have concentrated more on equity in educational opportunities and "under-achievement" which should not be confused with "decline".



Source: Ministry of Education and Culture, (BEST), June, 1995

Figure 1.3: Form VI Examination Results 1990 - 1994 in Both Public and Private Secondary Schools

Decline implies a gradual tilt, or a sloping effect from a higher to a lower standard or level. Under-achievement does not necessarily indicate a declining effect. However, given the fluctuations in performance over the years and the level of dissatisfaction, it strongly suggests the one look for the presence of declining trends. happening either at individual school levels, school types, or school locations. Perhaps poor experiences at these levels may be responsible for triggering a belief among the various sub-groups of the Tanzanian community that educational performance is on the decline.

The majority of Tanzanians attribute the presumed decline to inadequacy of instructional resources in schools (Omari&Mosha, 1987; Chonjo, 1995; Mbilinyi, 1991), but the international literature suggests the possible existence of other causes that could be classified as both geographical and socio-economic (Thomas 1996, Donald 1995); administrative, socio-economic and the historical time frame of countries in question. It would, however, be unwise for Tanzania to apply results blindly that were accumulated in educational settings and contexts elsewhere to the Tanzanian situation where technological levels of development are different, education is motivated by different cultural objectives and aspirations. Instead, Tanzania needs to establish within its own context what factors affect educational performance.

In that context, two fundamental questions emerge. The first involves the increasing discontent in the Tanzanian community due to an apparently declining trend in educational performance: How do schools by locations and type perform and how does that affect performance nationally? The second question concerns conditions expressed as causal factors that either singly or collectively affect both teachers and students in the classroom teaching /learning process: Is the reported inadequacy of instructional resources a principal cause of the 'decline' problem? Specifically the study addresses itself to answering the following research questions:

1. Has performance by categories and locations in Tanzania improved, declined, or remained constant in the last 28 years?

2. What other factors besides instructional resources affect teachers and students performance in the classroom interaction?

3. Based on teachers' opinions, what priorities exist that, when met, would improve teacher/students classroom performance in Tanzania?

Statement of Working Hypotheses

The study makes two assumptions or working hypotheses as follows:

- The educational performance trend in Tanzania is not constant over locations and school types;
- There are other conditions beyond instructional resources that also influence educational performance in the Tanzanian context;

Purpose and Objectives of the Study

The study sets out with two major purposes. First, the study seeks to uncover the current educational performance pattern and related causes. Second, the study seeks to short-list a set of teachers' and students' priorities for action that could improve their performance in the classroom. With that knowledge, the study aims to accomplish the following objectives:

- To make the Tanzanian community better aware of the actual educational performance pattern in recent years;
- to contribute to the knowledge of other conditions besides instructional resources, that also influence educational performance in the Tanzanian context;
- To enlighten Educational Planners on the priorities for action which, when met, are most likely to help to improve educational outcomes in Tanzania.

The Rationale of the Study

Therkildsen's (1998) caution stated earlier, regarding political sensitivity of the problem of educational outcomes is very valid. The Tanzanian community needs to hear, see and evaluate efforts made by the system of education and the Tanzanian authority to address the problem of quality in education. Thus, apart from providing data for my thesis, this study addresses the pressure gradually building-up in the Tanzanian community, and the urgency with which attention is required. Thus, the study is thought relevant at two levels: relevance to the community and relevance to educational technology.

- **Its Relevance to the Community**

To the taxpayers, the problem of educational perormance could adversely affect Tanzania and therefore it is imperative that the problem be addressed to avoid socio-political tensions as envisaged by Therkildsen (1998). The Tanzanian society needs to instill some desired social qualities and attitudes in its offspring in order to ensure that they successfully manage their own lives. When the education system fails to instill such attitudes, the society (the larger system) has a right to question and get information regarding what they observe to be happening.

- **Its Relevance to Educational Technology**

A study on community sentiments and possible actions regarding children's achievement in schools is indeed a study about educational technology. Educational technology is a field that embraces a variety of educational concerns. Although it was variably defined in its early days, to include definitions such as, "a collection of hardware and tangible

artifacts" (Council of Europe, 1975). Such definitions have been criticized and replaced with better definitions. Educational technology is now perceived as a systemic approach to educational problems (Association for Educational Communications and Technology, 1977).

Mitchell (1978) clarifies the field further when he says that educational technology now provides a multi-disciplinary framework for synthesizing knowledge about how to improve human learning. He defines educational technology as;

> ...an intellectual and practical pursuit concerned with all aspects of the design and optimal organization of educational system and sub-systems and with the relation between their inputs and outputs, between desired outcomes and the allocation of resources to achieve them (p.327).

In essence we are increasingly directing our sight away from the interventionist paradigm toward a systemic perspective where the learner is considered to be self-regulated and a gradually modifying and changing individual. The new learning premise requires as its background, proper design of work and space, equipment, social environment, administration and procedures of effective learning. In turn, this study assumes that problems pertaining to learning premises can be addressed through systemic approach as in Mitchell's definition above.

Delimitation of the Study

Based on the magnitude of the field, travel, and time frame constraints, it was impractical to involve the entire population of school teachers. It was therefore necessary to limit the

scope of the study and to draw on statistical sampling techniques to control the problems of data collection. It was therefore decided to:

i. Investigate performance at the Secondary Education Level.

ii. Collect data based on a sample of 16 secondary schools using substrata of all teachers and 30 students in each of the sampled schools;

iii Collect information based on self-reported questionnaire and a check-list.

Expected Outcome and Beneficiaries

This study is intended to generate knowledge as well as provide information that will be useful to:

- The Tanzanian community by increasing awareness of what is happening in schools with respect to educational performance. The information could help regulating the socio-political pressure building-up among sub-communities.
- The two Ministries responsible for providing education and the affiliated institutions by providing additional information for decision making purposes
- The Faculty of Education, University of Dar es Salaam, and Teacher Training Institutions, by having additional useful information for training purposes,
- Students and Teachers whose conditions inhibiting performance may be reduced.

Definitions and Descriptions of Key Terms

The present study uses terms and phrases that may not necessarily mean the same thing among non-Tanzanian readers. Feyerabend (1965) maintains that, "...the meaning of a

term we use depends upon the theoretical context in which it occurs ...[and] ...based on the circumstance within which they are applied. (p.180). That is, refinement of definitions is dependent on the context within which the term is defined. In this section, I define terms and phrases as used in the study.

Instructional Resources as a Factor in Educational Performance: A Case Study in Tanzania is the title of this study and refers to the extent to which instructional resources are the major causes of educational performance in relation with other factors as self-reported by teachers and students in mainland Tanzania.

Educational Performance means the outcome of the educational process after a given period of treatment/learning time as measured by standardized examinations or other types of evaluation instruments and expressed by scores or behavioural responses to relevant problems. In this study, performance is measured by scores at the National Examinations administered at the end of every education cycle. The cycles include Basic Education Cycle, Secondary Education Cycle, High School Education Cycle, and Tertiary Education Cycle.

Division I, II, III, & IV are achievement rank orders, an equivalence of First, Second, Third and Fourth Class passes and or the letter grades A, B, C and D. Scores at each of the candidate's subject combinations at the Certificate of Secondary Education Examination (CSEE) are aggregated and the mean is ranked on merit with Division I the highest and Division IV the lowest. The lowest pass mark is 40% and the national mean is 60%. Versions 'Division I' and '1st Division' are used interchangeably.

Educational Philosophy means a broad statement of educational outcomes - what recipients of education should become as a result of having gone through the education cycle or what education should aim to do for the person or community. Tanzania aims to build a self-reliant community and its official educational philosophy is Education for Self-Reliance (ESR).

Educational System refers to a set-up of interrelated units of objects and people performing specifically defined roles and activities by which an ultimate end of an educated community may be achieved. That suggests two parts to the system of education. The first part is a set of hierarchically connected administrative units, departments, offices of the Ministry Headquarters, Regional to District education offices, as well as affiliated units on the one hand, and on the other hand, a set of educational institutions/ schools/ institutes from Pre-school to University.

The second part is a set of co-existing human clusters such as administrators, teachers, students, curriculum developers, school inspectors and others, known through their relational rather than physical properties and functioning together to accomplish educational outcomes. The "whole" is, yet, a sub-system of other systems such as the Central Government, Community of Parents, and the entire Community of Tanzanian Citizens. Each of these sub-systems interact and in the process, they may shape, constrain and or influence one another (Boyd, 1988). Despite its hierarchical and centralized arrangement, the system forms a "web" of sub-systems within a larger system – the society to which they all belong and serve.

Educational decline refers to a gradual deterioration of candidates' scores in examinations, loss of vigor or excellence. Ideally, the gradual deterioration can only be measured against an established standard or quality either set in previous performances or a pre-set criterion reference and monitored for a period of time. More importantly, the performance standard for educational outcomes can be determined only in relation to the stated ultimate goals of education.

Instructional resources refer to any deliberate arrangement of events to facilitate knowledge construction, acquisition or accomplishment of learning goals (Driscoll, 1994). In such situations there are information sharing, discovery or inquiry, information processing, drawing conclusions etc. Instructional resources, therefore, mean a totality of physical, sociological or psychological human relations, material artifacts - electronics, printed text, oral language and climatic conditions that, as sub-system, supports generation of a new knowledge. Basic instructional resources in a least facilitated classroom would include the teacher, students, textbooks, chalkboard, and the atmosphere within which their interaction to effect learning occurs.

Access to education means obtaining admission, selection or entrance to a school or other avenues or system for one's advancement in education.

Under-achievement pertains to scoring below the expected mean or criterion referenced in a test/ evaluation.

Reform means improvement or amendment of what is wrong, corrupt or unsatisfactory. Thus, looked together, Educational Reform translates to improving educational processes

by formulating new philosophies, curricula content, teaching approaches, and involved personnel

Public Schools are schools financed and managed by the Government of Tanzania

Private Schools are financed and managed by Non-Governmental organizations, Religious/ Church Organizations such as the Catholic, Protestant and Islamic entrepreneurs, benevolent associations and individual investors. Regardless of ownership, management and governance, all private schools enroll and educate all children according to a uniform state mandated curriculum.

Seminaries are Church schools, within private schools category, specifically training Clergymen - such as Priests in the Catholic Church, or Church Ministers in most other denominations and "Sheik" in Islam. In Tanzania and may be true of other countries, Junior Seminaries combine both Religious and ordinary Secondary Education and therefore, are included in the list of Secondary Schools.

Tanzania - (United Republic) is a country located in Equatorial East Africa. It borders Kenya and Uganda in the north, Congo, Rwanda and Burundi in the west and Zambia, Malawi and Mozambique in the south. Tanzania is a merger of the former "Tanganyika" mainland and Zanzibar Islands.

Region in the Tanzanian administrative context a Region is an administrative location of the country demarcated by the government for unitary governance. It is the equivalence of a Province in national administrative structures in other countries. There are a total of twenty Regions in Tanzania mainland, namely: Arusha, Dar es Salaam, Dodoma, Iringa, Kagera, Kigoma, Kilimanjaro, Lindi, Mara, Mbeya, Morogoro, Mtwara, Mwanza, Pwani, Rukwa, Ruvuma, Shinyanga, Singida, Tabora and Tanga. Regions are again divided into

districts and in each district there are Wards and villages. Regions and District vary by size, population density, and sub-cultures.

Zone is a hypothetical merger of the twenty Regions into four blocs, north-south and east-west, for management of short term events and convenience of reporting.

Labour Reserve Regions are a concept in Tanzanian history of colonial administration. These were Regions purposely deprived of social services by colonial government in Tanzania in order to attract youths to migrate and work as labourers in cash crop estates owned by European settlers.

Cash-Crop Regions were, in contrast to the above, fertile regions where colonial settlers established large cash-crop estates mainly coffee, tea, and sisal for export to Europe. Natives were also encouraged to develop and own small cash crop farms to top-up settlers production to meet increasing demands abroad. Labourers in the estates were largely imported from labour reserve regions.

Sub-Saharan Africa pertains to the entire region south of the "Sahara Desert" in Africa. Countries in that region have been referred to as "Sub-Saharan Countries, Africa, and the people as "Sub-Saharan People" in current literature.

Political Independence is a state or quality of being free to choose a political path (e.g., capitalist or communist, mode of governance and development approach of a people. However, political independence in Tanzania was not accompanied by economic freedom. Tanzania, typical of many ex-colonized states, attained political independence, but retained economic relations with their outgoing masters who were, and remain to be, trading partners, who dictates both the prices for cash crop imports from Tanzania, as well as the unit cost for their manufactured goods exported to Tanzania.

Socio-economic describes the economic status of an individual in a given society as defined by education attainment and occupation and total income.

Gender imbalance pertains to a state (sometimes socially made) or condition of unequal proportion or distribution among male and female persons. In this study, gender relations argument concerns unequal opportunities or representation of women in access to education, training, and deployment. Despite the fact that the population of women outnumbers that of men by a few thousands, the proportion of women going through education has been relatively smaller than that of men.

The Organization of the Thesis

This was an exploratory study examines the presence of, and the factors related to, an apparent declining trend component in educational outcomes in Tanzania. The reporting therefore, is mainly descriptive statistics and anecdotes mediated with graphics and quotes of qualitative data from field participants/respondents in a format of seven chapters. Chapter One introduces the context and statement of the research problem, the objectives, purpose, and the rationale of the study, and defines the key terms as used in the text. Chapter Two provides an overview of "Quality Education" and Society at two major time frames of Colonial and post-independent Tanzania and moves on to state Research Concerns of the current study.

Chapter Three reviews related literature. Since a reading of the literature suggests that educational decline is a global issue, but only with differing causal factors, the review of related literature concentrated more on local studies and studies in the neighbouring

countries. However, a few studies at global level were mentioned to link the local with the global world. Chapter Four covers the research methods and data analyses strategies.

While Chapter Five describes the research activities and the research findings are discussed in Chapter Six. The presentation of results in Chapter Six is by sequence of events based on the stated hypotheses. Chapter Seven provides concluding remarks and states research implications and constraints before making recommendations for reform. Finally, recommendations for further research are made. A bibliography is provided at the end of the text and copies of important documents that facilitated the study and data sources are attached as Appendices at the end of the document.

CHAPTER TWO

QUALITY EDUCATION AND SOCIETY:
A Theoretical Framework and Research Concerns

Chapter One introduces concepts that may be unfamiliar to non-Tanzanian readers. Concepts surrounding the historical, current and the future educational perspectives; the impact of foreign systems of education to indigenous socio-cultural communities of colonial Tanzania and educational reform strategies after political independence. This chapter elaborates, in part, on conceptual issues mentioned in Chapter One, and traces the question of quality education in society and the legacy of foreign systems of education in post-independent Tanzania. It also presents a theoretical framework for understanding the system of education and national policies; and outlines the goals and objectives governing provision of education in Tanzania.

The Quality of Education and Society

A quick search in the literature of education reveals that there is no consensus on a common definition for "quality" in education (Marshall, 1998; Harvey 1998; Lonsdale 1998; Yoke 1996). However, Harvey and Green (1993) suggest high "quality" to mean "excellence; perfection (or consistency); fitness for purpose; value for money; and transformation." Which one exactly suits our purpose? Marshall (1998) would answer, "any one or more [of Harvey & Green's options] based on context" (p. 321).

This study, adopts "transformation" for two reasons: First, the term "transformation" suggests a qualitative or fundamental change occurring in students' learning process.

Secondly, the term seems consistent with Marshall's notion that "quality education is an on-going process" (page 323), a cyclic process of constant appraisal and development of students, teachers, instructional resources, delivery systems and methods, as well as the institutional management of the educational sub-systems.

"Quality" is, in that respect, a continuous process of developing meaning, integrated and coherent within the day-to-day work of students, teachers and administrators. It is a matter of institutional and individual development as opposed to the common practice where development of the individual, materials or institutions is attempted in isolation. That is, Quality in Education is inseparable from institutional and individual development (Marshall, 1998 p.323). What we notice in study reports are exclusions of either the staff or the institution when developing the other. That is, improving, for example, the quality of the buildings and other instructional environments such as text book supplies and science laboratories, but excluding the teachers or students who are, in essence, the key actors for whom the changes are sought. That may tend to clash with others because the changes in teaching resources, for example, may not be what the teacher would have wanted. If we are to succeed in bringing meaningful educational reform, progressive development must assist staff in identifying problems and formulating solutions to such problems.

Some readers may no doubt hold the view that quality in education means, to a large extent, achieving the stated goals and objectives. For them, this definition of quality in education will focus on the extent to which those objectives are being accomplished

within the prescribed norms, terms of reference and available resources. Their assessment, therefore, not limited to students' scores nor employment opportunities as is the case in the Tanzanian context, but it requires a measure of the accomplishment or fulfillment of the stated goals. It becomes very tempting to ask: How does one establish an institutional environment where issues of quality are influenced by the wide range of factors described above? Clemson (1984), Schoderebek et al. (1990) and Marshall (1998) would answer "through systemic thinking".

Systemic thinking is thinking in terms of the "whole" rather than just in terms of "parts" of the "whole". For instance, in thinking about improving students' learning process consideration should focus on, but not be limited to, such factors as instructional resources such as teachers, textbooks, audio visual materials laboratory materials, all of which constitute the instructional environment. By focusing on how their work relates to the "whole" as the system, the teachers, students and parents may become more aware of the interconnectedness of issues and, therefore, may be more able to develop effective strategies for creating a reform processes.

The study also adopts from Mohanty (1991) and Brown (1979), the notion of "identity" and "Politics of location". This means the way or state by which an individual is socially positioned in society based on his/her imposed characteristics in a social setting or hierarchy (Mohanty, 1991; Mulugu, 1999; Bryson 1992). The defined characteristics, in turn, determine or influence what the categorized individual or group deserves. In the

context of education, it would mean locating participants so that students, parents, teachers and the concerned others are made aware of their positions and obligations.

Fortunately however, politics of location works two-ways. First, it works in the way described above where an individual's achievements are greatly determined by those in power and second; when individuals on their own initiative, discover and appreciate from within themselves their position and role as agents for change in a changing society. That urges people, for instance, to learn reflecting on how they, as individuals, have and continue to participate in constructing or restructuring societal values by way of their practices, in their capacities as parents, teachers or as peoples' representatives in decision making positions. Such awareness, may be a catalyst for community change by influencing one another, leading to what Marshall (1984) describes as "Organizational Team Learning" and socially shared problem solving. To accomplish that awareness we require knowledge about what went wrong in education when, where, and what alternatives are possible. The following is a historical overview of the introduction of Western Education and its legacy to the new system in post-independent Tanzania.

Introduction of Western Education in Tanzania

Understanding the consequences of Western Education in the indigenous communities of Africa where societal systems, knowledge heritage, and the dynamics of social change were, to a large extent, different from those of the Western World could be both an exciting and a bitter experience. Exciting because, undoubtedly, new experiences of Western Education have drawn traditional communities into the "global village" and a

common understanding of life's 'realities'. Yet, bitter because it renews the pain of cultural loss of the indigenous past. For example, after a few years of schooling away from his own home town in Ghana, Busia returns home only to notice a sense of displacement and unbelonging to his own society and he says;

> ...on that visit, I became painfully aware of my isolation. I understood our community far less than the boys of my own age who had never been to school. I felt I did not belong to it [community] as much as they [other boys] did. My awareness of the problem of relevance of education to society must have begun then (Busia, 1964,p.7)

Similar sentiments are expressed by other African recipients of Western Education such as Kenyatta, in "Facing Mount Kenya" and Nyerere in "Education For Self Reliance". What makes these early recipients of western education feel so displaced and to what extent has the situation changed in the contemporary world of education? Are reforms in education over the years succeeding to bridge the differences in our traditional cultures and those imposed by "modernity", and how relevant was traditional education?

- **Relevance in Traditional Education**

Traditional societies had various forms of systems of education responsible for instilling in basic life skills, environmental knowledge and attitudes needed to "enable people to play useful roles" in their society (Nyerere 1967; Cameroon & Dodd, 1970). People needed education at two levels: Firstly, a general knowledge of practical life experiences to ensure survival and continuity of their livelihood. Secondly, some form of spiritual knowledge to address their relationships with their spiritual ancestors and the belief in the existence of God(s).

Practical knowledge for survival involved learning to appreciate and harness their environment for livelihood. Teaching was through folklore, stories, songs, proverbs, legends and by demonstrations mediated with traditional artifacts as teaching/learning resources. Community elders constituted the teaching force, but anybody older than the apprentices was automatically a mentor. Required knowledge and skills included how to farm, hunt and catch fish; how to preserve and prepare food; how to build houses and keep a home; how to communicate through verbal and nonverbal language skills; how to respond to greetings, observing community standards of conducts and how to behave towards parents, community elders and strangers. Since the level of technological development was low, there were fewer skills to learn and therefore, easily imparted through informal methods of apprenticeship.

Where formal education existed, such as in "Mshitu and "Kieko" institutions in the "Pare" communities of Northern Tanzania, it was a continuation of what was learned by apprenticeship (Osaki, 1991). "Mshitu and Kieko" some forms of formal educational institutions providing training for male and female youths, respectively, in the traditional "Pare" community. It was a mid-level education where youths were initiated into adulthood and a stage after which they could marry and enter yet into another cycle of parenthood education. The whole process was a holistic and a continuous process that entailed a core curriculum of family life education, defense and security, environmental appreciation and social history education. Learners graduated at one level only to be initiated to a higher stage of life and continued like that for as long they lived.

The second aspect was spiritual. In the traditional Africa, "religious beliefs pervaded all activities and relationships" (Busia, 1964 p.15). Thus, all the above practical capabilities were provided with religious values, reverence to nature and to the unknown universe. Most phenomena were explained in terms of beliefs and theories, sometimes apparently incompatible with modern scientific knowledge. Colonizers described the African interpretation of the universe as being too superstitious and unscientific. Yet, it is now evident that traditional education had its relevance to the life and culture of the community, and to the personal as well as the group capacity to make livelihood, and to sustain harmonious communities concerned with nature and believing in the existence of supreme powers as animators of living things.

Much of that way of life has disappeared. The unity of small homogeneous kinship, the fabric of indigenous villages, the rituals by which the kinship sense of belongingness was constantly renewed, their indigenous mode of production and social sharing, all have been undermined and eroded away.

- **The Period of Colonization and Education**

Tanzania was colonized by the Germans from 1885 through 1918 and by the British from 1918 to 1961. In the process both colonizers purposely destroyed any emerging local socio-economic systems and replaced them with what was relevant and responsive to their own systems in their homelands (Osaki 1991). By tampering with traditional socio-economic systems they created a climate of dependency and a market for their industrial produce at home. With that objective, any form of local technology that had, that far,

been developed, for instance, black smithery to produce iron tools such as hoes, cutlery and spears to serve as domestic implements to the traditional communities, were quickly abolished so that "Tanganyika" would depend on equivalent imports from Germany and, later, England.

Experience revealed colonial administrative limitations due to language barriers and the magnitude of administrative coverage needed in such a vast country. They required assistants from the local community who could serve in junior positions such as account clerks, primary school teachers, primary court magistrates, police and messengers. Hence, the need for, and gradual introduction of Western Education to, colonial Tanzania (Cameroon & Dodd 1970; UNESCO 1967). Provision of education in the early years of colonial Tanzania was entrusted to Missionaries (Morison, 1976; Furley & Waston, 1978), who were deliberately urged by the colonial administration to propagate religion in order to instill the fear "to kill is sinful." This, in turn, assured peace and security without which the colonizers felt insecure among natives. When the British took over in 1918, they continued with what was already put in place by their predecessors.

Gradually Western Education became a major agent of social change. That is, when a "school" was introduced in a sub-community, the first "scholars" were perceived to be different from those outside, the school. On the one hand, the whole rhythm of the scholars' life changed. At school they could no longer play with their village mates as before, nor could they work side by side with their parents anymore. They began to live by the clock which marked time for all their day-to-day activities such as eating, bedtime

and waking up, time for classes and play. They got used to school desks, and wearing school uniforms. On the other hand, they came home with new knowledge, a different understanding and explanations for phenomena that had previously been described differently. They dressed differently and sometimes they spoke a foreign language that others could not understand.

It may be unwise to deny the contribution of Western Education to the developing world in general, and Tanzania in particular. It has been an agent for developing human traits that contribute to economic output, social stability and production of new knowledge. To youths it was seen as and remains to be seen as the opportunity for a take-off to "modernity". Those who went through the system of education and were employed saw education as a tool for economic functions in an increasingly changing society; and a scaffold to an income, status, service to extended family, and a step towards success in a competitive, success-oriented economy. To the general community Western Education has introduced scientific explanation for natural events for which Busia (1964) acknowledges:

> Possibilities not previously conceived have been revealed: that the earth can be made to yield more food for all to enjoy; water can be brought to the farm and distant homes; men and women can be more mobile and travel long distances; in much shorter time; they can communicate with one another beyond the limits of human voice; new knowledge and skills can be gained; political rule can be effectively exercised over larger areas, and peace and order and co-operation maintained among different ethnic and racial groups (p. 29).

However, the approach used by colonizers to introduce Western Education to the indigenous cultures was both irritating and unsatisfactory. It has been criticized for having despised the local past (Busia, 1964), and for being discriminative and irrelevant to the realities of local life (Carnoy, 1974).

- **Despising the past**

"The local past" was the already established local institutions, and social values, of indigenous people and, most important, their indigenous educational system. There is no question that Tanganyika needed scientific knowledge as already described above, but it is unwise to think that the thirst for scientific knowledge should be at the expense of her traditional knowledge and cultural heritage. Rather, the search for scientific knowledge was to enhance continuity with the past, as well as a link to the industrial modernity of the global economy. Regrettably, both colonial administrations despised local traditions considering them primitive, superstitious and unscientific. Even their researchers exhibit this blindness. Horton (1971) cited in Osaki (1991), says that "many western anthropologists have failed to understand traditional African Sciences"(p.7).

- **Educational Relevance to Society**

Describing a typical example of an educational scenario in Tanzania, Thompson (1968) writes:

> The school system, it is argued, is an alien thing, torn from a European environment and set down in a society to which it is unrelated. The curriculum is criticized as bookish, oriented towards higher levels of education which are beyond the reach of the majority of pupils, divorced from the life of the local community and failing to prepare the school child for life within them (p.15).

The Western System of Education to Tanzania had objectives unrelated to the local community way of life style. Objectives were contrary to traditional practice. Also, there was a serious mismatch between what was planned and what was actually implemented. In a memorandum presented by the Secretary of State for the colonies in 1925 quoted in Busia (1964), objectives of British colonial education to British Tropical African Dependencies (Kenya Tanganyika and Uganda) were stated as:

> ...education should be adapted to local conditions that an important role should be assigned to religious training and moral instruction, which were stressed as being fundamental to the development of sound education; that local vernaculars should be taught and textbooks in these vernaculars should be made for training of an adequate number of teachers on whom a sound system of education depends; that technical and vocational training was essential for development and should be provided; that special importance should be attended to the training of girls (Busia, 1964 p. 21).

It is not amusing to note, for instance, that no "Tanganyika" woman had gone through the British education system in local schools up to grade 12 before the 1960's (Hunter, 1963 p.11). While many would have no quarrel with the objectives as stipulated, the discrepancy between what was stated and the actual practice in colonial Tanganyika was alarming. As a result, the more children went to school the further apart home and school seemed to pull. This was so because they learned more about countries and people in far away Europe than about their own needs and problems of their homes and kindred. No wonder early recipients of colonial education in colonial Africa felt displaced in their own societies.

- **Inadequacy of Western Education**

Considering the difference between what was offered in Tanzania and what was being offered in England, Education given in Tanzania was both inferior and inadequate. Inadequate because it was purposely given to selected few and the education level never got beyond grade 4 until the 1940's and secondary schools only in the late 1950's. This was true of other colonies and colonizers. In fact it was rather a colonizers' "package" of education policies to colonized states. Examples in French colonies such as Mali, Dahomey, Ivory Coast and education in Portuguese colonies including Mozambique and Angola confirm that argument. Such rationed "packages" of education have left a legacy that has been a challenge to ex-colonized states.

At the time of independence in Tanzania, for example, there were very few people qualified to man administrative posts in the succeeding administration. The illiteracy rate stood at 80% of the entire population (then 12 million); and only 37% of school-age children could have admission to a handful of primary schools available. Training for local professionals technicians, lawyers, doctors and engineers, among others, were rare and the newly independent Tanzania had no university of her own.

Education in Independent Tanzania

After seventy-six years of foreign education traditional education had lost both its form and content. The new generation, if lucky, got pieces of fragmented knowledge of the past. They lost traditional values, culture and communal richness, partly because of Western Education. Yet, there were not enough "Western Education" opportunities for

everyone. A new generation and a new nation were at the crossroads. Should they abandon Western Education and go back to revive traditional education of which they had lost most of its content, or keep-up with the Western Education? This challenging period could be examined under the periods of Re-orientation, and implementing Universal Primary Education within a new Philosophy of Education for Self-Reliance (ESR) in independent Tanzania.

- **Re-orientation Period**

The first five years of independence were a period of socio-cultural re-orientation, "Africanization", and theory formulation. "Africanization" was a process of replacing the outgoing administrators with native Africans. The most challenging thing was when, while trying to maintain standards, the new administration was constrained by inadequate and under qualified personnel who were the only ones available to take over administrative posts. Many had to learn-on-the-job, sometimes with a false start, but gradually taking off.

One purpose was very clear: "to create a social harmony among social groups of varied sub-cultures" (Malekela, 1983; Mulugu 1999) in order to produce a politically stable nation. In education, that meant equalizing access to education for all, regardless of race, ethnicity, religion, gender and people with disabilities. This was to be achieved in two phases: First, by abolishing racial segregation and religious discrimination; second, by "nationalizing" all primary schools in 1967 to centralize, expand, and standardize school curricula. "Nationalization" means that all private schools (mainly mission schools)

including those of the two "upper class" schools, (for European and Indian children) were brought under a single system of education centrally managed by the Ministry of Education. This contradicts the principles of liberalization advocated in recent years, discussed later in the chapter. However, as Malekela (1983) observes, "under private management, it was difficult to dissuade the owners from pursuing both their stated and unstated objectives" (page 14).

There was no substantial change in the structure of the educational system in the first five years. In fact, as Osaki (1991) observes, "this period was mainly characterized by the continuation of the colonial curriculum philosophy." Many secondary school teachers were still expatriates and the teaching approach remained that of the "banking method" and memorizing facts to be reproduced for examinations set and graded in England.

- **Philosophy of Education for Self-Reliance (ESR).**

In 1967 Tanzania chose to take a "Socialist" path in pursuit of her socio-economic development through a policy of Socialism and Self-Reliance. This meant creating a socialist society based on three principles of equality and respect for human dignity: equal sharing of available resources, work by every one and exploitation by none (Nyerere 1967). To achieve this type of society, a new philosophy of "Education for self-reliance" (ESR) was formulated. This was a policy for radical education reform in Tanzania, "an ideology to guide a people-oriented development in its social, political, cultural, technological and economic dimensions" (Komba 1996). In a sense, education for self-reliance was a critic and a replacement of the former colonial system. Education

for Self-Reliance highlights the need to democratize, universalize and equalize educational opportunities for all. It was also sought to revert the previous conception for education as a "preparation" to a "terminal" stage which is complete in itself and its usefulness indicated by its level as primary, secondary, or tertiary (Nyerere 1974; World Bank 1991; Mbilinyi and Mbuguni 1991).

To implement the policy, a number of steps were instituted: curriculum reform, new assessment procedures, new teaching approaches and new organizational and administrative arrangements (Komba, 1996). Also educational institutional capacity was expanded in order to accommodate increasing enrolment. A Regional Quota System (RQS) was introduced to provide equal access to education particularly for previously deprived social groups, including women and people with disabilities. By RQS every region (Province) gets a share proportionate to its primary school enrolment for admission to the limited public secondary school places available.

Within RQS, female students also had lower admission levels in order to promote access for female students to secondary education. Adults were to get their share of education through a "Functional Literary" approach (Court & Kinyanjui, 1980). In "Functional Literacy", adults learn the three R's (Reading, Writing and Arithmetic) using the Freirian approach in the context of their practical economic activities. According to Paulo Freire (1970) [1], adult literacy should be for and through critical consciousness, a critical reflection of which gets at the cause of things, the understanding of one's dispositions,

[1] "The Pedagogy of the Oppressed" (1970) entails the conscientization of the oppressed where Freire outlines a theoretical analysis of revolutionary education. He contends that for persons to be fully

politics, and economic realization. This represents a dialectical theory which grounds human knowing in praxis.

The Masais of Northern Tanzania who are predominantly herders, for example, learn arithmetic by counting and recording the number of cattle immunized, amount of milk produced and cows sold. Likewise, the coffee growers of Kilimanjaro would count and record units of coffee berries harvested, amount sold and money obtained. Reading and writing are done with similar associations to the learners' day-to-day economic activities. Following an evaluation after ten years of the new philosophy of education, Tanzania realized that educational objectives for primary were not being achieved. For instance, records revealed that until 1977, only 47 % of school aged children were enrolled in school. That resulted in the declaration of "Universal Primary Education" (UPE) in 1977.

- **Universal Primary Education**

Universal Primary Education was, in a sense, an implementation of a similar resolution by the "All Africa" conference held in Addis Ababa and attended by thirty four African countries including Tanzania (then Tanganyika). At that conference the following objectives were set, that Universal Primary Education on the African Continent be attained by 1980; 20% of all children leaving primary schools should be enrolled in secondary schools by that date; and University enrolment was supposed to reach a total of some 300,000 compared with 31,000 in 1961 (18,000 in local universities and 13,000 abroad) (UNESCO, 1966 p.14).

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human, they must become subjects and not be content to be objects. Education should be carried

Considering Tanzania's economic capacity compared with expected needs of a rapid growing school-age population, I believe, it was not aggressive enough in implementing the "Addis Ababa Resolution" until 1977 when a 'cost sharing' approach was adopted. Under the approach, the costs of implementing UPE were to be jointly met by both the government and the local communities. Communities built schools under a self-help scheme and the government furnished the schools with furniture and other instructional resources as well as undertaking the actual day-to-day running of the schools. Primary Education became compulsory and free. Other changes were made in the system structure and management.

The System of Education in Independent Tanzania

The term 'system' generally means "a set of interrelated components connected to form and function as a unity or organic whole" (Klir, 1985; Warfield, 1976; Boyd, 1988). This can be interpreted in two perspectives: those of the physicist and the social scientist. A physicist or a computer scientist would translate Klir's definition with an "integrated circuit" analogy as physical components connected together to perform specific functions. A social scientist on the other hand, would interpret the same definition as "groupings of people bonded together by their common interests and living together for various reasons of mutual understanding (Klir 1985). In a sense, social systems are "abstractions or images of some aspect representing non-tangible materials" (Klir, 1985). In a constructivist perspective, these are social self-construct images true for the beholder, with only a limited equivalence, if any, for an outsider.

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out by and with the oppressed and not for them.

A system of education involves both the physical and social scientist perspectives. In a physical perspective, a system of education assumes a "structure" analogy as a set-up of interrelated units with defined roles by which its ultimate goal of an educated community is achieved. On the one hand, there are sets of administrative units or offices hierarchically connected from the Headquarters at the National level, the Regional Education Offices, the District Education Offices and all the other units affiliated to the Ministry of Education. In Tanzania these include the National Examination Council of Tanzania (NECTA), Tanzania Institute of Education; Institute of Adult Education (TAE); National Kiswahili Council (NKC); Tanzania Elimu Supplies (TES); National Museum of Tanzania (NMT); National Sports Council (NSC) and National Arts Council (NAC). All these units (sub-systems) co-exist and have interaction systems through which they communicate and serve one another towards the achievement of a common educational goals.

On the other hand, there is a "web" of educational institutions at various levels, from Pre-school through Secondary schools to Tertiary level institutions. These include the physical structures such as buildings, equipment and any communication system that links all the institutions regionally and nationally. These, in turn, interact with other sub-systems of the supra system (the society), for and within which the sub-system of Education exists. It provides the process variables that enable us to examine the effectiveness of its management systems and administration.

Management and Administration of Education in Tanzania

Education and training in Tanzania is the responsibility of two ministries. The Ministry of Education and culture (MOEC) and the Ministry of Science, Technology and Higher Education (MSTHE). The Prime Minister's Office (PMO) (Department of Regional Administration and Local Government), is involved at the Primary Education level. Abayo and Kaijage (1997) note that other ministries also undertake secondary and post-secondary activities in Tanzania, but because of their lacking transparency of involvement they are excluded in this study. Thus, only the two Ministries and the PMO are outlined as follows:

- **The Ministry of Education and Culture**

The Ministry of Education and Culture (MOEC) is headed by a Minister, whose overall responsibility is to promote Primary and Secondary Education in Tanzania. He/She is also responsible for the development of those institutions devoted to the purpose of providing education. There is an Educational Advisory Board appointed by, and responsible for advising the Minister on matters regarding National policies, plans and implementation strategies.

There is a Permanent Secretary who is the custodian of the Ministry's physical and financial resources and is also responsible for proper functioning of all the eight units affiliated to the System of Education as listed above. Parallel to the Permanent Secretary,

there are two Commissioners, one for general Education and the other for National Culture. The Commissioner for education is responsible for the management and administration of all public schools and in charge of five Directorates, namely; The Directorate of Primary Education, Directorate of Secondary Education, Directorate of Teacher Education, Directorate of Adult Education and the Directorate of School Inspectorate. The Commissioner for National Culture is responsible for, and receives report from four departments, namely; Departments of Antiquities, Sports Development, National Arts and Languages. There is also a Teachers' Service Commission, an autonomous organization, but operating within the premises of the system of education that looks at the teachers' welfare.

Administratively, the Ministry of Education maintains both centralized and decentralized approaches. All Primary Schools are decentralized to the Local Authority (District Level), and the School Inspectorate is decentralized to four Zones. However, all Public Secondary Schools and Teachers' Colleges are centralized. In other words, their final administrative decisions are taken at the Ministry headquarters.

- **The Ministry of Science, Technology and Higher Education**

The Ministry of Science Technology and Higher Education was established in 1990 to promote science, technology and higher education. It is responsible for Post-Secondary or Tertiary Education institutions including all State Universities. The Ministry is headed by a Minister who is assisted by a Permanent Secretary (PS). Similar to the Ministry of Education and Culture, the PS is the custodian of financial resources. Under the current

structure, there is no provision for a commissioner, but there are five designated Directorates, namely; Directorate of Science and Technology; Directorate of Higher Education; Directorate of Personnel and Administration; Directorate of Technical Education; Directorate of Planning, Statistics and Research, and The National UNESCO Commission and the Accounts Unit.

- **The Prime Minister's Office**

The Prime Minister's Office (Department of Regional Administration and Local Government) is involved at the Regional and District level where Primary Schools and a few Pre-School Centers are located. How the two Ministries, The Ministry of Education and Culture and The Prime Minister's Office operate may be rather confusing, but decentralization puts all Primary Schools under Local Administration which, in turn, fall under the Prime Minister's Office. The Local Administration, therefore, finances primary education, but the Ministry of Education and Culture provides for the expertise.

- **Levels (Cycles) of Education in Tanzania**

Education levels in Tanzania are Basic level, Secondary Level and Tertiary Level which are synonymous with 1st Cycle, 2nd Cycle and 3rd Cycle of education respectively. Tertiary level includes all post-secondary education institutions including universities. This study adopts both "Education Level" and "Education Cycles" and uses them in the reporting interchangeably. Where reference is made to other countries, any equivalence applicable to that particular country is given. Classes are described as "Standards" with Roman Numerals at the Primary Education Levels; and "Forms" with Roman Numerals at the

Secondary Education Levels. Thus, we have Standards I through VII for Primary Schools and Forms I through IV for Secondary Schools ordinary level and Forms V and VI for High School Level. In Post Secondary level, classes are described by "Year of Study" and therefore have, for example, 1st Year, 2nd Year through 5th Year depending on the programme and the institution of higher learning.

The levels of education in Tanzania presented in Figure 2.1 are described as a 7 - 4 - 2 - 3+ system. That means, seven years of Basic Education Level from Pre-School, Standard I to Standard VII; Four years of Ordinary Level Secondary Education from Form I to Form IV; Two years of High School, Forms V and VI; and Three to Five years of

Medicine		5th Year
Engineering & Education		4th Year
UNIVERSITY		3rd Year
EDUCATION		2nd Year
LEVEL		1st Year
HIGH SCHOOL	Form	VI
LEVEL	Form	V
SECONDARY	Form	IV
EDUCATION	Form	III
LEVEL	Form	II
(Age 14 yrs)	Form	I
PRIMARY	Standard	VII
EDUCATION	Standard	VI
LEVEL	Standard	.V
	Standard	IV
	Standard	III
	Standard	II
(Age 7yrs)	Standard	I
PRE-SCHOOL (Age 5 - 6)		

Figure 2.1: Levels of Education in Tanzania

Tertiary Education depending on Program and Institution. Tertiary education level includes all post-secondary education including University. This is the most competitive

level enrolling less than 25% of high school output every year (MOEC 1999) and effective 1996, parents pay tuition fees through government loans. Based on that transition rate, the annual enrolment across levels of education form a "Pyramid" with a very broad base of a high annual enrolment at Primary Level which shrinks to about a quarter at Secondary Education Level and less than 0.01% at Tertiary Education Level. Male/Female ratio is 1:1 at the Primary School level, but women's representation drops as one gets up the education ladder. By 1998 figures for example, Male/Female ratio in Secondary Schools and Teachers colleges stood at 11:9, but 12:1 in Universities and 32:1 in Technical colleges (Best, 1998; MOEC, 1999).

Types of Schools in Tanzania

Following liberalization and structural adjustments in the 1980s, more and more non-governmental organizations (NGOs), Churches, Local Communities, Benevolent Associations and Individuals have come out to participate in providing education in Tanzania. That has resulted to two main categories of "Public" and "Private" Schools in Tanzania.

- **Public Schools: Newer and Older**

Public schools are schools owned and run by the Government of Tanzania. These include: schools actually built by the government, schools that were nationalized in 1964, and newer schools built by local communities under self-help scheme at the time of implementing Universal Primary Education. Comparatively, the old public schools have, over the years, inherited physical capital such as working space and furniture, machinery,

laboratory equipment and chemicals which some recently built schools may be lacking. All children of school-age have a right of admission to these schools at a fee subsidized by the government.

- **Private Schools**

Private Schools are all schools that are built and run by organizations other than the government of Tanzania. These are mostly at the Secondary Education Level. A few exceptions exist in the other two levels, most of which are very recent; they bear such names as "International School" or "Academy" and unlike Public Primary Schools which use Kiswahili as the language of instruction and teach English as a subject, the "International Schools" and "Academies" use English as medium of instruction for all levels.

Church schools have two sub-categories: ordinary level secondary schools and "Seminaries". A Seminary is a school specifically for training "Clergymen" such as Priests, Ministers, and Sheiks for Catholic, Protestant and Islam religions, respectively. In Tanzania, Junior Seminaries offer a combination of Religious as well as Secondary Level Education and therefore, are included in the category of Secondary Schools, but only those who subscribe to the respective denomination get admission. Regardless of the sub-categories, all schools must be officially registered with the Ministry of Education and are bound to supervision by Government School Inspectors, meeting all the conditions, ethics, teachers code of conduct and using a common curriculum.

At the individual school level, depending on the school category, a typical school has the Headteacher at the Basic Level (Primary School), A Headmaster/Headmistress at the Secondary School Level, and a Principal, Rector, Vice Chancellor at the Tertiary Education Level including universities. All schools have a School Board where parents are represented. At the tertiary level there might also be a Council and a Board of Governors.

The public and private schools may differ slightly in certain aspects, but generally they share a lot in common. There may be, for example, more male teachers in private schools than there are female teachers. Or, teachers of the same qualifications are paid relatively higher in the private schools than in the public secondary schools; and, almost all teachers (95%) in the public secondary schools are on permanent contracts as opposed to only 39% in the private secondary schools (Lessibille et al, 2000 p.14-15). For the higher pay in the private secondary schools, teachers have more workload than their counterparts in the public secondary schools. Such practices cast doubts on their quality of performance and serve to further prompt this study.

Education and Training policies in Tanzania

Since independence Tanzania's development policy has aimed at combating poverty, ignorance and diseases, but has been highly constrained by her low economic status. Despite Tanzania's efforts to resolve her economic crisis through Economic Recovery Programmes initiated in 1986, accomplishments have remained marginal for the past forty years of political independence. As a consequence, recent trends suggest a shift

from the old policies of the 1960s through 1980s that placed emphasis on government monopoly and control of education and training and gradually opening to private investments, liberalization and entrepreneurship.

Thus, private agencies, NGOs and church organizations are now establishing and managing educational institutions/schools. In a recent appraisal of education held in March 1999, a mention was made that the government was gradually assuming a "Coordination Role" as opposed to "Key Provider" of education in Tanzania - a plan yet to be realized. One question is "To what extent are these changes in policies and approaches reflected in the National Goals and objectives of education?".

National Goals and Objectives of Education in Tanzania

Figure 2.1 below, adapted from the Ministry of education and Culture (MOEC) (1995) presents the overall National Goals of education and training policies, but there is a set of specific objectives for each level of education. While examination of the national goals above reveals a comprehensive plan for education in Tanzania, the specific objectives for secondary education presented in Figure 2.2 tend to offer pieces of information which are questionable. First, they make a general assumption that students have successfully gone through primary education and have met entry requirements to secondary school, which is unrealistic given the regional quota system described earlier.

Meanwhile the objectives state no measurable educational outcomes that the students are expected to demonstrate upon finishing a particular education level. How, for instance, can educators claim to have accomplished the first specific objective in the list?

- To guide and promote the development and improvement of the personalities of the citizens of Tanzania, their human resources and effective utilization of those resources in bringing about individual and national development;
- to promote the acquisition and appreciation of culture, customs and traditions of the people of Tanzania;
- to promote the acquisition and appropriate use of literacy, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding for the development and understanding for the development and improvement of the conditions of man and society;
- to develop and promote self-confidence and an inquiring mind, an understanding and respect for human dignity and human rights and a readiness to work hard for personal self-advancement and national improvement;
- to enable and to expand the scope of acquisition, improvement and upgrading of mental, practical, productive and other life skills needed to meet the changing needs of industry and the economy;
- to enable every citizen to understand the fundamentals of the National Constitution as well as the enshrined human and civic rights, obligations and responsibilities;
- to promote the love and respect for work, self and wage employment and improved performance in the production and service sector;
- to inculcate principles of the national ethic and integrity, national and international cooperation, peace and justice through the study , understanding and adherence to the provisions of the National Constitution and other international basic charters;
- to enable a rational use, management and conservation of the environment.

Figure 2.2: National Goals of Education
Source: MOEC, 1995 p. 7

- to consolidate and broaden the scope of baseline ideas, knowledge, skills and principles acquired and developed at the primary education level;
- to enhance further development and appreciation of national unity, identity and ethic, personal integrity, respect for and readiness to work, human rights, cultural and moral values, customs, traditions and civic responsibilities and obligations;
- to promote the development of competency in linguistic ability and effective use of communication skills in Kiswahili and in at least one foreign language;
- to provide for the opportunities for the acquisition of knowledge, skills and attitudes and understanding in prescribed or selected field of study;
- to prepare for tertiary and higher education, vocational, technical and professional training;
- to inculcate a sense and ability for self-study, self-confidence and self-advancement in new frontiers of science and technology, academic and occupational knowledge and skills; to prepare the student to join the world of work.

Figure 2.3: Specific Objectives of Secondary Education
Source: MOEC 1995 p.9

The second observation, which stems from the first, is the awkward position held by secondary education: To consolidate and broaden knowledge and cognitive skills introduced in primary schools and as a preparation for post-secondary education cycles. Stated in an industrial processing analogy, secondary education can be likened to an intermediate industry that receives semi-processed goods from a primary industry and refines them for subsequent processing or for consumption. With that analogy in mind, secondary schools may sometimes get blamed for a crime they have not committed. As Malekela (1983) argues, we do not expect any miracle in four years of secondary school if the foundation at the primary level, consistently reported as sub-standard, does not change.

The secondary school curriculum includes over 10 compulsory subjects in different combinations. Combinations include HGE, HGL, HGK, EGM, KLF, HKF, ECA, ECA, CBA, CBM, CBG, PCM, PGM, PCB. The letters stand for subjects. For instance, the first combination is History, Geography and English. Letter "K". stands for Kiswahili, the National Language and Medium of instruction in primary schools in Tanzania. Others are spelt in the List of Abbreviations in Appendix E. Students are to take these courses by these combinations and not by their own choices.

To conclude, this chapter underscores the question of education for relevance on the basis of which any given society can determine "quality" of its educational outcomes. It is argued that unless the society knows what it seeks to accomplish in its educational undertakings, the question of "quality, in an educational context, becomes very relative and probably meaningless. Rethinking the overview, except in recent years when the "International Schools" use different approaches to suit their clients (Masudi, 1998), all other schools seem to be operating in the past. Almost the same constraints are present in either case: relatively poor learning environment with similar resource scarcity, uneven distribution of resources, and heavily overloaded curricula and "teaching for examinations". Studies reveal constantly low performance (Malekela, 1995, Komba, 1995), and that "public and private schools differ only to a limited extent in their students' learning" (Lessibille et al, 2000). The next chapter presents a review of related literature.

CHAPTER THREE

Review of Related Literature

Performance decline in education has been sweepingly attributed to poverty. There is no doubt that factors such as the oil crisis of the 1970s, the collapse of cash-crop prices in the world market, widespread hunger and evidenced cases of genocide in some countries of the developing world collectively influence the resources these countries can allocate to education (Chapman, 1991; Galabawa, 1989; Samoff & Sumra, 1994). Murphy (1991) adds that, "in such circumstances, education becomes subjected to two opposing pressures: a fiscal pressure to curtail financial commitments and a demographic pressure to increase the provision of educational opportunities." Being a developing country, Tanzania is not an exception. Yet, it is illogical to assume that performance decline in education is exclusively a poor or developing countries' disease. Literature disputes that notion. In fact Donald (1995) argues that "performance decline in education is a global issue, only with differing causes in different situations," and, therefore, calling for different solutions in different places.

Causes of any performance decline are yet to be determined, but as Donald argues, there probably are causes unique to the Tanzanian environment and situation. In view of that fact, this study selects for review of related literature, study reports and position papers that focus their investigations on educational quality and performance in Tanzania. However, it also cites studies from the neighbouring countries (e.g., Zambia, Botswana,

Kenya, Uganda, Zimbabwe and Natal in South Africa), where conditions surrounding community life are somewhat similar. The literature also draws on a few studies with a global perspective to link the problem of educational decline in Tanzania to a network of similar problems in the developed world. It borrows relevant solutions that are affordable to Tanzania. It also helps to confirm to the Tanzanian community that the issue of decline in education is not exclusively a Tanzanian problem.

Studies from neighbouring countries enable me to establish commonalties and/or similarities in the factors affecting education in other developing countries, and to learn from steps being taken to alleviate the situation in those countries. Studies and position papers specific to Tanzania provided information about what other researchers were working on and the factors they have already identified as associated with educational decline.

A survey of the literature of education does not suggest any specific approach to a review of literature for such a study. However, a study that seeks to explore the existence and causes of decline in academic performance should examine, among other things, the school curricula, available resources, enrolment trends and students' characteristics such as gender, parents' education, employment and economic status. Thus, for the purposes of this study, the literature reviewed were grouped into two categories: The first category pertains to studies relating to inquiries about the quality of education based on certain outcome variables or using quality indicators such as those in a study by Omari and Mosha (1988).

The second category involves studies that conducted "Stock-taking" of instructional materials used in Tanzanian schools and associates their findings with educational outcomes (Chonjo 1994). This category also includes studies that examine equity in access to education by social/economic status and gender such as the studies by Mbilinyi et al (1991) and Malekela's (1983) study.

Educational Decline in Tanzania

Study reports regarding the quality of education may not be as many in Tanzania as they are in the developed world. Some are by independent scholars such as those studied by Omari and Mosha (1988), and Malekela (1983), while others are sponsored by International Organizations such as SIDA, UNICEF and the World Bank. The findings explaining the causes of decline in educational performance are still inconclusive. However, studies that investigate the status of instructional materials based on data obtained stock-taking of instructional materials and equipment available in schools argue that it is the lack of instructional materials that are responsible for the decline (Chonjo, 1995). Other studies use a more systematic approach and suggest that the decline can be explained by multitype variables, such as the school environment, administration, quality of teacher training, and the inadequacy of instructional materials (Omari & Mosha, 1988; Mbilinyi et. al., 1991; Murphy, 1991). Meanwhile, others focus on selection indices, equity and access to educational opportunities across social groups including gender and people with disabilities, correlating their findings with performance differences

(Malekela, 1983; Possi, 1999). The present study takes from their suggestions and contends that since these low-performing social groups constitute a part of the overall student body, then they may affect the overall national performance of educational outcomes and that, too, needs to be investigated in the field.

- **Studies by Using Quality Indicators**

The earliest and probably the most comprehensive study in the first category is the study on the "Quality of Education in Tanzania" conducted and reported by Omari and Mosha (1988). The study seeks to "identify through literature and empirical evidence, factors affecting the quality for Primary Education and to develop quality indicators of Primary Education in Tanzania" (page 19). To accomplish that objective, a sample of fifteen Districts in five Regions (Provinces) was selected by stratified sampling method that took into consideration diversity of ethnic mix, quality of life and level of development in Tanzania Mainland.

From each District a sample of schools (exact number not given) was again stratified by categories of large, medium, and small schools as measured by student population. Schools with over 600 students were classified as large and schools with 350 to 600 students as medium while those with less than 350 students were classified as small. Each stratum was again ranked for quality as measured by informed judges from the District Education Officers, and the following two criteria; (i) the highest percentage of candidates selected for secondary school admission for the previous three years; (ii) schools with the highest scores for self-reliance measured by output of activities such as

gardening, poultry, animal husbandry, school canteen or other fund raising activities. Data collection was facilitated by the use of questionnaires for teachers, checklists for students and interviews with administrators and parents. A review of school records and observation schedules in class were also conducted.

Findings reveal a significant increase in enrolment in primary schools and a gender balance in primary school enrolment. However, on the negative side, the findings revealed that:

- Students performed poorly in science subjects,
- The policy for Education for Self Reliance (ESR) had been misinterpreted even among educators and administrators. Many have seen ESR as "Practicing Modern Agriculture" establishing small scale industries and engaging in "small business" as a means to generating school funds, but divorced from the general objectives of education,
- Teaching and learning in the classroom over-emphasizede "factual knowledge" and testing under examination conditions which does not match well with National Objectives; and
- Capital expenditure on education had been inconsistent with the rapid increase in enrolment across all levels of education. School buildings were ill-maintained [e.g. rarely repainted] and instructional resources were scant.

The study concluded that the following factors influenced quality in primary school education: (i) The declining financial support for primary schools; (ii) ineffective

curricula; (iii) inadequate instructional materials and textbooks; (iv) poor teaching skills; and (v) inefficient school management.

Even though the study focused on primary schools, it nonetheless shed some light on what may be expected in secondary schools especially when the "intermediate industry" analogy mentioned in the previous chapter is applied. Although the study report lacks transparency in its data analysis, its methodology and data sources suggest that the researchers have rich data on which to draw for making authentic conclusions. Its analysis which points to the possible existence of factors other than instructional materials that influence educational outcome. The present study borrows from the foregoing study. It adopts the sampling approaches used by these researchers and incorporates variables identified by the authors as indicators variations and trends in the quality of primary education. These variables are included in the questionnaire and the checklist used to collect data.

At almost the same time as the by Omari and Mosha (1988) study, the Faculty of Education at the University of Dar es salaam, conducted an intensive study financed by SIDA on "Classroom Interaction". The study was a follow-up after another study, a ("stock-taking") survey titled "Primary School Textbooks in Tanzania: An Evaluation of Their Quality". This follow-up study investigated what actually takes place in the classroom in order to portray the realities of a Primary School Classroom in Tanzania (Mbunda, 1996, p.30). It investigated the degree of interaction between the students, instructional materials (textbooks) and the teacher as a measure for effective learning as a

test of the inadequacy of textbooks in primary schools. The target group consisted of students and teachers is sixty, both urban and rural, poorly and well-furnished elementary level schools were randomly selected from five regions - Morogoro, Mbeya, Tanga, Dodoma and Iringa.

Qualitative data were collected by classroom observation in language classes (reading and writing), mathematics, geography and science. Researchers (subject experts) observed and recorded classroom activities moment-by-moment for the entire lesson. To support the accuracy of observation, a video camera was sometimes used for randomly selected lessons to be played back during reflection sessions with the class teachers. Events were then tabulated into frequency data. More data were collected through a teacher's questionnaire basically seeking their demographic and career characteristics.

The findings revealed that textbook supplies are not proportional to enrolment and are unevenly distributed among schools. On the average, three or more students shared a single textbook. The study also revealed that the shortage of textbooks and other instructional materials in general, does not only inhibit effective classroom interaction, but also leads to authoritarian class management styles, teacher-centered approaches and rote learning (Mbunda, 1996, p.31-32).

Although the research did not include test scores among its variables, it is observed that performance in poorly furnished schools, as measured by national examinations are lower when compared with better equipped schools. In some schools no graduate had been

selected for admission to secondary education for the past five years in a row. That is an indicator of performance failing to reach the national standards what Belle and Harvey (1988) referred to as "under-achievement".

The design of the Classroom Interaction Study is comparatively better than the "stock-taking" studies conducted earlier. It seeks to find out what else influences classroom processes. As Belle and Harvey (1988a) would argue, "... provision of both quantitative and qualitatively adequate instructional resources, mansions and well furnished science and language laboratories alone will not exclusively account for academic excellence" (p.72). Murphy (1991) concurs with Belle and Harvey in their belief in intertwining causes for educational decline. In their case study of cross-cultural imports, they include among these causes traditional versus alien socio-cultural group conflicts. It should be noted here that the concept of socio-cultural group conflicts might also apply within the 120 sub-socio-cultural groups of Tanzania.

Rather than drawing conclusions on what was found in the first study, the Classroom Interaction study conducted a follow-up study to investigate how the reported inadequacy affected classroom interaction as a predictor of effective learning. It adopted what Max van Manen (1992) calls "close observation". According to Max van Manen:

> In contrast to the more experimental or behavioral observational research techniques, close observation tries to break through the distance often created by observational methods. Rather than observing objects through one way windows, or by means of observational schemata and checklists which functions symbolically not unlike one-way mirrors, the human science researcher tries to enter the life-world of the persons whose experiences were relevant for his or her research project (p.68-69).

The best way to enter a persons' life-world, Max van Manen suggests, is to participate in it. The study intended that the researchers get into the life-world of the classroom. However, the study includes no variable that tests the impact of the observed interaction over a period of time. Put differently, the effect of the observed phenomena is not measured. How, for example, would rural versus urban, poorly-provided versus well-provided schools, vary on a standardized measure of performance?

It would be unreasonable to deny the fact that constraints such as sub-standard school buildings, inadequate classrooms leading to class overload, inadequate supply of tables and chairs, and high student-teacher ratio can all influence educational outcomes. This accounts for some of the poor performance of students in less well-equipped schools. While these factors may be viewed as major causes of decline in educational performance in Tanzania, the literature shows that the problem of decline in performance in education is also experienced in industrialized countries (e.g., Canada and the United States), where schools are comparatively better supplied with instructional materials than they are in Tanzania. This then indicates that decline in academic performance may also be caused by factors other than those mentioned above, but which the Classroom Interaction Research Project and other studies have not been able to identify. Nonetheless, the method of close observation and the findings of that study are insightful for the present study.

- **Selective Indices and Accessibility Studies**

Malekela's (1983) study takes a different approach and examines performance as a follow-up study of students selected for admission to secondary schools, Form One through the "Regional Quota System". As described in Chapter two, the Regional Quota System was introduced in Tanzania to ensure equal share of admission to secondary education using regional based cut-off points. Thus, the system allows different grade cut-off points for different Regions and for the male female categories when selection for admission to Form One is made. Malekela's research investigates what happens when students of varied abilities enter and are treated as a homogeneous group in a secondary Form One classroom. How do they perform in secondary education and what happens when the quota system does not apply in the selection for admission for Tertiary education level?

To answer these questions, Malekela conducted a survey in 25 secondary schools in Tanzania mainland involving a total of 2,913 secondary school students. The subjects completed a questionnaire that elicited demographic information including such items as gender, parents' level of education, employment and socio-economic status. Other factors include students' Region of primary schooling, and religious denomination among others. Findings suggest that:

- Only 35% of students who were selected to Form One by the quota system of selection advanced to Form Five selection by only 35%;
- Overall selectivity indices increase with increasing parents education;
- Students in Boarding Schools performed better than Day Schools;

- Students from elite background were more likely to specialize in science subjects;
- Efforts to minimize group differences by introducing the quota system seemed to be only partially successful and Female students consistently performed poorly; and
- Christian students showed higher possibilities of access to secondary school than Moslem students.

The researcher recommended that longitudinal studies be conducted regularly to monitor progress of such sensitive policies as quota system. He also notes that unless a different approach to the problem of equity is sought, the quota system as it is now cannot solve the problem, and indeed is creating further problems in a typical secondary school classroom.

Malekela's work also reveals the presence of subject selection among students groups. Differences in subject preference may be influenced by parents' socio-economic status. The study also features a good coverage of 25 schools and about 3000 students about 4.3 % of the total national enrolment of 69,144 in 1982 (BEST 1998, p.25). However, like all the other studies, Malekela's study is concerned with selectivity indices and mentions performance only to support statements of his findings. The study does not otherwise state whether the low performance shows any decline or rising trend component. Nonetheless, the present study adopts from the foregoing study the established fact that, to some extent, the parent's level of education influences children's performance. This finding opens-up an important question worthy of further research. Given the present problem of educational decline are we probably getting more children of less educated parents into secondary schools?

Mbilinyi et al (1991) do an intensive documentary research, interviews, workshops and group discussions to analyze the position of women in access to education in Tanzania. The objectives of the review were twofold. On the one hand, the researchers examined and summarized key knowledge available on performance for female children in the education sector and, on the other, outlined implications for support policy, areas of emphasis and research priorities. Similar to other researchers, the co-authors acknowledged the indispensable role of instructional materials for any meaningful learning when they made the following observation:

> Having adequate amount and type of instructional materials is crucial for effective teaching and learning ...as confirmed by many reports, Tanzanian schools have not been well supplied with instructional material . . .other materials such as supplementary readers have been forgotten in the squeeze of the economic crisis (p. 44).

The "squeeze of global economic pressures" that explains the degree of inadequate instructional materials is also implied in other studies. But the researchers go beyond instructional material supplies to the vested interest in certain socio-economic and gender relations. Despite their acknowledging reform efforts that now allow gender equity in educational opportunities (particularly in Primary Schools), the researchers maintain that:

> ... other aspects of education such as the content and quality of instruction, the concentration of women in gender stereotype roles....and women's examination performance remain as other forms of inequity perpetuating oppressive gender relations (p. 46).

Critical to their argument is the domestic house-chores traditionally performed by female more than male children in traditional families especially in educationally less privileged Regions. Thus, it is claimed, female children do not only go to school tired and become "day-dreamers" in class, but also return home in the evening only to find themselves obligated to the same house chores. As a result, they have very little time and energy left to do their school work effectively. Without prejudice, the authors claim that, based on the above observation, these potential high achievers cannot reach above the minimum achievement in education. Meanwhile, their counterparts, the male students who, according to the authors, are less obligated to house chores, have all the time and strength to excel. The authors further observe that:

> The learning that takes place in the classroom is affected not only by the official curriculum, but also by the hidden curriculum...The hidden curriculum includes the way in which students are selected ..., the organization of the school, the structure of social relations (e.g. the prefecture and monitor system, teacher relations with each other and their pupils), the method of discipline and the kind of behaviors which are rewarded and punished.(p.53).

The authors' discussions reflect some degree of diversity in their perception of causes attributed to performance decline. They argue that it is not only the physical resources and supplies such as desks, laboratory equipment, nor books that matter, but also undesirable social relations that cause discontent to the affected social groups. The authors further raise an important point which coincides with what the United States of America (USA) did after the "The Nation at Risk" was published in 1983. In that document it was noted:

> America is in danger of losing the common frame of reference that for many generations has sustained [its] liberal democratic society. Just as self-evident truth is no longer self-evident, or even truth, the common core of knowledge once taken for granted as an essential element in a well-rounded education at an American university is no longer common nor can it be taken for granted (Thomas, 1996).

Immediate actions taken to curb the threat included, among others, commissioning associations both private and public ("National Association of Educational Progress"-AEP; and "The International Association for the Evaluation of Educational Achievement (IAEEA)" to continuously monitor school performance not only within America, but also compare performance internationally with the rest of the world. Thus, Mbilinyi and co-authors' proposition for a continued evaluation, a position also held by Malekela (1983), but absent in other studies covered in this review, feature some similarities with what takes place in the rest of the world and indeed an indispensable need for Tanzania.

It is not the intention of this study to discuss gender relations. Yet, the issues articulated by the authors and their diverse beliefs about factors influencing education provide excellent leverage to the present study. When viewed as a systemic problem, the solution to the problem is not to swap or share roles, but rather, to reform social systems, beliefs, and attitudes such as discriminatory gender relations. Thus, to the extent that both male and female children constitute the school population, poor performance of one group affects the whole. As in Omari and Mosha (1988), the report implicates curriculum content overload, and poor teaching approaches as well as teacher-student ratio/relationships which are supposedly gender-free and not discussed by other studies.

Thus, the present study adopts these postulated causes for further investigation in the field.

Murphy (1991), and Mbilinyi et. al (1991) share similar ideas in their postulation of socio-cultural obligations as potential indicators effecting poor performance. In her report titled "Tanzania Women and Development" to the World Bank (1991), Murphy elaborates on traditions that interfere with female children's education such as early marriages and a more gender-free problem of child labour. To use her words:

> In the early 1980's, these decreases were particularly explained by girls high drop-out rates due to the demands of domestic work and early marriage. More recently however, with deterioration in the economy, boys drop-out rates have equaled or exceeded girls, reflecting both the decline in education quality and the increased need within the family for income from their labour (p. 51).

Considering the fact that education is a long term investment that may not have its immediate impact to the government revenue (Nyerere, 1967), a slight decline in the state economy may greatly influence future inputs into education. It may also cause family conflicts, insecurity or malnutrition which, in turn, affects children's performance. Teachers whose "take-home" cannot last them for the whole month, are likely to engage in petty business or farming in the case of rural school teachers, which takes some of their invaluable teaching time to provide services elsewhere for the necessary subsidy. Yet, economic decline and its implied indicators alone cannot exclusively account for educational performance decline. Otherwise, countries where teachers are better paid would not fall into the same trap.

There is no doubt that wealthy countries are potentially advantaged in their ability to bring more immediate and probably better solutions to their social problems. It is also true that, the degree of problems varies from country to country, rich and poor alike. But it may still be argued that better system management rather than merely impressive budget figures after more promise better for long term solutions to the decline problems. The word, "system", as applied here means the structure, individual units in the larger system and individual persons in those units whose potential for system change are reflected in Mulugu's study.

Mulugu (1999) does a comprehensive literature review and interviews a sample of successful Tanzanian women either working or studying in North America, particularly in Canada. The researcher examines obstacles to woman's participation in Post-colonial Education in Tanzania. Like Mbilinyi (1991) and Malekela (1983), Mulugu concludes that apart from the equal ratio of male/female enrolment at primary school level, "women in Tanzania are still underrepresented in post-independent Tanzania", from secondary school level through tertiary level."

As in the preceding studies, Mulugu criticizes the "Regional Quota System" adopted in the system of education in Tanzania and which gives an even lower cut-off point for female students' selection to Secondary education. She argues that, "the system treats women as though they were less intelligent" and that when selection to secondary schools is based on the quota system, it does not resolve, but perpetuates the problem of gender

difference" This is so because, "the difference in performance stems from the learning process influenced by how women are perceived, identified, positioned and treated by society" and not just by the selection process (p.161). Mulugu's argument concurs with that of Malekela (1983) who also argues that:

> ...unless performance differences are addressed at society level so that male and female students enter the learning process with equal learning potentials including equal chances of selectivity, attendance and retention in school programmes, the Regional Quota system alone will not resolve the problem.

Some people within traditional communities seem to maintain obsolete beliefs that women are less intelligent hence their low performance in school. Mulugu (1999) argues that "such incorrect notions, found in the 'politics of location and identity' are socially imposed and justified by discriminative social institutions", but without any scientific evidence in support of it. In fact it is arguable that the differences within each gender classifications are much greater than the differences between sexes. Mulugu's argument coincides with that of (Malekela, 1983) who also argues that all being equal, "male and female students alike have equal cognitive potential of performing well at school even though they "may differ in subject preference".

Mahenge and Kent (1999), confirm that argument. In their study, they compared gender and academic achievement of fourteen-year old children in Tanzania, England and Wales. Fourteen-year olds in Tanzania are in their final year in the Primary Education Cycle (Standard VII), and are subjected to a National Primary School Leaving Examination (PSLE). At almost the same age, children in England and Wales, are in Key Stage 4

(Grade11) where they are also subjected to sit for General Certificate of Secondary Education (GCSE).

In the 1980's, studies in England and Wales had revealed that female students were under-performing and that male students were, by far, outperforming female students in almost every subject (Schonborn 1975; Tobias 1978; Cain 1980). It is also on record that, some teachers reinforced stereotyping behaviors and practices on gender roles that, in turn, influenced female students' academic attainment both during the learning process as well as the examination period (Whyte 1986; Delamont 1990). In both countries, sources of data are the National School Examinations Councils.

Following concerns voiced in the Parliament and in public media, England decided to reform its system of education. Some of these reforms employed: a Research Action Team to assess the situation and report to the authorities (Kelly, 1987); an initiative to develop women's campaigns urging female students to go into the sciences and technology disciplines; instituting a new school curriculum; and legislating an Educational Reform Act of 1988. Mahenge and Kent's study compared girls' improvement on the basis of this reform and they draw their data from student's performance in Key Grade 4 examinations from 1984 to 1998. In their findings the researchers confirm the forgoing argument that, factors affecting gender differences in academic performance are either social or environmental, rather than being biologically related.

The more recent findings uncover a tremendous trend reversal. While there was a general increasing trend for both male and female students, female students gained faster than male students between 1986 and 1992; at the rate of 39.1% for male compared to 60.9%, for females respectively. By 1992 female students were able to score just as high as boys and thereafter, girls surpassed boys from 1993 to 1998. These findings are of significant importance and a lesson to subscribers to the old tradition and beliefs against women's cognitive potential in some traditional communities. Contrary to the situation in England and Wales, where girls now outperform boys, Tanzania continued to maintain the belief that girls could not do as well. It therefore, founded on only three false beliefs, considered a quota system as a solution to the problems.

Again, it is not the intention of this study to dwell upon gender relations, but since the records show that female students are not performing as well as male students, it seems appropriate to give some attention to gender related concerns in the present study.

- **"Stock-Taking" Studies**

Last but not least, category of studies concern stock-taking of instructional materials and Audio/Visual and science equipment/chemicals available in science laboratories in both Primary and Secondary schools in Tanzania. Based on their similarity in approach and findings, they are subsumed and reported as a single study. Studies on inventory of educational materials and equipment recorded, what materials and science equipment were available in schools and investigated the frequency with which the teachers used the materials and equipment available (Chonjo, 1994). Their research approaches were

essentially conducted with survey questionnaires or physical visits to schools and sometimes physically counting and recording instructional resources available. Findings of these studies have been almost uniform: noticeable shortages, uneven distribution, non-use of sophisticated equipment even where available, and lack of locally relevant audio/visual software.

On the basis of such findings, researchers have made their inference that the observed inadequacies may be the cause for low performance. Difficulties of getting representative procedures raise some doubts about the accuracy of the results. However, on the basis of their already established facts regarding available resources and their distribution to schools across regions, the present study borrows from those findings, and continues to examine the nature of their associations of other factors with educational performance.

Studies From the Neighbouring Countries

It has already been mentioned that the decline in performance in education is not exclusively one country's disease. Belle and Harley (1988) site similar situations found in Tanzania in Kwa-Zulu/Natal Province, South Africa. Their findings are presented in a series of three papers under the theme "Evaluating and Developing the Potential High School Students in Science in Natal".

Like many other developing countries, Kwa-Zulu is struggling with education reform, a process which is both costly and slow. Apart from problems of physical structures – (schools and furnished classrooms), there is a problem of cross-cultural conflicts as well

as acute shortages of well trained teachers. According to Vos (1986), quoted in Belle and Harvey, Natal needed an over 50% increase of teachers. Out of 5,437 high school teachers employed in Kwa-Zulu in 1983, over 700 (13%) had not passed the Senior Teachers' Certificate Examinations, 482 (9%) had no teaching qualifications and only 463 (8.5%) teachers had a Bachelor's degree. The rest had barely a minimum teaching qualification (Belle & Harvey, p.73).

Current reforms include improving physical and human resources; that is, more schools and better classroom accommodation; schemes to up-grade teachers' qualifications and classroom skills; as well as curriculum reform. But formal schooling opportunities for native students in Kwa-Zulu Natal are not getting any better when compared with those of White students. According to 1988 figures, enrolment of black students were 1.6 million, 67% of the total school-age population. Describing the practical access to schooling and consequent performance outcomes for the Black students, the authors. Belle and Harvey (1988) presented the following sad graphic picture of the education of Black students:

> The current high levels of school drop-out, repeating of standards, and failure in the senior school certificate examination taken in standard 10(at 17 years or older) all indicate considerable under-achievement among Black scholars. In 1985, only 16% of the total year group of Black South Africans in Kwa-Zulu High Schools reached standard 10. Only approximately 1 in 3 [i.e. approximately 33%] of those reaching Std. 10 gained a pass in Senior Certificate, and only 1 in 13 [i.e. approximately 8%] gained a level of matriculation which would enable them to apply for University entrance (p.6).

Even though the authors recognize the need for education for all, they focussed on "under-achievement" - the qualitative aspect of education. Again like Mbilinyi et. al., Belle & Harvey see educational decline as a systemic problem and they argue that;

> While material facilities are grossly inadequate and teachers' proficiency is well below the required professional standard, improvement in these two areas alone will not resolve problems of learning that stem from cognitive under-development within the learner himself (p.9).

This implies that there are social conditions including poverty, disruption of family life with many parents working away from home (in gold mines), for extensive periods of time; and continued with inappropriate social practices, such as early marriages exacerbated by a school system with foreign curriculum content. They talk of multi-cultural conflicts as Black children of Kwa-Zulu try to adjust and cope with a foreign language and the imposition of a system of Western education. All of these affect the learners as individuals and as a group - the student body.

In their study they classify the problems affecting academic performance into two categories: First, socio-economic factors which affect both the students' life, including nutrition, health, social relations, as well as the physical school structures and supplies. The second category may also include language constraints, cultural obligations such as respect to elders, adherence to traditional norms and all the social values expected of a child as a social being in a given society.

Against that background, Belle and Harvey have became interested in individualized assessment of cognitive development of potential high school students. They further criticize the conventional assessment procedures and say:

> These traditional psychometric methods of analyzing a pupil's cognitive functioning have examined the pupil's current level of performance on school-based tasks giving a static measurement with no indication of the pupil's potential for improvement (p.9).

The researchers adopt Vygotsky's concept of "zone of proximal development" which differentiates between the pupils' level of current performance and their capacity to learn with others. According to Brown and Ferrara (1985), "zone of proximal development" refers to "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p.273). That concept is revelant to analysis of the situation of Blacks struggling to manage a foreign curriculum against cultural barriers which exclude the Zulu cultural heritage.

The present study adopts from Belle and Harveys' model, their idea of including problem-solving approach to learning, the cognitive potential of the learners both as individuals and as groups in collaborative learning, and the process of assessing the cognitive potential as opposed to directing causal indicators exclusively to inadequacy of physical resources. When looking at the environmental conditions, they view them from a systemic approach with a learning theory flavour. For instance, when referring to culture,

they take the position of Vygotsky's theory which stresses among other variables, the importance of cultural transmission and intentional mediation of the learners. Belle and Harvey argue that: "Where these two processes are inadequate, the learner fails to develop fully effective cognitive functions and this results in the depressed functioning of the individual"(p.6). The inadequacies referred to here are the cultural barriers and expectations are also reflected in the works of Mbilinyi et.al (1991) and Malekela (1983).

Belle and Harvey's idea of social factors effecting under-achievement corresponds to Vygotsky's position that intellectual development is not just the acquiring of experience, but the social transaction which is the fundamental vehicle of education (Bruner,1985, p.25). Basic to that concept is the importance of mediation of the child's learning experience. That is, the immediate society of the child including the parents, neighbours and later the teachers and all of whom sequentially initiate the child by structuring activities and providing scaffolding so that the child gradually gains mastery and confidence.

After the basic skills are acquired, the child can then use the acquired skills as tools for further learning. Bruner adds that new concepts transform the meaning of the former, thus, it becomes possible to reflect on the past experience in order to interpret the new. Yet, equally important in Belle and Harvey's study is the implicit notion mentioned earlier that every country, whether developed or underdeveloped, has its own socio-economic problems and, therefore, supposedly, has different explanations for its problem of under-achievement. Put differently, problems of performance decline in education can

be addressed and resolved only within their own context, a position also taken in the current study.

It is noted that the cultural traditions in Natal, Tanzania and other countries, are significantly different from those of the West. For example, the students' immediate environments and "social others" may not have gone through the Western Education System and, therefore, may be incapable of providing the scaffolding advocated by Bruner. In Western societies, for example, parents are urged to read for their children, help them with their home-work and monitor their progress. A perfect idea and yet impracticable for a child born to illiterate parents of Kwa-Zulu Natal, Kisarawe in Tanzania, or Zimbabwe in the Sub-Saharan Africa. One wonders if it would not be a similar problem to a child born of illiterate parents of any country regardless of the economic level: industrialized or underdeveloped. Unless such social problems are identified and addressed on their own merit, the problem of under-achievement in most educational settings and systems cannot be resolved.

Kemmerer (1990) quoted in Chapman (1991), takes a more teacher-focused perspective in Botswana. He attributes the decline in education to be largely a unction of the quality and quantity of teachers. It depends on the extent which they are affected by lack of (i) remuneration; (ii) teaching support; (iii) instructional supervision; (iv) training; and (iv) career opportunities. The five attributes are, in turn, associated with the consequence of the imposed economic crisis. Instructional materials could possibly be implicated, but were not mentioned in this study. The author further asserts that; "teacher satisfaction is

related to the quality of training, the degree of instructional supervision, community support, and career opportunities".

Supporting Kemmerer, Chapman (1991) adds that, although upgrading teachers has become the central component of most efforts to reverse educational decline, economic constraints limit opportunities to enhance teachers' morale and performance. Chapman also hypothesizes that schools with more community support are likely to perform better than schools with less support. To confirm his hypothesis, 32 secondary schools were randomly assigned to two groups:- One group getting more community support and the other getting less community support. A total of 549 teachers in 50 classrooms were observed in the classroom and required to fill a questionnaire eliciting data on their degree of satisfaction with community support, incentive packages, teaching support and career opportunities. Performance was measured by the number of graduates selected for admission to higher levels per school. The research findings supported their hypothesis that schools that have community members playing roles in school reform activities perform better than those without community support.

This study is somewhat weak. While it chooses to compare randomly assigned groups, and, therefore, uses experimental design, its data analysis is weak. Being selected for admission to higher level schools is probably not an appropriate measure for testing experimental group performance difference in situations where transition to higher levels depend upon other straneous variables beyond academic achievement. A pre-test posttest approach and an analysis of variance could have been more appropriate. However, the

researcher succeeds by introducing another possible moderating variables to account for ineffective instruction due to dissatisfaction of the teachers either as a consequence of lacking incentive packages from the government, or because of the lack of community support.

The findings of this study are consonant with the ideas underlying the philosophy of Education for Self-Reliance in Tanzania which views the school as part and parcel of the community and asserts that the community should participate in its activities and help in the children's academic growth. That is, helping the students to develop the art of finding information by which to generate knowledge and life skills. At the same time, the findings point out the importance of inviting community support in the provision of education for its youths.

Omari (1994) argues, "beneficiaries of higher education, i.e., the students, parents, and relatives should know that education is not free"(p.60). That is, people should be "self-reliant" through "cost-sharing" for their children's education. The present study incorporates this item in the checklist of possible causes of performance decline and at the discussion and recommendation stages when discussing the question of to what extent are parents and the community as a whole, involved themselves in school reforms in Tanzania?

For both the studies and the position papers in Tanzania, there is no consensus on whether to talk about "low performance" or a "declining trend" in education. Yet, the two

are not interchangeable. In Mbilinyi et al's position paper, for instance, they talk of consistently low performance of female students. This is also true in Malekela's (1983) and Mahenge's (1999) works. Apart from mentioning the normal fluctuations in educational performance along the years, none of the studies seem to make a specific inquiry about the declining trend, but rather often merely observed low or poor performance. In such cases, the problem becomes that of energizing stagnant rather than declining performance.

In summary, the findings of the foregoing studies have revealed that schools in Tanzania are inadequately furnished with instructional materials including textbooks, supplementary readers/ materials, inadequate desks and sometimes without a science laboratory at all. The studies record that even where schools are supplied with advanced technology, teachers may shy-away from using the technology, to hide their ignorance of operating the equipment, and/or the school administration may store the equipment overprotectively fearing that the equipment may get spoilt. Sometimes it may be a lack of appropriate software or time to prepare for the application of a sophisticated technology. The most important observation has to do with the uneven distribution of educational equipment across Regions and schools. This poses a fundamental question: Since these studies did not perform any correlation analysis to gauge the effect of poor versus well supplied schools, can we make the generalization that inadequacy of instructional resources significantly affect educational performance in Tanzania?

Again, empirical data are still lacking nor is it possible to derive such a conclusion in a single study such as this. Yet, the studies have set a ground on the basis of which further studies can emerge. The review of literature also reveals that there are similar problems in the neighbouring countries which makes it tempting to assume that developing countries are most vulnerable to educational decline based on socio-economic oppressions. In fact Chapman (1991) posits that declining school quality is one of the most serious problems facing Third World countries, particularly in Africa. What can Tanzania and her neighbours learn from the external world?

An International Perspective

A study of global literature on education reveals that decline in educational performance is not exclusively a problem of developing countries. In 1983 an important document called "A Nation at Risk" was published in the United States (Khan & Reigeluth 1993). In the document, it is noted, "social systems, particularly education, were-out-of-sync with the new 'realities' of the recently emerged post-industrial, information age" (Banathy, 1991, p.248). The reasons seem inconclusive, but as Bethany notes;

> "...since the last major change in US Education system from the agrarian to the industrial school model, (single to multi-classrooms school) the United States community had gone through massive industrial changes as it evolved into the information age, but the changes were not reflected in the system of education"(p.248).

In other words, the system of education no longer addresses the socio-economic requirements of the society for which the system supposedly exists. Neither does it

prepare youths to cope with the technological advancement to take productive roles in the society to which they belong. Needless to say, any dynamic socio-economic community requires, in its system of education, a change that corresponds to its overall socio-cultural as well as socio-economic systems. When any of these deviates, some form of a reform becomes the only means by which relevance and role of that sub-system to the larger community can be restored.

The document has raised public concern and as a result the USA has undertaken to reform its system of education and instituted associations charged with a duty to conduct regular evaluation studies to gauge performance in American Schools. In its subsequent report titled the "The Dissolution of General Education 1914-1993" the National Association of Scholars (NAS), using university education example, reports:

> America is in danger of losing the common frame of reference that for many generations has sustained [its] liberal democratic society. Just as self-evident truth is no longer self-evident, or even truth, the common core of knowledge once taken for granted as an essential element in a well-rounded education at an American university is no longer common nor can it be taken for granted (Thomas, 1996).

After examining course structures, content and the rigor of top 50 universities, the study concludes that undergraduate education in US universities has become substantially degraded. That conclusion concurs with Donald (1995) and Davis (1997) observe that, of late, freshmen entering universities in the US are ill-prepared in the domains of study skills, critical thinking, science problem-solving and language skills. In turn, it is admitted that "...admission standards have dropped and universities graduate people with

good grades, who 20 or 30 years ago, would have dropped out of school for academic deficiency (Donald, 1995)".

A similar trend observed at the lower levels of education confirmed that performance at any level of education could not be judged independently. Hence, in 1992 the National Assessment of Educational Progress (NAEP) released a comparative study report on academic performance of students attending public and private schools. A trend data of achievement scores for a total of 31,000 students representing grades 4, 8, and 11 in mathematics, science, reading and writing, were compared to evaluate the student's overall progress in each of the four curriculum areas. Overall, results showed a trend of continued decline. While overall trends in the sciences were positive, reading skill declined for the same period. Writing remained relatively stable for grades 4 and 11, but there was a significant decline for grade 8 between 1984 to 1990. An upward turn since 1990 suggested follow-up studies.

Another report: "The National Education Goals Report: Building A Nation of Learners" published in 1993 takes a different approach and provides a base upon which academic achievement can more meaningfully be assessed: the national education goals. This is not new in educational evaluation. Rather it has always been the practice: evaluating on the basis of the curriculum objectives. What is new, though, is the extent to which these goals are interpreted and implemented at various levels of the schooling system, the involved individuals and the societal circumstances surrounding the zeal towards the accomplishment of those goals. According to Gronlund (1993), the American goals are

not exclusively academic. Rather they vary from reduction of high school dropout rate; student achievement and citizenship, excellence in science and mathematics, adult literacy/lifelong learning, self-disciplined, and drug-free schools. That corresponds to Emberley and Newelly's (1994) argument that students who are unable to clarify their problems and to articulate their responses will become neither informed and thoughtful citizens nor innovative and productive workers. In his review, Gronlund posits that, based on the National objectives, recent study reports reveal a slight decline in student victimization and use of alcohol and drugs among 12th graders and an increase in mathematics and science achievement. However, either stagnation or decline is observed in other areas.

The foregoing record on the decline of Education is not exclusively unique to the United States in the developed world. In Canada, Emberley and Newell (1994) confirm the existence of educational decline across curriculum subjects. Following a report on "The decade-long decline in Ontario Education", Ontario has enacted a Bill (160) "The Education Quality Improvement Act" to restore its quality of education and since then there has been a continuous assessment and monitoring of follow-up studies by "Ontario Studies in Education" (Johnson, 1997).

In England, similar public awareness has led to instituting the "Education Reform Act, 1988" (Reason, 1989), and recent literature features many follow-up study reports that gauge the effect of the act. For instance, Gorman and Fernandes' (1992) report: a "Comparative Reading Survey" conducted by the National Foundation for Educational

Research, Slough (England). The study investigated the existence and direction of any change in reading standards of pupils in England and Wales between 1987 and 1991. Two independent samples comprising 2170 pupils aged 7 and 8 years in 61 schools sat for a "Reading Ability Series Test" (by British standards) in the spring of 1991. The first sample (control group) consisted of pupils from a randomly selected, nationally representative group of schools in England. The second sample comprised schools in England and Wales that had taken part in the initial standardization exercise in 1987.

Results reveal a declining trend in overall performance from 1987 to 1991. Data on reading performance suggest that the decline began in the mid-1980s and that it may be attributed to teachers' industrial dispute in the mid-80s and the heavy workload of teachers due to the implementation of the National Curriculum.

Globally, the International Association for the Evaluation of Educational Achievement (IEA) has been established in the US to assess the development trends in science education around the world. Twenty-four countries participate in the first study, but the number drops by half (12) in the second comparison. Studies investigate two factors related to student achievement in science: (1) the relationship between students' reported perceptions of the science learning environment and their science achievement; and (2) the effect of various science learning environment scales on gender and socio economic differences in science achievement. Participants include 10-year-old, 14-year-old and grade 12 students. Data collection are by students' self-reporting on socio-economic

status of their families and their recent experiences in their science lessons by completing a questionnaire, and taking a standardized science test (Young, 1994).

Young notes, with concern, an incomparability of the exercise in terms of varied educational systems across continents. However, despite the diversity of systems, results reveal one commonality among participating countries that science achievement by students improves with an increased practical work component in science lessons. Based on the outcome, Young asserts that the student's learning duration and environment has an effect on achievement outcomes.

Drawing from Young's concern about incompatibility, it is debated whether global comparative studies in countries culturally different makes any sense. It is argued here that, first, there are hardly two countries that are accurately described as homogeneous and, therefore, both educational objectives and outcomes are, most likely, dissimilar, and second, the socio-economic situations at which performance versus predetermined goals are studied vary even within countries.

The two extremes of developing versus developed countries exemplify that point. In the US, for instance, where the workplace demands for knowledge of computer skills, an excellent university graduate, but a computer illiterate will never secure a tenure. Yet, the same indicator cannot be generalized to the indigenous agricultural economy in a developing country. It is appropriate to speculate at this point that, although comparisons

for global performance may be appropriate, as may seem implicit in the literature, they may lack authenticity depending on the educational goals intended.

In summary, the related literature was examined for three (3) categories of study reports: those combining quality of education and stock-taking, studies doing stock-taking of instructional materials and equipment available in schools and studies examining educational accessibility by socio-economic groups. To the Tanzanian community, the literature review confirms that Tanzania is only one among many countries, be they in the developing or the developed world, that experience educational anomalies and inadequacy of instructional resources in schools. The review has also renewed the notorious problem of gender imbalance in both enrolment and performance particularly at the post primary level which, in turn, seem to influence overall performance in schools. What the studies have not adequately illuminated, however, is the question as to whether the reported low performance, under-representation, or poor educational outcome exhibits a declining trend or is constant over the years.

By the same token it is argued that studies from neighbour countries can shed much light on the Tanzanian circumstance. The studies seem to support Mbilinyi et al's (1991) and Omari and Moshas' (1988) contention that there are other factors causing low quality education besides instructional resources. The literature has confirmed that the Tanzanian community and other neighbouring countries face the same challenge and that there is a lot that can be learned from our neighbours. Likewise studies from the developed world send a fundamental message that belief in educational decline is a global obsession only

differing in the manner and factors that cause it and the differing reform approaches attempted. The review proposes a common principle true of each country if it is to succeed in its reform. That is: learn from others in what they do, but also remember to learn from yourself because you and your problems are unique among others.

The present study respects that proposition and explores any existing declining or gaining trend over 8 years in 16 sample schools. Based on the findings, the study further examines the degree by which selected variables, including instructional resources, location, and subject preferences, among others, influence both the teacher and students in their teaching/learning processes.

The study draws from the above discussion the assumed likelihood of multiple indicators in addition to physical instructional resources, that may singly or collectively influence performance decline in education. In particular, it draws on indicators related to learners as individuals are influenced by the conditions surrounding them which, in turn, it suggests influence perceived performance decline.

CHAPTER FOUR

Methods and Research Design

The observed decline in Tanzania's educational outcomes has been widely associated with inadequacy of instructional resources in schools. However, our review of literature in Chapter Three suggests additional variables beyond instructional resources that may also actively influence performance in education. The present study explores to determine the existence of such factors in the Tanzanian education system and determine their importance.

In this Chapter we set out a research design and methodology drawing on the work reviewed in Chapter Three, and our knowledge of work on statistical methods in social studies. The study relies on methods for data analysis by scholars such as Keppel, G.(1982), Sheldon Z., (1989), Box & Jenkins, (1976, 1994), and Aoki & Havenner, (1997). Keppel's simple trend component analysis model was adopted for data analysis because it appeared adequate to answer the research question, given the data available and the intended beneficiaries of the study results.

The strategic sources of information chosen include school records on candidates passing on national examinations every year, as well as the self-reporting of the people considered most associated with the rise or fall in the quality of education: teachers and students in the classroom. The study focused on secondary schools. A sample was drawn from secondary schools in Tanzania mainland. This chapter provides a description of the

research procedure: the study design, the sampling procedures, sources of data, a description of participants involved, and the data analysis methods.

Research Design

The study adapted a form of a multiple perspective "Case Study" design using surveys as well as interviews and applied a triangulated approach to collect data from different sources. Instruments for data collection included group discussions, questionnaire for teachers and a checklist for students, personal interviews; and a review of documents. The rational for the choices of methods and procedures are explained in the following section.

Sources of Information

A study attempting to investigate what goes on in a system requires a variety of data sources that give independent intersecting posibilities for explanation. The five sources chosen here were: classroom teachers, students in 16 secondary schools in Tanzania, The Ministry of Education and Culture (MOEC), the National Examinations Council of Tanzania, and the Tanzania Institute of Education (TIE). The following section gives a rational for the selection of each of these sources; describes their relevance to this study; and describe the activities involved at each of the five data sources.

- **Teachers/Students**

School teachers and students in 16 secondary schools in Tanzania were chosen as major sources of data for two reasons: First, no matter what the outcomes in an educational system, they are, in many cases, associated with these two groups: the "teacher and students". They are the "shock absorbers" of community reactions particularly when

examinations also serve as a determinant for competitive selection to a higher level of education. That is, examination results are associated with and are a product of classroom processes to which both the teacher and students are key inputs interacting with "instructional resources" to produce results referred to, in this study, as "performance". Secondly, any planned educational reform must target these same groups of people. Thus, unless factors influencing them are identified from within their own experiences, no reforms are likely to succeed.

Tables 4.1 and Table 4.2 summarizes the number of teachers and students included in the study. A total of 414 teachers and 480 secondary school students in Forms I to III (grades 9, 10 & 11) participated in the study.

Table 4.1: Participating Teachers by Gender, Subject Orientation and School Types

Subject Orientation	Gender Schools	Rural Schools	Urban Schools	Total		Girls Schools	Boys Schools	Coed Schools	Total
Art Ts.	Female	28	74	102		43	4	55	102
	Male	71	80	151		20	47	84	151
Science Ts	Female	16	50	66		36	3	27	66
	Male	35	60	95		17	14	64	95
TOTAL		150	264	414		116	68	230	414

Although gender ratio differed, their distribution across school categories seemed even. Male teachers taught in girls' schools and vise versa. Boys-only secondary schools, particularly the boarding category were fewer than Girls-only boarding schools and the number of teachers varied from school to school. Two main categories were: urban schools (on the high side), and Mission "Seminaries"(on the low side).

Table 4.2: Students Subject Preference in Art or Science by Gender

	Arts Subjects	Science Subj.	Total
Girls	121	102	223
Boys	133	124	257
Total	254	235	480

While in a typical urban old school there were up to 50 teachers participating in the study, the highest number of participants in the four seminaries used in the sample was only 15 teachers. Table 4.2 shows that a total of 480 secondary school students from the sample schools participated in the study. Techniques used to select these 30 students in each school was described earlier in this chapter. As noted in the table, there was an almost equal representation of the arts and science subjects.

- **Ministry of Education and Culture**

In a centralized system of education the Ministry of Education is the supreme organ of policy and decision making. Thus, the Ministry of Education and Culture (MOEC) was included in the study because of its national importance and power capacity. It is the warehouse of information regarding national policies, strategic plans and implementation strategies. The Director of Secondary Education and officials of the planning and rehabilitation unit were interviewed. Interview questions focused on the current trends. In educational performance expressed through examination scores, and various measures and records of peoples' commitment to the educational reform plans; governing policies; implementation strategies; and accomplishments made so far as well as inhibiting constraints experienced.

- **The National Examination Council of Tanzania (NECTA)**

Since its establishment in 1970, the National Examination Council of Tanzania (NECTA) has been and continues to be responsible for setting, administering and grading national examinations. It was therefore chosen for its role as well as being an archive for a cumulative examinations data base. Only the Deputy Executive Director was interviewed. Much more time was spent on extraction of National examinations performance records. Questions included what procedures were followed to set and grade national examinations, whether or not the council was aware of the national cry against declining education; what, in the council's opinion, were the causes for the decline; and what did the council do to reverse the declining trend?

- **Tanzania Institute of Education (TIE)**

The Tanzania Institute of Education, is responsible for curriculum development, and it was chosen as one of the sources of information based on the role it plays in curriculum design. Six subject experts were interviewed. The interview revolved around the following issues: (i) who initiates curriculum change and when, (ii) who decides on what should be taught and how, (iii) how were activities financed, and (iv) any encounters that inhibited execution of their role.

- **Documentary Reviews**

Several documents were reviewed for hard facts regarding enrolment and performance data for each of the schools included in the samples national data, information on

teachers by qualifications, national reform plans as well as government budget allocations for the education sector.

Study Premises, Methods and Instruments

The study was conducted in mainland Tanzania, the researcher's country of origin, and covered 16 Secondary (High) Schools in five Administrative Regions. For purposes of the present study, these regions were grouped into zones, namely; the Northern Zone, The Eastern Zone, the Central Zone, and the Southern Zone. The Western Zone was not chosen for the study because of its inaccessibility following heavy rains. Table 4.3. presents the sample schools, their regional and urban/rural locations, school type and whether a day or boarding school.

Table 4.3: Sample Schools by Type and Location

Zone	School	Age	Management	Locat.	Gender	Boa./Day	Participants	
							Boys	Girls
North	Ashira Girls	Old	Public	Rural	Girls	Boarding	-	30
North	Moshi Sec.	Old	Public	Urban	Boys	Boarding	30	-
North	Lembeni Day	New	Public**	Rural	Coed	Day	15	15
North	Uru Seminary	Old	Private – Semi.*	Rural	Boy	Boarding	30	-
East	Jangwani Girls	Old	Public	Urban	Girls	Day	-	30
East	Forodhani	Old	Public	Urban	Coed	Day	15	15
East	Ubungo Islamic	New	Private – Semi.*	Urban	Coed	Day	15	15
East	St. Peters Semi.	Old	Private – Semi.*	Urban	Boys	Boarding	30	-
East	ELCT. Semi.	New	Private – Semi.*	Rural	Coed	Boarding	15	15
Central	Mazengo Sec.	Old	Public	Rural	Boys	Boarding	30	-
Central	Dodoma Sec.	Old	Public	Urban	Coed	Day	15	15
Central	Dodoma Cent.	Old	Public	Urban	Coed	Day	15	15
South	Mtwara Girls	Old	Public	Urban	Girls	Boarding	-	30
South	Tandahimba	New	Public**	Rural	Coed	Day	15	15
South	Masasi Girls	Old	Public	Rural	Girls	Boarding	-	30
South	Masasi Day	New	Public**	Urban	Coed	Day	15	15

* Semi = Seminaries Christian or Islamic. ** New schools built under community self-help scheme

The study required specific school categories for which a simple random sampling was inappropriate. A stratified sampling technique was used. The following section describes the actual sampling process involved.

Sampling Procedure

- **School sampling**

The original plan was to include two schools in each region – a science subjects bias school, on the one hand; and an arts subjects bias school on the other. Science bias schools offered science subjects such as physics, mathematics, chemistry, and biology while Arts Subjects bias schools offered mainly arts subjects such as languages, geography, history, fine arts, music as well as religions studies. Languages were offered in both types of school.

The purpose for that sampling strategy was to test the differences in the outcomes resulting from teaching Arts and Science subjects. The hypothesis was that teaching science subjects was affected more by the current shortage of instructional resources than the teaching of Arts subjects. Schools were to be further classified as public or private, urban versus rural; and day versus boarding schools. In this way it could be determined whether geographical locations, school type, governance and teachers' experiences by years of teaching had any bearing on educational performance.

However, recent government policy changes dictated changes to my original plan. Arts and Science oriented schools no longer exist. Instead all schools now offer a balance of both art and science in either syllabus. Biology has even become a compulsory subject

nationally. To a large extent, that affected my classification plans since I could no longer separate arts teachers from science teachers to minimize response influences of one group from the other. However, despite them being mingled in the same discussion groups, a comparison of their responses derived from information in the questionnaire was still possible.

I knew only the categories of schools that I required, but could not locate them in the practical field. To accomplish that stage, I consulted the School Inspectors' Department at the Ministry of Education as experts. By the nature of their work, school inspectors had a good command of the national school mapping and soon after I explained my research plans and the school categories I required I was advised that a full coverage of such categories required double the original proposed eight schools. With their mapping aid, a sample of 16 secondary schools in four zones as explained above was identified. Two seminaries in Morogoro, a region close to Dar es salaam region were included in the study to represent that specific school category which is not common in every region.

- **Teachers and Students Samples**

The number of teachers varied from school to school depending on school size. While there was an average of 15 teachers in the Mission seminaries, for example, it was not uncommon to have up to 50 teachers in some old public secondary schools. Since my objective was to interact with as many teachers as possible, I left participation of the teachers open for all teachers available at the scheduled times granted by the administration for the study. However in the case of students, they had to be chosen to fill

out the checklists. The sampling was randomized using a ballot procedure to give an equal chance to 30 students in each school, to be included in the study. That is, ten students from each Form, grades One Two and Three[1]. Students drew one from among the numbers of ballots equal to their class size, but on which only ten ballots had been marked "Yes". Provision was made for gender balance in coeducational schools.

Research Instruments

It is stated in the study design that the study collected its data by group discussions, interviews, a questionnaire/checklist as well as school records. This section describes the instruments and procedures involved in the study.

- **Questionnaire**

No standardized format of a questionnaire suited to this study was readily available in the literature. So a questionnaire more suited for the information required and relevant to the study situation was developed. The development procedure involved formative evaluation and revision stages as follows: First, a draft questionnaire was developed including open-ended questions and a list of five statements that described conditions mentioned in the literature as possible conditions influencing the quality of education in Tanzania (Omari & Mosha, 1987; Mbilinyi et al, 1991).

Respondents were to rank the magnitude of influence if they felt influenced by these conditions in classroom processes. Respondents were urged to add any further conditions

[1] consultation with the administration, the study avoided grade 12 students who were then preparing for their final examinations.

they may have as individuals experienced before. The first draft was informally evaluated by colleagues at the Department of Curriculum and Teaching, University of Dar es salaam. Revisions were made and the draft questionnaire was pilot-tested with ten teachers in the first pilot testing school outside the study sample.

Teachers were instructed to respond to the draft questionnaire both as respondents of the study in order to test their understanding and the clarity of the questions, as well as in the role of formative evaluators of content validity; and to check the time frame within which the questionnaire could be expected to be completed. A brief discussion with the teachers that participated in the pilot study provided the researcher with feedback that was incorporated into the revised questionnaire before the second pilot testing in a different school. By the second pilot testing the checklist statements describing factors influencing teachers in classroom processes reached 15 and they were all incorporated in the final version that was then used for the actual study.

The final version of the questionnaire (attached as Appendix B-1) consisted of five sections, A, B, C, D and E. Section A collected teachers' demographic information. Section B required teachers to give, in a point form, what, in their opinion, was positive about the current situations or changes in education. On the negative side, teachers were given a set of 15 statements describing conditions reported to influence teaching efficiency. The teachers were to rank, on a five point scale, the degree to which they were also influenced by each of the 15 conditions in their classroom processes: A rank of 1 = most influenced and 5 = least influenced.

Allowance was made for any additional condition influencing the individual teacher respondent, but which was not included in the 15 statement conditions. The expected outcomes were quantifiable rank preference data to be used for computation of teacher group judgements by: school types, locations, art, and science categories. Totals of group ranking were to describe the overall importance of these factor statements in the perceptions of the study sample.

Section C of the questionnaire gave ten statements. Teachers were asked to check off five statements that, in their opinion, described "educational decline". Section D included a set of four open-ended questions that required the teachers to assess their expectations for the school administration, surrounding community and the students they taught. Expected outcomes were quotes that were to be clustered and used as support data at the discussion stage in Chapter Five. Finally, a set of two open-ended questions were included requiring teachers to give their recommendations for any educational reforms.

Students were asked to respond to a check-list. The students' checklist was developed in the same way and time as the teachers' questionnaire. The check-list was comprised of three sections. Section One asked for demographic data. Section Two provided a set of 25 statements that described conditions presumed to influence students performance in classroom learning processes. Section Three required them to describe, in a point form, favorable conditions that enabled them to perform well.

At the beginning of the check-list students were instructed to state whether or not they had any favorite subject/s in which they performed better than other subjects. Those who said they had favorite subjects were directed to complete Section Three. On the other hand, students without favorite subjects were asked to respond to a set of 25 checklist statements that described conditions influencing their performance. Students were to check any ten most influencing statement conditions. The expected outcome was a group ranked data that would determine which of the presumed statement conditions were most influential for the students' learning process.

- **Interview guides**

Interviews were only partly structured. However, themes of interview for different officers involved are shown under the section "sources of data". Interviews were by appointment and the duration of interviews varied by offices. At the Ministry of Education I had a shorter time with interviewees due to their time constrained schedules and commitments. However, they referred me to reference materials from which I could get most of the information I wanted. I had more time with the Deputy Director of the National Examination Council of Tanzania where I spent additional time extracting National examination performance data

Study Procedure

- **Research Clearance**

The process begun with seeking research clearance at the Ministry of Education and Culture. Authorization was granted by a letter ref. ED/ME/RSE/VOL.2/ dated October

5th, 1998 addressed to Regional Education Officers (REO) and School Inspectors of the identified study regions and copied to me. (A copy of the authorization letter is attached as Appendix A-1.)

When I reported to the regions, the Regional Education Officers, in turn, gave me a letter introducing me to the District Education Officers (DEO) and Heads of schools identified for the study. Only one example of such letters (somewhat typical of every Region) is attached as Appendix A.2 to save space and volume. I was then free to visit schools subject to time granted by the school administration.

- **Visits to Schools**

Visits were by appointment. After a self introduction and presenting the REO's letter to the Headmaster/Headmistress, I described my study plans and what I needed. In some schools schedules, were set immediately, but for other schools an appointment was made for another visit intended to give time for the Head to confirm a time slot appropriate and convenient for the teachers. Also, in some schools I was scheduled to meet both teachers and students the same day, but during different time slots while in other schools the two meetings were scheduled for separate days. On average, three working days were allocated for each school, excluding traveling time. Despite experienced delays, no complete refusal for a time slot was experienced in the 16 schools and I had time to meet both the teachers and students for the planned discussions as follows:

- **Teachers' Discussion**

All teachers present at the time granted by the administration had an equal chance to participate in "Group Discussion"[2]. The objective of the discussion was to brainstorm regarding whether or not, in the teachers' opinions, the presumed declining trend of educational performance did exist and whether they were attributing any causes to the decline.

Typical of most schools, meetings were held in the Staff Lounge at coffee/tea breaks. After introducing the motion my role remained that of a moderator calling the discussion to order in case it swayed out of its context. Otherwise, teachers, under their own chairperson, took turns to express their opinions. To free myself from taking notes in order to follow the discussion, an audio recording was used during discussions after seeking the participants' consent (of which I was refused twice). The discussion ran for an hour, on average, after which teachers completed a questionnaire described under "instruments".

- **Students' Discussion**

The purpose of the students' discussion was to create a forum where conditions influencing high or low achieving in favourite subjects could be discussed. One of the things students were asked to discuss their favorite subjects. This question was included in the discussion on the belief that flaws and constraints occurring in favourite subjects were felt more than when they occurred in hated subjects. In other words, student who hates mathematics for example, lacks a textbook, and therefore, gets exempted from

2. I termed them "Group Discussion" as opposed to "Focus groups or Panel discussions" due to their size and role. They were neither richer than the others.

doing an assignment that student regrets the circumstance less than if she/he liked mathematics. This would provide information reflecting the impact of the reported inadequacy of resources.

- **Documents Review Data**

The last day at school was devoted to documentary data collection relating to the overall school performance for standardized national examinations. The format of the data showed number of students taking the exams, the number of candidates passing by Divisions I to IV and those failing. Data collected covered performance in National Examinations for the last 8 years. Performance in their local (individual school) examinations was considered inappropriate for between schools comparison purposes because they were not standardized.

Data Analysis strategies

The study collected five types of data: qualitative data through group discussions and interviews, ordinal data through the teachers' questionnaire and students' check lists, interval data from national examinations performance data and document review data. Such diverse forms of data required different measurement techniques and analytical approaches. Figure 4.1 Presents a summary chart of types of data collected in the field, the analytical strategies used and the expected products, which were intended to provide answers to our research questions and validation of the hypotheses.

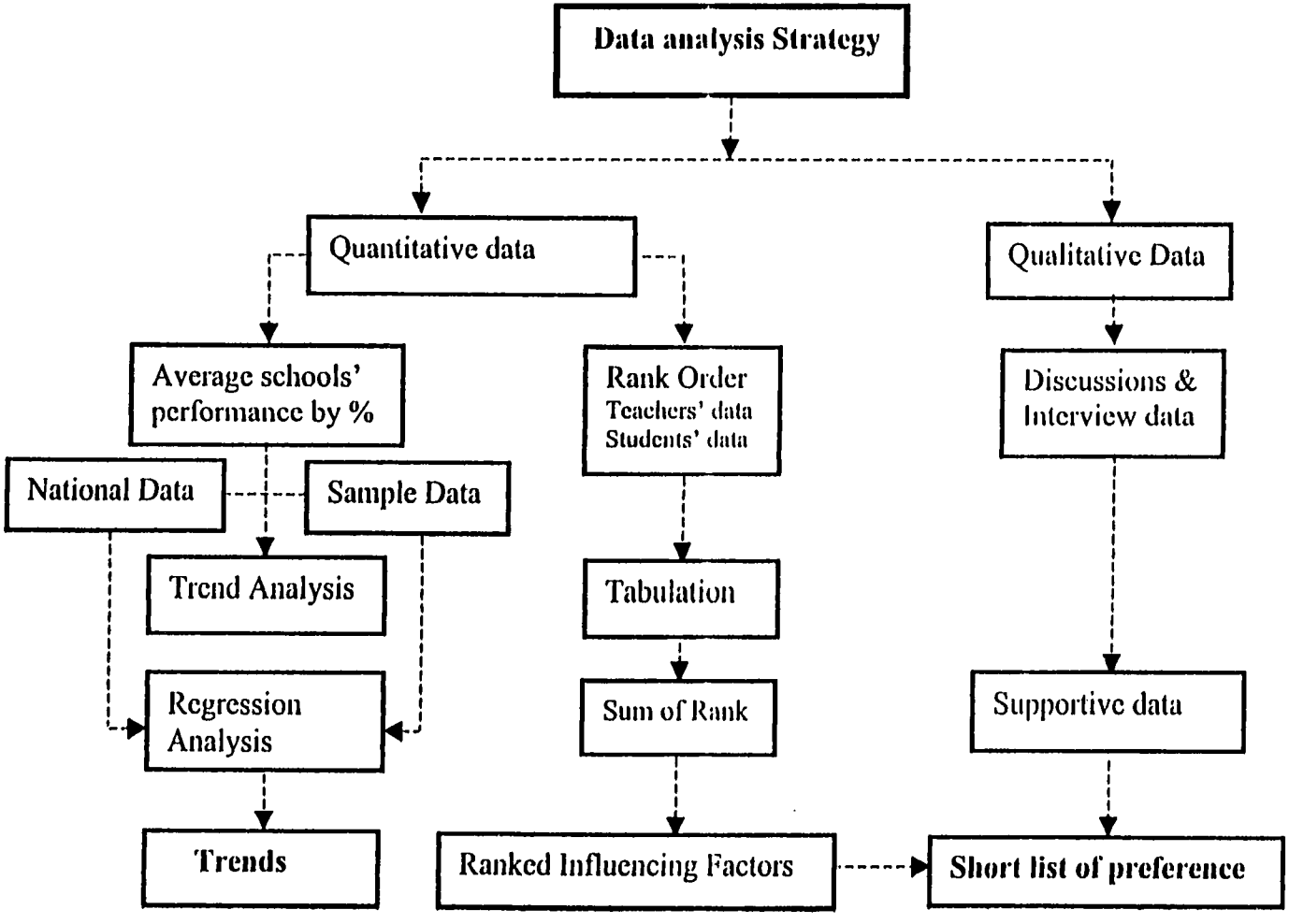


Figure 4.1: Selected Data Analysis Strategies

- **Quantitative Data**

The figure shows two categories of data collected: qualitative and quantitative data. The qualitative data are again divided into two sub categories: interval data and rank order data. The interval data present, in percentage measures, the proportion of candidates passing National Examinations nationally from 1971 to 1998 and for the sample schools from 1991 to 1998. Passes are usually categorized into four levels described by Divisions synonymous with letter grades A,B,C and D. However, for easier handling, all the divisions are collapsed to a single "pass" variable and what we see is the percentage of candidates passing in relation to the total number of candidates that registered for the examination each year.

These data were collected to answer the question of whether or not any declining trends were present in educational performance. Thus, our first approach was to determine whether it is true or false that education is generally declining in post-independent Tanzania. To do this, different analytical models particularly statistical correlation models and time series methods suggested by such writers such as Box and Jenkins (1976; 1994), Aoki (1997), Chatfield, (1975) and Keppel (1982) were considered to determine a model that would best answer to the research questions.

Analysis of variance techniques were chosen to test the time series data for the presence of linear trends and the presence of non-linear patterns in the measure of performance. Our basic data is a 28 year time series of annual measurements, therefore, the observable patterns are any combination of multi-year non-seasonal patterns. In any case, the nature

of the schooling process being studied is not responsive to factors that in themselves have a seasonal occurrence.

We can identify a number of possible factors of a cyclical nature: the attempts at quality control by the ministry of education, the influence of investment in facilities and equipment; changes in beliefs and attitudes; economic "boom and bust" cycles, and teacher recruitment and loss, among others. The analysis will show whether any linear trend patterns observed are of significant magnitude and the direction of these trends.

Statistical correlation analyses, and time series method used by writers such as Box and Jenkins (1976, 1994) provide a large number of methods which could be used to conduct the analysis. However, some of the mathematical models available, clearly would not answer our research questions as well as Keppel's (1982) approach did. Thus, the method used in this study was an application of ANOVA which allowed us to analyse a time series of equal interval observations into its linear, quadratic and residual variation components.

According to Keppel (1982), "tests of trends are motivated by two sorts of concern, one based on theoretical predictions and one which is purely empirical or descriptive in nature" (p.128). One of its major functions is to determine whether or not " ...the function exhibits a particular shape that is critical for our theory" or in "...theories of stimulus generalization" such as in making "...statements concerning the shape of the function relating performance to different points on a stimulus dimension" (p.129).

One of its features is its simplicity of interpretation to the advantage of the target audience. The model develops from a trend analysis plot which depicts the profile or a series of effects across the time period. The model averages the series of effects and superimposes a line of fit that indicates a general trend in a given data set across a timeframe. The line suggests whether the function in question is increasing, constant or declining, and how large that slope is compared to the size of the fluctuations of the variable.

A statistical test of significance for trends dissects the data set into a number of orthogonal comparisons using coefficients and a computation formula designated as $SS_{A\,\text{trend}} = \frac{s(\hat{\psi}_{\text{trend}})^2}{\Sigma\,(c_i)^2}$ where s is the sample size, the squared quality in the numerator is the sum of the weighted means, the quality in the denominator is the sum of squared coefficients. The F ratio are formed by dividing the component mean squares by the overall error term, the $MS_{S/A}$. A trend is statistically significant when the obtained F exceeds the critical F.

Both the National schools' performance data and the sample data were subjected to this analysis and as shown in the chart, this analysis points to whether or not educational performance in Tanzania is declining or not. Since the purpose of the study was to look for the presence of a general trend in the data set, the linear trend component was the most important. However, quadratic trend component is also performed in order to monitor the degree of fluctuations relative to linear trends.

- **Rank Order Data Used to Elucidate Contributory Factors**

Accepting the trend hypothesis of a declining trend in education does not identify the factors that may be associated with the revealed results. Thus, the second approach was taken to examine the importance of variables other than instructional materials and resources that also influence educational outcomes. Tabulation of rank orders derived from the teachers' questionnaire and students' checklist were used to compute sum of ranks to determine degree of influence as self reported by teachers. The rank order also facilitated identification of most influential variables that are then included in a short list of factors generally perceived to be affecting educational outcomes in Tanzania.

- **Qualitative Data**

The second main type of data was the qualitative data derived from discussions and interviews. Analysis of qualitative data included transcribing key statements or quotes from audio taped data recorded during group discussions. Statements were matched with those of the students and Occurrences were tallied and, by associating related statements, a constrained list of major factors influencing educational performance was identified. The quotes are used as support data at the discussion stage in Chapter Six and actual "emic" transcripts of some interviewees' stories are given in appendix C-4.

In summary, this Chapter has provided the procedure followed in exploring the problem of educational decline and courses besides Instructional resources that also influence teacher and students performance. Major focus has been schools record data of candidates passing on national examinations as well as the teachers' and the students' self-reporting

in addressing both phases of the question. The next Chapter presents a descriptive account of the findings.

CHAPTER FIVE

Data Analysis and Research Findings

The preceding chapter presented the research design, methodology and sampling techniques used to collect data for analysis. A description of the structure of the sample was also given showing the number of sample units included in the cells of the cross classified data. The present Chapter presents the data obtained from the samples; measures of qualitative variables and times series data measuring educational performances by percentage of candidates passing national Form Four or Grade twelve examinations annually. Two main hypotheses are examined and an analysis of the data presented to determine the range of factors associated with educational performance.

Hypothesis 1: There is a persistent decline in educational performance in Tanzania both at regional and at the level of the school. This has been termed as 'trend hypothesis'.

Hypothesis 2: Instructional materials and other resources are the most important variable perceived to be the causes of the decline in educational performance. This has been termed 'resources hypothesis'

Alternative: There are many factors other than the lack of instructional materials and resources that affect successes and failure of the educational system in Tanzania.

Trend Hypothesis

The first approach is to determine whether it is true or false that education is generally declining in post-independent Tanzania. To do this, we use the annual percentage of candidates passing in the national Form Four examinations as an index of the success in educational system performance.

Before reporting the findings there is a need, at this point, to clarify two issues regarding the data used, and how they influence the analyses particularly for the trend hypothesis. First, we recall from Chapter One (figure1.2) the dramatic increase in enrolment versus diminishing resources and subsequently the perceived declining schools' performance. Table 5.1 presents the number of candidates passing National examinations expressed as a percentage of the candidates originally registered. We notice that the population of candidates has been increasing over the time and that is reflective of the gross enrolment increase noted in Chapter One.

Table 5.1: Average Candidates Passing Form IV Examinations National 1971-1998

Year	Cand.	Pass %	Year	Cand.	Pass %	Year	Cand.	Pass %	Year	Cand.	Pass %
1971	8989	86.60	1978	13971	89.90	1985	21765	80.20	1992	31522	81.10
1972	9043	70.60	1979	15127	82.70	1986	22341	82.80	1993	35025	80.20
1973	9903	66.60	1980	16169	94.00	1987	20885	79.30	1994	38362	77.56
1974	10350	60.40	1981	16526	95.50	1988	23211	86.30	1995	37850	79.87
1975	12655	83.10	1982	17340	91.50	1989	23999	87.41	1996	40477	74.91
1976	12624	83.30	1983	15585	83.50	1990	27841	79.70	1997	41896	79.56
1977	13143	83.00	1984	15906	82.40	1991	30171	77.60	1998	42887	75.71

Source: National Examinations Council of Tanzania (NECTA).

Notice: The table shows the years of examinations, total registered candidates, and percentage of candidates passing proportionate to those registered every year effective 1971 to 1998.
: Highest and lowest passes in 1981 and 1974 respectively.

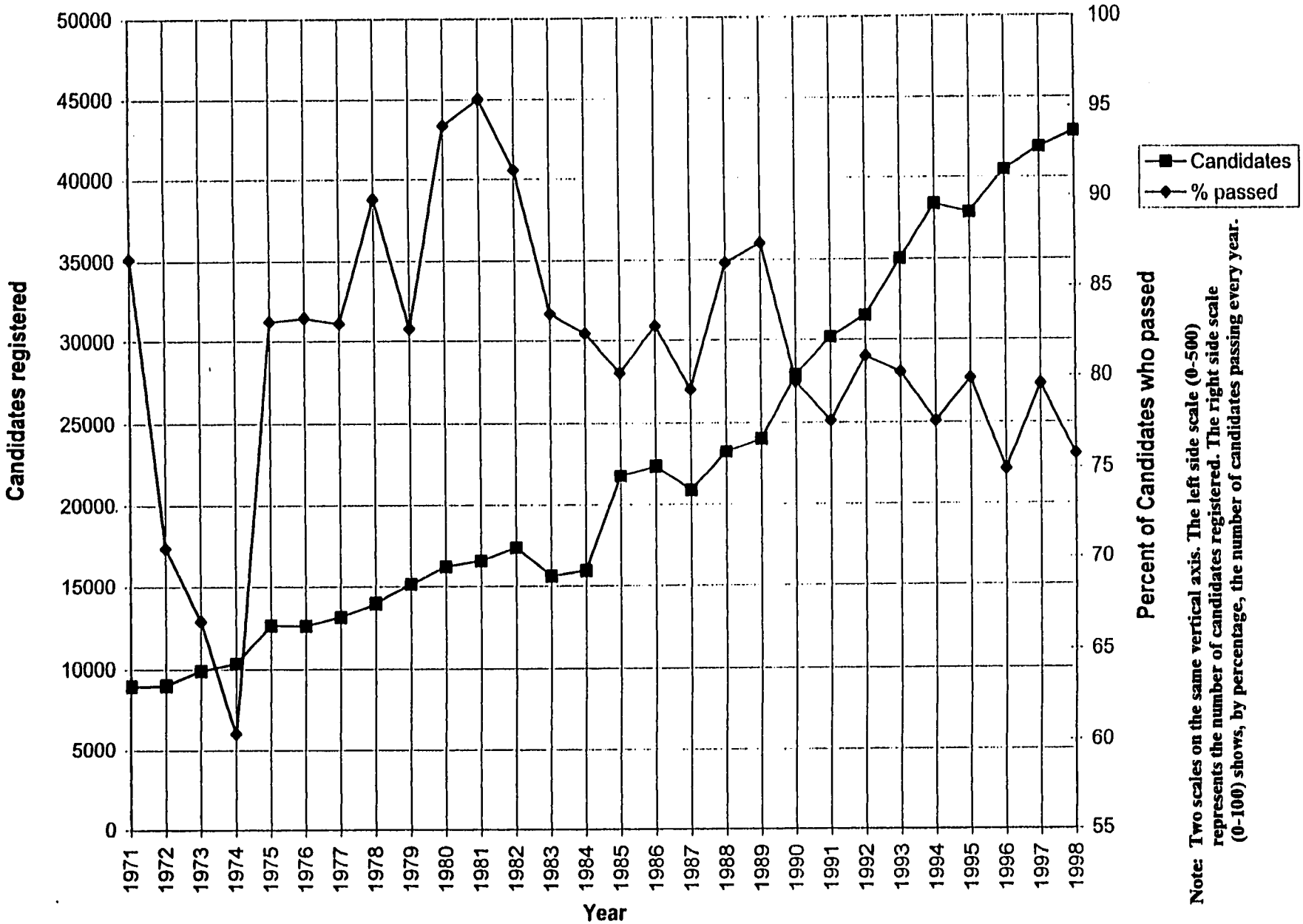
- Both the increasing enrolment trend and the annual average performance per school are over-laid on the same chart in Figure 5.2 to provide a visualization of their relationship. We note in the figure that while enrolment has almost doubled in the last

ten years, the average performance per school mainly fluctuates around the 82%. There is reason to believe that, even under normal circumstances, increased enrolment would tend to degrade the average performance for schools. An issue here however, is how enrolment increase may influence our assessment of educational outcome.

- Our study design and the obtained data may, to some extent, bias results. For instance, according to Keppel, (1982, p.138), except for rounding errors, the sum of squares of the trend components sum-up to SS_A as obtained in an ANOVA when entered as Intertrial Interval(A) in a trend analysis summary table. Technically this is true when the study is experimental and particularly one with a repeated measure. That is, the same treatment group of equal number of participants is treated and then tested repeatedly at equal intervals.

- The present study is exploratory and obtains its data from a pool of dependent variables without control of the independent variables. While data collected for this particular study conforms to the latter assumption of equal intervals[1] the group of students writing the National Form four examinations differ every year. The influence may be even greater when candidates are not only different, but also their number increasing dramatically. Thus, the sum of squares as we note in the following analyses may have been influenced by that fact, among others, and we note that SS_A linear and SS_A quadratic trends presented in the trend analysis summary tables do not

[1] The national exams in question are written at almost the same time every year, but by different students. Hence the use of percentages rather than the actual numbers.



Note: Two scales on the same vertical axis. The left side scale (0-500) represents the number of candidates registered. The right side scale (0-100) shows, by percentage, the number of candidates passing every year.

Figure 5.1: The Average National Schools' Performance in Relation with Enrolment Increase over 28 Years

sum-up to SS_A. Nonetheless, the results, as observed, accurately reflect what the fitted lines in the trend analysis plots suggest.

Analytical Decisions: Since the community sentiments described in Chapter One do not specify any specific locations that exhibit educational decline, the study assumes that the problem is national and, therefore, begins the trend analysis with National data. However, readers may be curious and wonder why we start at 1971, ten years after political independence and why we chose groups of 4 years? Two fundamental facts influenced the decisions. First, before 1970, Secondary School Leaving Examinations were set and administered from England, precisely by the Cambridge University in England. Apparently, an attempt to include that period in this study would have encountered problems of access to data. It was not until 1970 when a local National Examinations Council of Tanzania (NECTA) was established to replace Cambridge. Thus, this study rather chose to examine performance after NECTA was established

National Data: From 1971-1998

My choice to analyze the national data in groups of four year periods was influenced by the periods of the observed fluctuations. We note either in table 5.1 or figure 5.1, for example, a deep drop in the average National schools' performance from 87% in 1971 to the lowest of 60% in 1974, but rising back to over 80% in the subsequent years. We shall postpone discussions about possible causes till Chapter Six, but the drop in the first four years followed by almost similar patterns in each successive four year trend influenced my choice of time frame for analyses. Thus, this study divides the examined 28 year period into 7 groups of 4 years designated as a_1 to a_7 and presented in Table 5.2. The

average performances in each four- year period were then subjected to a trend analysis over the 28 year period

Table 5.2: The Average National School Performance in 4 Year Periods

4 Yr. Periods	1971-74	1975-78	1979-82	1983-86	1987-90	19991-94	1995-98
	a_1	a_2	a_3	a_4	a_5	a_6	a_7
Average Nat. Schools' Performance each 4 Years	86.6	83.1	82.7	83.5	79.3	77.6	79.9
	70.6	83.3	94.0	82.4	86.3	81.1	74.9
	66.6	83.0	95.5	80.2	87.4	80.2	79.6
	60.4	89.4	91.5	82.8	79.7	77.6	75.7
Mean (4Yrs)	71.15	84.65	90.93	82.23	85.18	79.13	77.53
StDev.	11.18	3.17	5.73	1.42	4.27	1.70	2.59

examined. With that said, the trend analysis then begun starting with the national data set Figure 5.2 presents a trend analysis plot for the average national school performance by four year periods across the period examined. The performance pattern reveals a steady raise to the high of 90% at the third mean between 1979-82, but dropping to a low of 77% in the last group between 1995-98. However, we note a fitted line that is almost horizontal (effect = + 0.08) suggesting a generally constant trend.

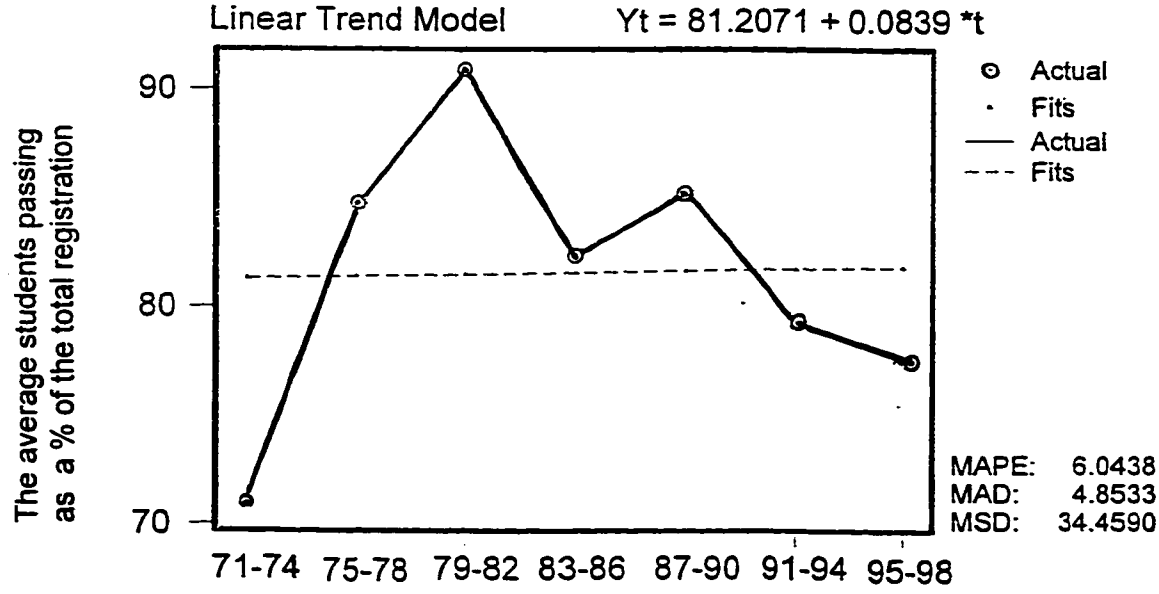


Figure 5.2: A Trend analysis plot of the Average National Schools' Performance in Groups of 4 year Periods: A Linear Model

This was confirmed by the statistical test for significance. However, this apparent lack of a declining trend may be due to the low value in the 1971-74 period. That fact is confirmed by a trend analyis plot of the period from 1975 to 1998 (see appendix C-2).

As a matter of procedure, even though we were not interested in the omnibus F, an overall analysis of variance (ANOVA) is performed to obtain an error term ($MS_{S/A}$) required to complete the statistical trend component analysis. Summary tables for ANOVA performed prior to all the trend analyses are attached in Appendix C-3. The average performance by years were then entered into a trend analysis using coefficients adopted from Keppel (1982, p.554).

Table 5.3 shows the results of the trend analysis. A trend component is present when the obtained F is greater than the critical F. Since the obtained F(1,20) = 0.002 for linear component does not exceed the critical F = 4.71 at P < .05, we conclude that there is no significant declining trend present in educational performance nationally for the whole period examined.

Table 5.3: A Trend Analysis Summary Table For the Average National Schools' Performance Data

Source	SS	df	MS	F
Intertrial Interval (A)	1513.44[2]	(2)		
Linear Component	0.31	1	0.31	0.012 *
Quadratic Component	1513.13	1	1513.13	63.63
S/A	594.40	25	23.78	
Total	420.48	27		

* P < .05, Critical F = 4.26

Note: The F ratio for trend component is calculated by dividing MS by the error term derived from the overall ANOVA (in this case 23.78)

[2] According to Keppel, (1982), the sum of SSA Trend for all possible polynomials equals SS_A However, for

However, the quadratic trend component is statistically significant. The observed F (1,27) = 63.63 exceeds the critical F = 4.26 at $P < 0.05$.

That reflects deep fluctuations in the average schools' performance each year and across the 28 year period examined. The mix of line of fit on the trend component analysis plots versus results of statistical significant tests raise further questions regarding performance patterns at the individual and school categories levels. Hence, the exploration of the sample data.

Sample Data by Zones

The sample drawn from different regional locations in four zones includes 16 Secondary Schools (grade 9 to 12) and covers Urban, Rural, Boys, Girls, Day and Boarding schools categories[3]. The school categories, locations, years of examinations, and gender form the independent variables (IV) while percentage of candidates passing on National Examinations form the dependent variable (DV). For procedural purposes, the study chooses to begin the analysis with the overall sample. The decision to use 8 year periods was influenced by my prior decision to include new schools in the study. For a school to qualify for participation it had to have a substantial national examinations record. Thus, new schools described in chapter two, established effective the mid 1980s could only have valid data available beginning 1990. Thus, the analysis for the sample schools data begins in 1991.

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this particular study, only two levels namely linear and quadratic polynomials apply.

[3] For recall of sample schools categories refer to table 4.3 in Chapter Four, pg. 94 .

respective means entered into each analysis are found in appendix C-1. Figures 5.3 presents a linear trend analysis plot for the whole group data. Apparently, despite the declining effect suggested by the fitted line, results for the test of statistical significance of trends shown in Table 5.4 reveal no statistical significance for the linear component, but a quadratic trend component is present in the overall sample data.

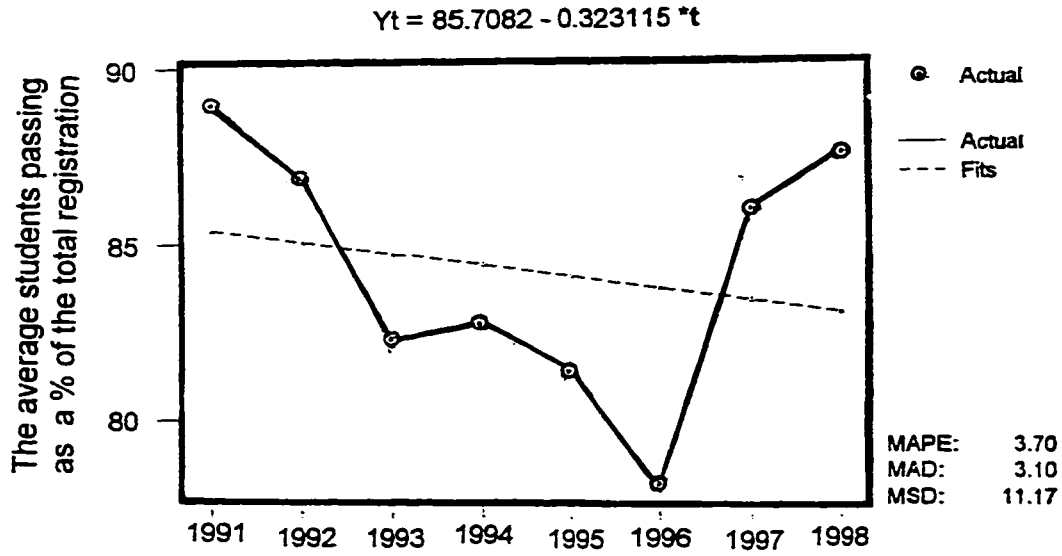


Figure 5.3: **A Trend Analysis Plot of the Average Schools' Performance by the Overall Sample: A Linear Model**

The observed F (1,31) = 2.56 for the linear trend does not exceed the critical F = 4.17 at P< 0.05. However, the quadratic trend component is again statistically significant at an observed F (1,31) = 5.92.

Table 5.4: **A Trend Analysis Summary Table for the Average Sample Schools' Performance (Overall Sample) Between 1991 – 1998**

Source	SS	df	MS	F
Intertrial Interval (A)	3647.10	(2)		
Linear Component	99.36	1	99.36	2.56
Quadratic Component	229.79	1	229.79	5.92
S/A	1124.80	29	38.79	
Total	4771.31	31		

* P < .05, Critical F = 4.17

Similar to the case of the national data, this may reflect the degree of fluctuations across the period of eight years examined. It may also reflect possible irregularities present in individual Zones or school types and locations, that might require further investigation. To pursue that investigation, the data set is again split into their respective zones and a separate trend analysis is performed for each Zone.

- **Northern Zone** (n = 4 schools)

The Northern Zone was analyzed first and a trend analysis plot is shown in Figure 5.4. The profile shows a sudden drop from about 90% to 70% from 1991 to 1993 that performance bounces back to above 90% in another two years. It again drops sharply to the lowest of 60% in 1996, but drops back to over 95% in 1998. Interestingly, while the fitted line on the linear model suggests a slight decline, the fitted line on the quadratic trend model (Appendix C.3) reveals an upward curve of an effect -0.0969+0.904.

Further, results of tests for statistical significance presented in Table 5.5 reveal that a quadratic trend component is statistically significant at a calculated F (1,31) = 7.585. However, the linear trend component is not statistically significant. The observed F (1,31) = 0.087 does not exceed the critical F = 4.17 at $P< 0.05$. Yet, the deep drop from 90% to below 80% by 1996 poses such questions as what might be happening at individual school types and/or within gender categories and whether a similar pattern would persist across the four zones.

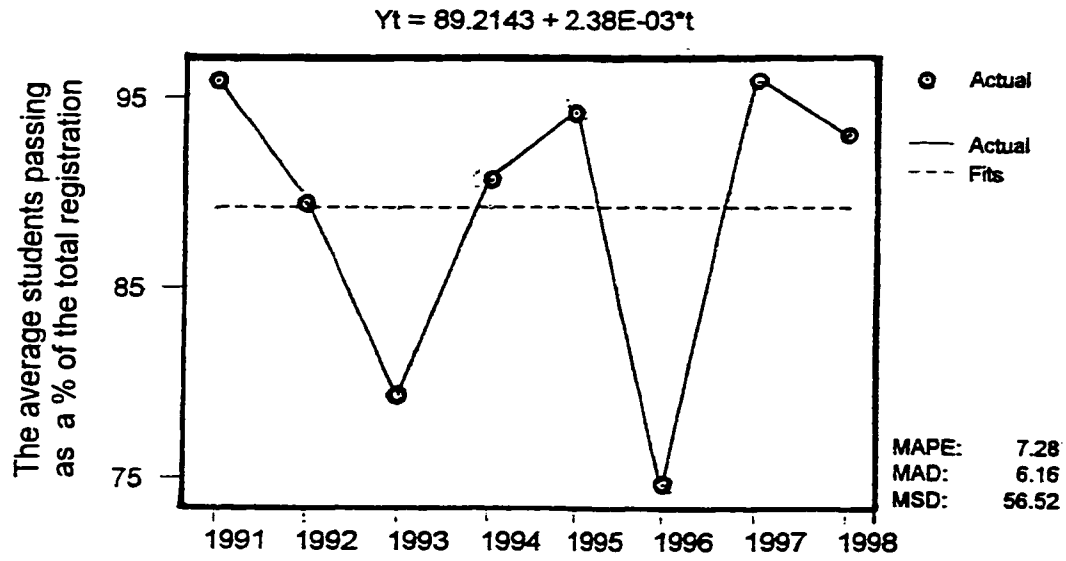


Figure 5.4: **A Trend Analysis Plot of the Average Schools' Performance in the Northern Zone between 1991 -1998: A Linear Model**

Table 5.5 **A Trend Analysis Summary Table for the Average Schools' performance at the Northern Zone between 1991 – 1998**

Source	SS	df	MS	F
Intertrial Interval (A)	1925.3	(2)		
Linear Component	2.0	1	2.00	0.087
Quadratic Component	529.31	1	529.31	7.585
S/A	2023.7	29	69.78	
Total	3949.0	31		

* $P < .05$

To test for performance by gender categories, data are again sorted and plotted for trend analysis by boys and girls. Results in Figure 5.5 and Figure 5.6 reveal a somewhat similar performance pattern for boys as for girls. However, girls' pattern drops a second time between 1997 and 1998.

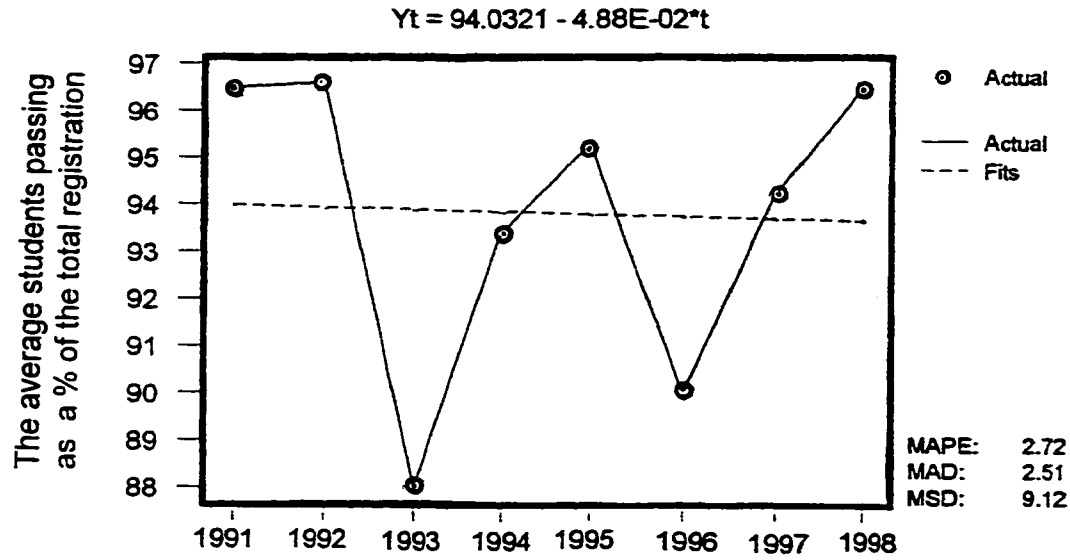


Figure 5.5: A Trend Analysis Plot of the Average Boys' Performance at the Northern Zone Between 1991-1998 : A Linear Trend Model

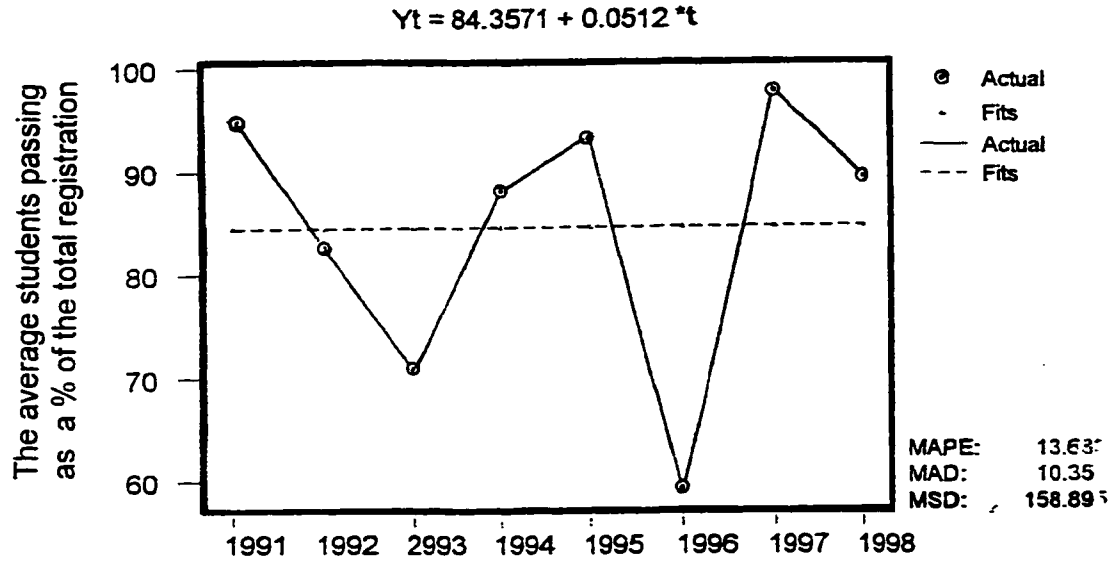


Figure 5.6 : A Trend Analysis Plot of the Average Girls' Performance at the Northern Zone Between 1991-1998 : A Linear Trend Model

The positions of the fitted line for both linear and quadratic trend components are again almost identical. Nonetheless, results for statistical significance tests presented in Table 5.6 and Table 7 for boys and girls reveal no linear trend component present for either gender groups at the critical F = 4.54 and F = 4.26, respectively. Thus, despite the presence of a quadratic trend component for girls at an observed F (1,23) = 5.65 at a

critical F = 4.54, we conclude that, apparently, the average schools' performance at the Northern Zone is not declining for the years examined. Again, the presence of a quadratic trend component mainly captures high fluctuations of the mean plots.

Table 5.6: A Trend Analysis Summary Table for the Average Boys' performance at the Northern Zone

Source	SS	df	MS	F
Intertrial Interval (A)	3313.00	(2)		
Linear Component	0.46	1	0.46	0.003
Quadratic Component	77.00	1	77.00	0.457
S/A	3536.00	21	168.38	
Total	6848.00	23		

* P < .05 , critical F = 4.26

Table 5.7: A trend Analysis Summary Table for the Average Girls' Performance at the Northern Zone

Source	SS	df	MS	F
Intertrial Interval (A)	178.80	(2)		
Linear Component	0.01	1	0.01	0.000
Quadratic Component	353.63	1	353.63	5.650
S/A	813.80	13	62.60	
Total	992.70	15		

* P < .05, critical F = 4.54

- **Eastern Zone** (n = 5 schools)

Trend analysis for the Eastern zone was performed second. On average, performance is very high, but similar to the other plots, the plot in Figure 5.7 shows the usual fluctuations from the lowest of 96% to about 98% and then back to 96% in 1998. Although the fitted line for quadratic trend (Appendix C-3) suggests presence of a quadratic trend, the statistical tests of significance summarized in Table 5.8 reveal that neither linear nor quadratic trend components are present in the data set. The observed F(1,39) = 0.042 and 0.979 for linear and quadratic trend components respectively do not exceed the critical F = 4.08 at P <0.05. We conclude that performance is constant for the

Eastern Zone sample schools. However, when a similar analysis is performed for boys and girls separately we see different patterns. While a fitted line for girls' performance in Figure 9 suggests a stable performance at an average of about 95%, but slightly lower than that of boys, the fitted line for boys presented in Figure 8 drops from a high of about 98.90% to 97 % in 1996.

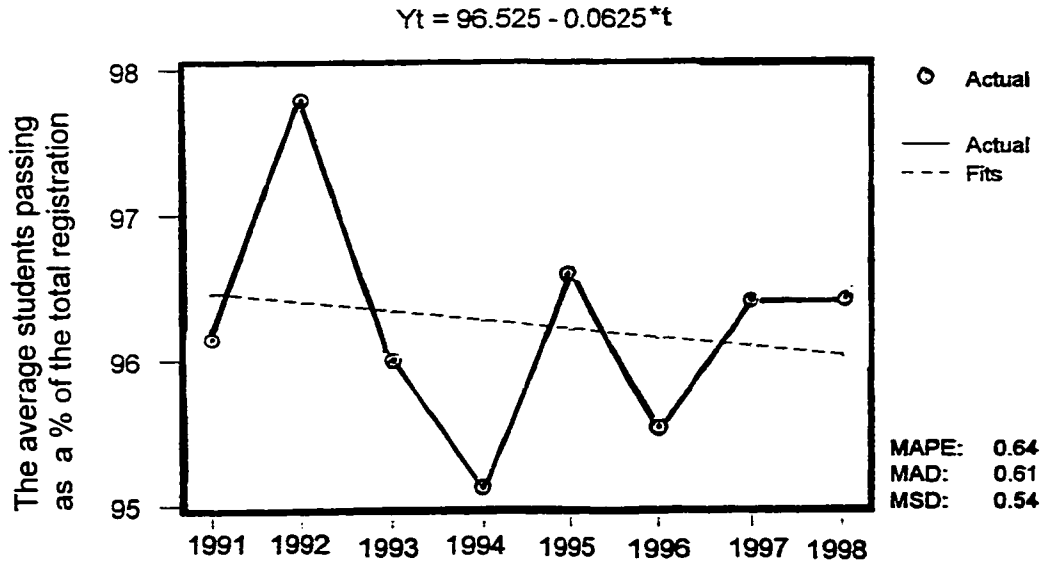


Figure 5.7: A Trend Analysis Plot of the Average Schools' Performance at the Eastern Zone : 1991 - 1998 Linear Model

Table 5.8: A Trend Analysis Summary Table for the Average Schools' Performance at the Eastern Zone

Source	SS	Df	MS	F
Intertrial Interval (A)	608.82	(2)		
Linear Component	0.14	1	0.14	0.042 *
Quadratic Component	3.25	1	3.25	0.979
S/A	122.77	37	3.32	
Total	731.59	39		

* P < .05, critical F = 4.08

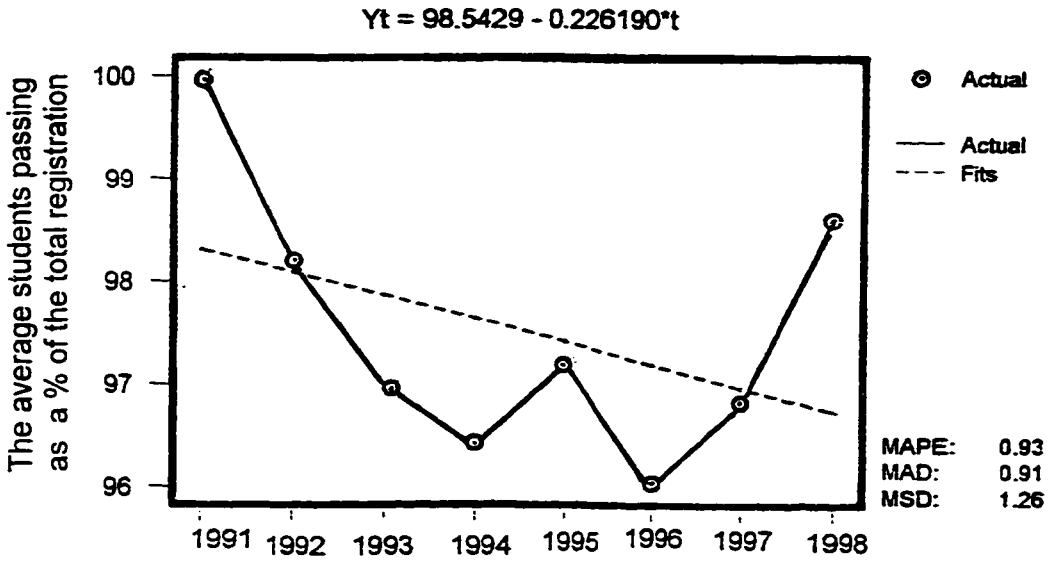


Figure 5.8 : Trend Analysis Plot for the Average Boys' Performance at the Eastern Zone : A Linear trend Model

Yet, results of the tests for statistical significance presented in Tables 5.9 and Table 5.10 reveal no statistical significance for the linear trend component present in both boys and girls respectively. We conclude that despite the fluctuations, there is no statistically significant decline in educational performance at the Eastern Zone sample, but we again note the substantial quadratic trend present in boys' performance.

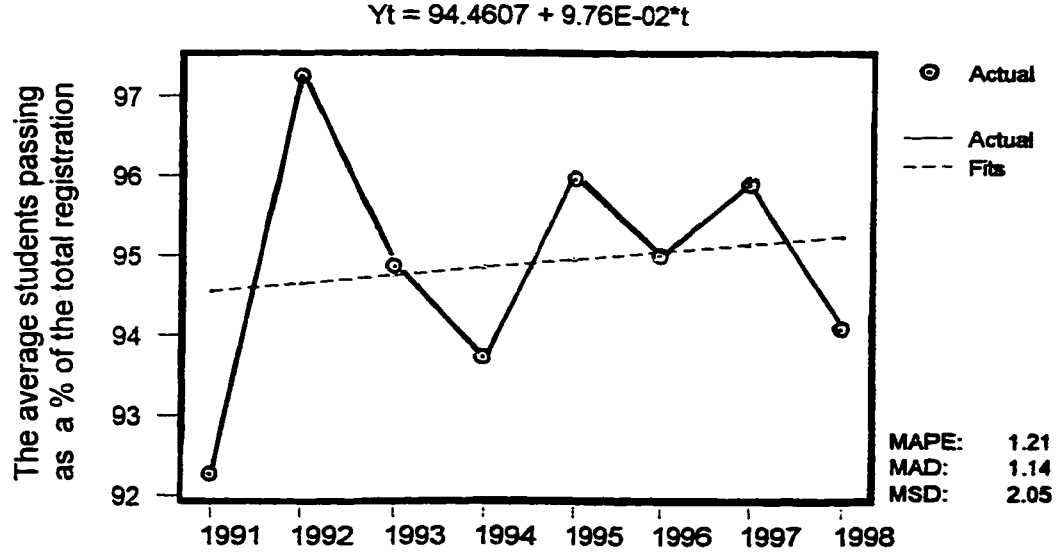


Figure 5.9 : A Trend Analysis Plot of the Average Girls' Performance at the Eastern Zone: A Linear Model

Table 5.9: A Trend Analysis Summary Table For Boys at the Eastern Zone

Source	SS	df	MS	F
Intertrial Interval (A)	656.16	(2)		
Linear Component	4.92	1	4.92	0.721
Quadratic Component	36.21	1	36.21	5.309
S/A	197.72	29	6.82	
Total		31		

* P < .05, Critical F = 4.17

Table 5.10: A Trend Analysis Summary Table For Girls at the Eastern Zone

Source	SS	df	MS	F
Intertrial Interval (A)	413.69	(2)		
Linear Component	7.10	1	7.10	1.409
Quadratic Component	3.96	1	3.96	0.786
S/A	146.05	29	5.04	
Total		31		

- P < .05, critical F = 4.17

Central Zone (n = 3 schools

The third to be analyzed were the sample school data for the Central Zone. Figure 10 indicates that after constantly dropping to the lowest of 70% in 1996, performance rises back to 84% in 1998. Thus, the elevated trend in the last two years brings the fitted line to a slight tilt of -0.557. Table 5.11 shows results for the statistical significance tests. Neither linear nor quadratic trend components are statistically significant. The observed F (1,23) = 0.140 and 3.508 for linear and quadratic components do not exceed the critical F = 4.26 at P<0.05. We conclude that the average schools' performance in the Central Zone is constant for the years examined.

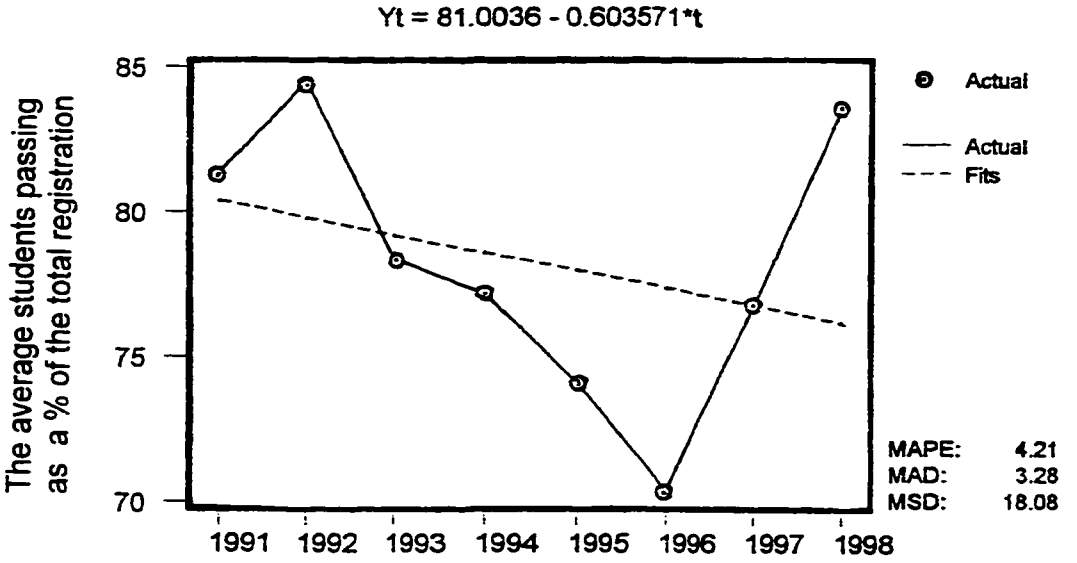


Figure 5.10: A Trend Analysis Plot of the Average Schools' Performance at the Central Zone: A Linear Model

Table 5.11: A Trend Analysis Summary Table for the Central Zone Sample Schools

Source	SS	Df	MS	F
Intertrial Interval (A)	5098.00	(2)		
Linear Component	11.25	1	11.25	0.140
Quadratic Component	280.27	1	280.27	3.508
S/A	1677.00	21	79.90	
Total	6775.90	23		

P < .05, Critical F = 4.26

When boys and girls' performance are analyzed separately, boys' pattern of performance seems to differ from that of girls. While the fitted lines in Figure 5.11 and Figure 5.12 suggest a declining trend in both cases, results for statistical significance tests presented in Tables 5.12 and 5.13 reveal a declining trend only for girls, but not for boys.

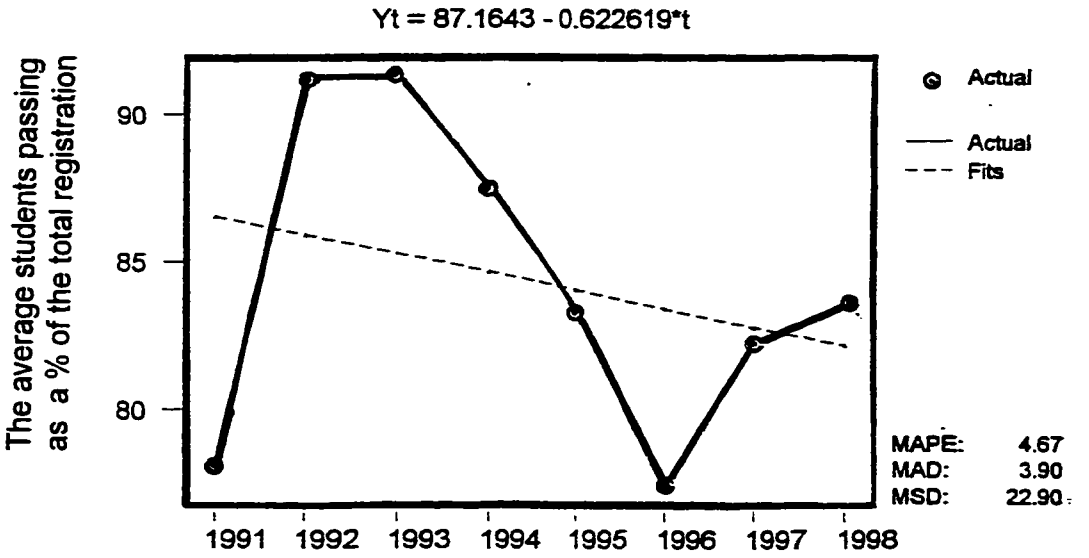


Figure 5.11: **A Trend Analysis Plot of Average Boys' Performance at the Central Zone: Linear Model**

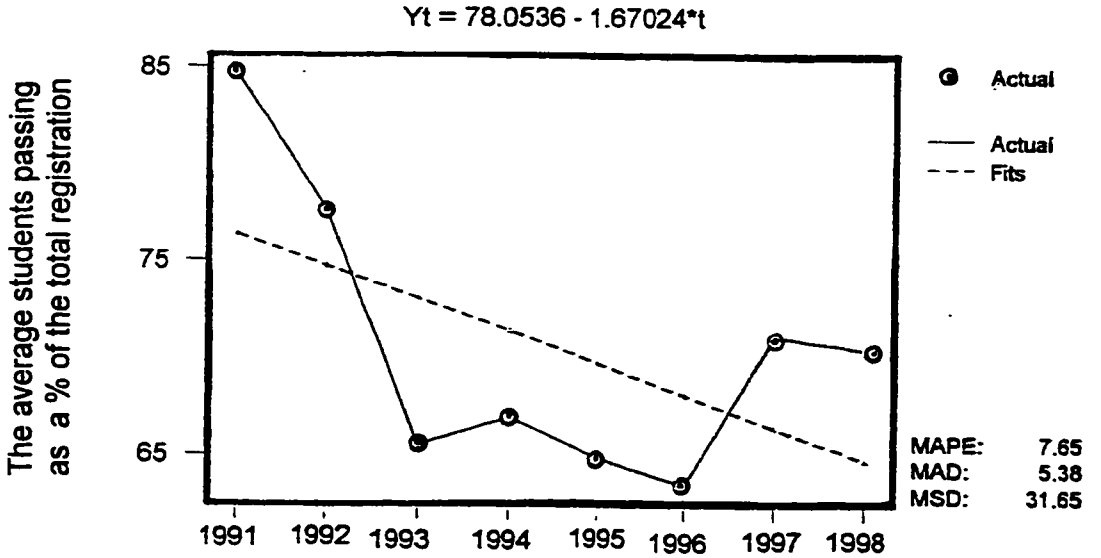


Figure 5.12: **A Trend Analysis Plot of Average Girls' Performance at the Central Zone : A Linear Model**

Table 5.11 **A trend Analysis Summary Table for the Average Boys' performance at the Central Zone**

Source	SS	Df	MS	F
Intertrial Interval (A)	6487.00	(2)		
Linear Component	40.19	1	40.19	0.221
Quadratic Component	49.29	1	49.29	0.271
S/A	3819.00	21	181.86	
Total	10306.00	23		

$P < .05$, Critical $F = 4.26$

Table 5.12: **A Trend Analysis Summary Table for Girls - Central Zone**

Source	SS	Df	MS	F
Intertrial Interval (A)	3877.62	(2)		
Linear Component	246.41	1	246.41	5.280
Quadratic Component	705.39	1	705.39	15.114
S/A	980.00	21	46.67	
Total	4857.60	23		

- $P < .05$, Critical $F = 4.26$

The observed F (1,23) = 5.280 for linear trend component and F (1,23) =15.114 for the quadratic trend components exceed the critical F = 4.26. We conclude from the findings that girls' performance is declining in the Central Zone.

- **Southern Zone** (n = 4 schools).

The Southern Zone is the most critical. Looking at its original data, the Zone performs the lowest of the four zones. It is on record that for the years 1994, 95, 97 no candidates doing Form Four examinations scored either 1st or 2nd Division results. On average, 25% of all the candidates who write national examinations have been failing every year and more than 56% of the candidates have been performing minimally (4th Division) (BEST, 1998).

Figure 5.13 presents trend analysis plots for the Southern Zone. The profile shows that performance drops steadily from the highest of 82% in 1991 to the lowest of 58% in 1996

before it begins to rise again to only 62% in 1997/8. A fitted line suggests a linear declining effect of -3.4 and tests for significance of trend in Table 14 reveal a significant decline of an observed F (1, 31) =14.325 at a critical F = 7.71 at P<0.05.

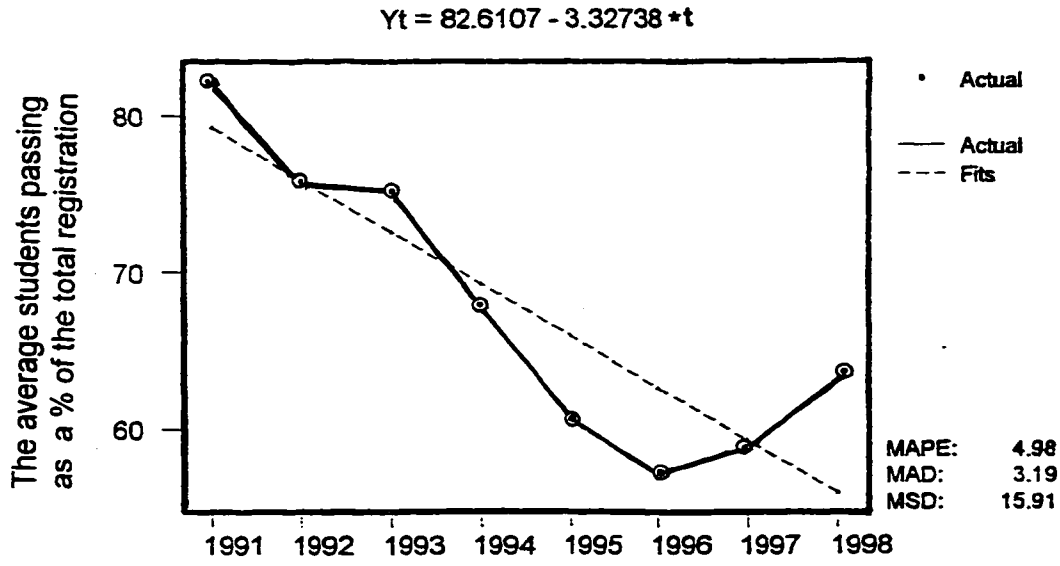


Figure 5.13: A Trend Analysis Plot of the Average Schools' Performance at the Southern Zone 1991 - 1998 : Linear Model

Table 5.14: A Trend Analysis Summary Table for the Average Schools Performance in the Southern Zone

		df	MS	F
Intertrial Interval (A)	2240.00	(2)		
Linear Component	1415.78	1	1415.78	14.325
Quadratic Component	375.50	1	Source	SS
S/A	2866.00	29	98.83	
Total	5105.00	31		

We note that, since the drop is rather continuous without the deep fluctuations common in other Zones, quadratic trend component is apparently not significant. Indeed the observed F (1,31) = 3.799 does not exceed the critical F = 4.17. However, as evidenced in Figures 5.14and 5.15. boys' and girls' performance differ when plotted separately. While the

girls' pattern resembles that of the overall zone, that of boys portrays a totally different performance pattern.

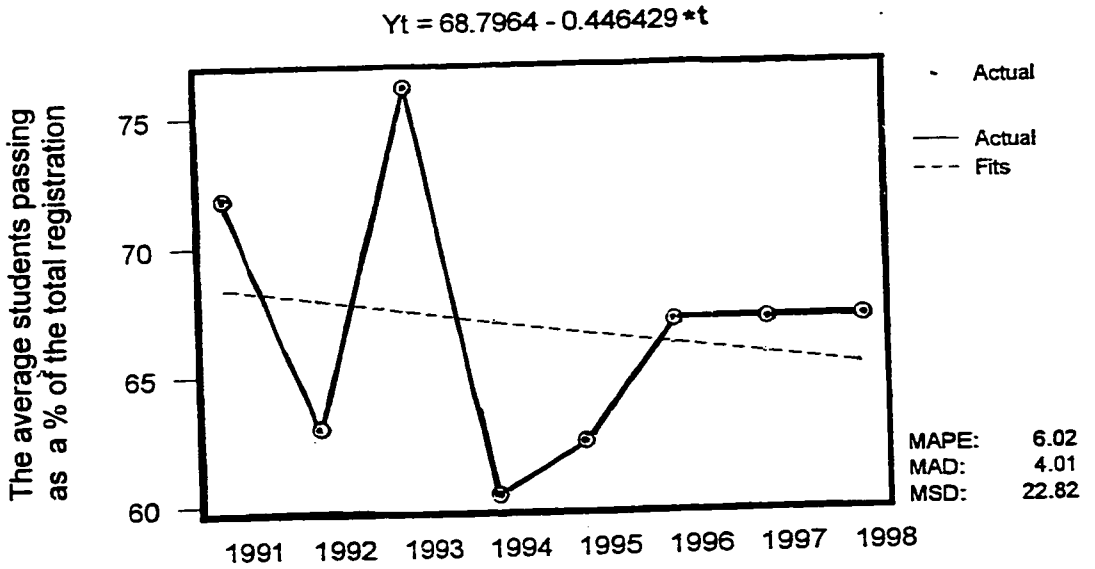


Figure 5.14: A Trend Analysis Plot of the Average Boys' Performance in the Southern Zone : Linear Model

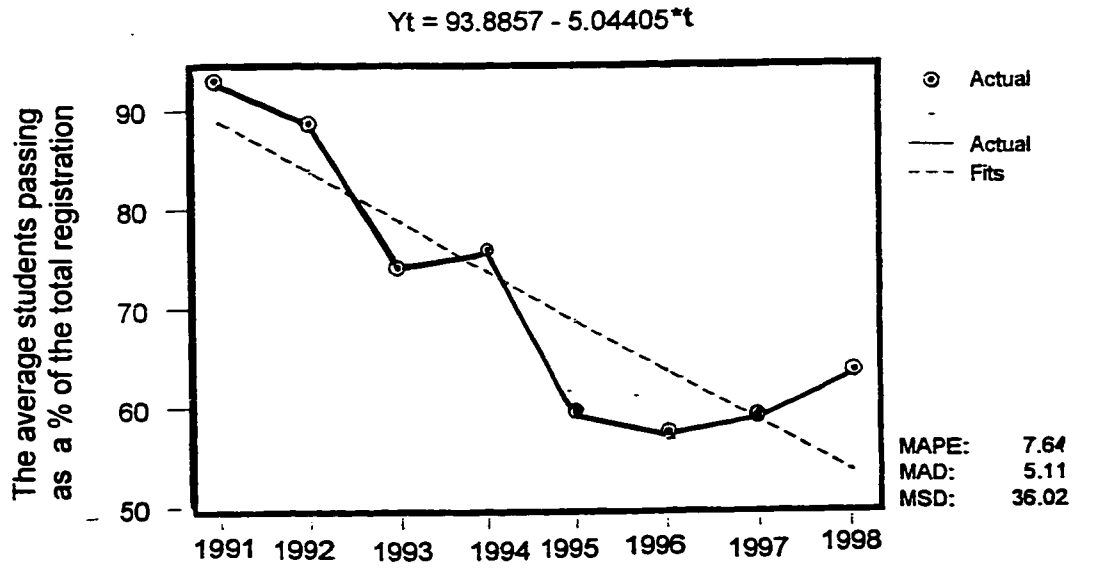


Figure 5.15: A Trend Analysis Plot of the Average Girls' Performance in the Southern Zone: Linear Model

Table 5. 15 presents results of tests for boys. Neither the observed F (1,31) = 0.143 for linear trend and F = 2.830 for quadratic trend components exceed the critical F = 4.54 at P < 0.05. However, for girls, the observed F (1,31) = 15.4 for the linear trend component exceeds critical F 4.17 at P < 0.05 and we conclude that girls' performance in the Southern Zone declined for the eight years examined. Nonetheless, similar to the case of boys, the quadratic trend component for girls is statistically non-significant. The obtained F (1,31)= 3.35 is less than the critical F = 4.17.

Table 5.15: Summary Table for Trend Analysis for Boys - Southern Zone

Source	SS	df	MS	F
Intertrial Interval (A)	1106.00	(2)		
Linear Component	12.61	1	12.61	0.143
Quadratic Component	249.85	1	249.85	2.830
S/A	1147.70	13	88.28	
Total	2863.52	15		

* P < .05, Critical F = 4.54

Table 5.16: Summary Table for Trend Analysis for Girls - Southern Zone

Source	SS	df	MS	F
Intertrial Interval (A)	824.60	(2)		
Linear Component	597.55	1	597.55	15.400
Quadratic Component	129.55	1	129.55	3.33
S/A	1125.30	29	38.80	
Total	1949.90	31		

* P < .05, Critical F = 4.17

So far, deep fluctuations have been a common feature in most Zones examined above. It is, in essence, inconceivable to assume uniform performance across the region over the years of examination. However, we should also ask questions when fluctuations exceed expectations. What might, for instance, have caused the general drop observed for most groups in 1996? That can be examined through considering events that have occurred

expectations. What might, for instance, have caused the general drop observed for most groups in 1996? That can be examined through considering events that have occurred over the time and recorded in the literature. For example, records reveal a substantial increase of new schools in recent years beginning in the late 1980's. To be exact, effective 1990, there has been an average increase of 53 schools every year (MOEC, 1999 p.7). Many of these new schools have had their first examination results in the mid 1990's. How do they perform? To answer that question, the sample school data is sorted out by "Old" and "New" schools.

For purposes of this study, new schools mean those schools that legitimately started operating either during or after the launching of 'Universal Primary Education' described in Chapter Two. Those included in this study were apparently operating during the period examined. The old schools on the other hand, are those schools that were operating before the above dates. Also for purposes of this analysis, the old and the new schools are grouped together regardless of ownership and locations.

Figure 5.16 presents a trend analysis plot for five new schools. While these schools begin low, they exhibit a rising trend immediately thereafter, perhaps, as new teachers and school administrators gain experience. The fitted line for the linear trend component suggests a fairly steady rise from a little above 70% in 1992 to about 80% in 1998. A quadratic trend component plot (Appendix C.1) also suggests a positive (upward) trend suggesting a continued increase to probably 90%. Results for statistical tests of significance in Table 17 reveal that the upward linear trend shown in figure 5.27 above is statistically significant. The observed F (1,12) 9.178 is greater than the critical F 4.75 at P

< .05, but the quadratic trend component is not significant.

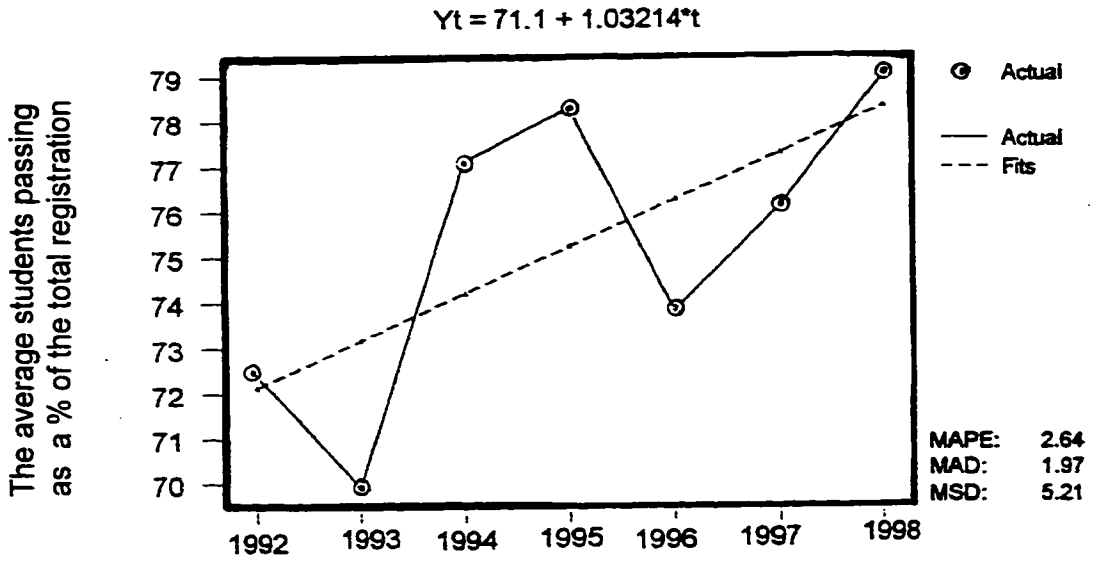


Figure 5.16: Trend Analysis Plot of the Average 'New' Schools' Performance 1992 – 1998: Linear Model

Table 5.17: A Trend Analysis Summary Table for the Average 5 New Schools' Performance Between 1991-98

Source	SS	Df	MS	F
Intertrial Interval (A)	7098.80	(2)		
Linear Component	189.21	1	189.21	4.130*+
Quadratic Component	4.76	1	4.76	0.104
S/A	1695.30	37	45.81	
Total	8794.30	39		

* P < .05, Critical F = 4.08, + A rising effect

When analyzed separately, both boy's and girl's performance patterns resemble that of the whole group and the fitted lines in both cases show a steady rise over the years. Randomly selected schools from the new schools sub-sample support the overall finding that generally new schools start relatively low, but catch-up gradually. We conclude that,

overall, there is a statistically significant positive (upward) trend in educational performance for new schools in the study sample.

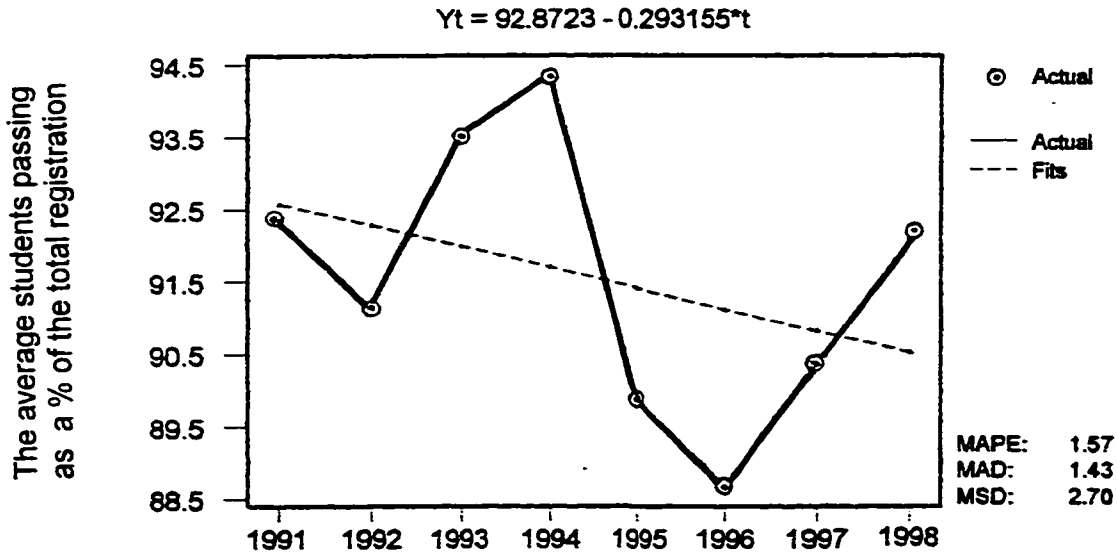


Figure 5.17: A Trend Analysis Plot of the Average 'Old' Schools' Performance Between 1991 - 1998 : Linear Model

Again we are faced with another fundamental question: Is the same pattern of performance exhibited by new schools true for the old schools?

Figure 5.17 presents the average for eleven old schools' performance in the eight years examined and the profile addresses itself to that question. Table 5.18 presents results of a statistical test for trend analysis. Although the fitted line suggested some form of a declining effect across the eight years examined, the statistical test reveals no significant decline. The observed F (1,87) = 1.324 does not exceed the critical F = 3.92.

Table 5.18: A Trend Analysis Summary Table for Average Performance by Old Schools

Source	SS	Df	MS	F
Intertrial Interval (A)	2074.60	(2)		
Linear Component	30.83	1	30.83	1.324
Quadratic Component	0.20	1	0.20	0.009
S/A	1979.60	85	23.29	
Total	4054.20	87		

* $P < .05$, Critical $F = 3.92$

We conclude that the average performance by 'old schools' is constant for the eight years examined. We observe therefore that, while new schools start low, but improve immediately after they are established, performance by the old schools has, overall, been high and constant for the period examined.

When analyzed separately by gender, boys' performance pattern resembles that of girls, but typical of earlier analyses, girls perform comparatively lower than boys. It is hoped, however, that as the number of new and old schools equalize and new schools gain further momentum, the revealed gaining trend in new schools will catch up with old schools and subsequently improve general performance nationally.

In summary, results of statistical significance test for linear trend components are provided in Table 5.19A&B. Out of 16 linear trend component analyses performed, only 4 (25%) are significantly declining. Only one overall Zone yielded an overall declining trend. There are, however, some declining trends by gender. The significant trend for the 'New' schools is positive; beginning low but rising after the schools stabilize. We conclude that the average performance by old schools is constant for the eight years examined. Thus, apparently educational performance for the 'old schools' is constant for the years examined. Overall, the analysis has revealed inconsistency which would

undoubtedly influence not only the overall study sample, but also performance at the national level. That is, since the sample is drawn from the national data, one would confidently state that the inconsistency among sample schools, by categories and zones jointly affect performance results at the national level.

TABLE 5. 19A&B:A Summary of Results for Statistical Significance Tests of Trends

A: LINEAR TRENDS

DATA	CATEGORY	n	df	Observed F	Critical F	RESULTS
National Data			25	0.013	4.26	*
Sample Data	Overall	4 Zones	31	2.560	4.17	*
	Old Schools	11 Schools.	85	1.324	3.92	*
	New Schools	5 Schools.	37	4.130	4.08	Signif. **
Northern Zone	Overall	4 Schools.	31	0.028	4.17	*
	Girls	2 Streams	15	0.000	4.54	*
	Boys	3 Streams	23	0.003	4.26	*
Eastern Zone	Overall	5 Schools	39	0.042	4.08	*
	Girls	4 Streams	31	38.657	4.17	Significant
	Boys	4 streams	31	0.721	4.17	*
Central Zone	Overall	3 Schools	23	0.140	4.26	*
	Girls	3 Streams	23	5.280	4.26	Significant
	Boys	3 Streams	23	0.221	4.26	*
Southern Zone	Overall	4 Schools	31	14.325	4.17	Significant
	Boys	4 Streams	31	0.143	4.54	*
	Girls	2 Streams	15	72.644	4.17	Significant

* Not significant ** Significantly increasing

B. QUADRATIC TRENDS

DATA	CATEGORY	n	df	Observed F	Critical F	RESULTS
National Data			27	63.630	4.26	Significant
Sample Data	Overall	4 Zones	31	5.920	4.17	Significant
	Old Schools	11 Schools.	85	0.104	3.92	*
	New Schools	5 Schools.	37	0.009	4.08	*
Northern Zone	Overall	4 Schools.	31	7.585	4.17	Significant
	Girls	2 Streams	15	5.650	4.54	Significant
	Boys	3 Streams	23	0.457	4.26	*
Eastern Zone	Overall	5 Schools	39	0.979	4.08	*
	Girls	4 Streams	31	0.786	4.17	*
	Boys	4 streams	31	5.309	4.17	Significant
Central Zone	Overall	3 Schools	23	3.508	4.26	*
	Girls	3 Streams	23	15.114	4.26	Significant
	Boys	3 Streams	23	0.271	4.26	*
Southern Zone	Overall	4 Schools	31	3.799	4.17	*
	Girls	4 Streams	31	3.33	4.17	*
	Boys	2 Streams	15	2.830	4.54	*

* Not-significant

Based on that assumption, it is appropriate to investigate the extent to which each zone contributes to the overall performance of the whole sample data. The answer may seem obvious from what is already known about performance by zones and, in particular, the Southern Zone, which is performing the least. However, given the competing forces within the four zones as well as gender variation, it might be unsafe to make that conclusion without supportive evidence. Thus, we proceed to performing a regression analysis.

Regression Analysis

Regression analysis makes several assumptions, which have to be met or the solution maybe degraded (Tabachnick & Fiedel, 1996, p. 136). Critical to the assumptions is the normality of the distribution associated with each of the independent variables entered into the regression equation. The degree of normality is indicated by measures of skewness, kurtosis, linearity, homoscedasticity and the presence of outliers.

The assumption of linearity is that there is a straight line relationship between the Independent and dependent variables, and when a distribution is normal, the values of skewness and kurtosis are zero. For kurtosis, values above zero (+) indicate a distribution that is too peaked with long tails, while values below zero (-) indicate a distribution that is too flat (too many cases in the tail). Skewness concerns the symmetry of the distribution. That is, a variable that has skewed distribution is a variable whose mean is not at the center of the distribution. Observations on each of the variables for this particular study (Zones) are few and therefore, do not meet some of the assumptions.

Table 5.20 presents a summary of descriptive statistics and normality test for skewness and kurtosis.

Table 5.20: Normality Test for Skewness and Kurtosis of the Average Schools' performance

ZONE	Schools	SKEWNESS	KURTOSIS
Northern Zone	4	0.80	-1.14
Eastern Zone	5	0.46	-0.64
Central Zone	3	0.30	-1.72
Southern Zone	4	0.17	-1.43

We note that all the variables (zones) except one, have kurtosis values exceeding -1.00. However, since this particular study is descriptive and is not making inference to a larger population, the assumptions are set aside and the analysis is performed to investigate for any useful information.

Zones and year of examination are entered into the analysis as IVs, and percentage of candidates passing each year as a DV. Regression analysis runs both regression analysis and ANOVA. Table 5.21 presents ANOVA summary showing a significant difference between all variables included in the analysis.

Table 5.21: Analysis of Variance (ANOVA) of the Average Schools' Performance by Zones

Source	df	ss	MS	F	P
Regression	5	8022.6	1604.5	20.94	0.000
Error	66	5056.9	76.6		
Total	71	13079.5			

Table 5.22 presents a regression analysis summary. The Eastern zone performance is found to be too highly correlated with other variables and, therefore, is removed from the analysis. The regression equation is Response =140-3.18 North - 2.71 East -1.40 Central -

1.37 year. R-squared = 61.3% leaving 38.7% of the variance unaccounted for.

Table 5.22: Regression Analysis Summary Table

Predictor	Coefficient	Std. Dev.	T	P
Constant	140.03	7.85	17.83	0.000
Northern Zone	-3.18	0.36	-8.71	0.000
Central Zone	-2.72	0.42	-6.51	0.000
Southern Zone	-1.40	0.49	-2.88	0.005
Year	-1.37	0.40	-3.42	0.001

$P < .05$

To determine the relationship between the variables, and, therefore, their individual contribution to explained variance, a step-wise regression analysis is performed. Step-wise regression examines the contribution made by each independent variable entered into the equation in relation with the dependent variable. Depending on the magnitude of contribution, one variable is entered into the regression analysis at a time. Table 5. 23 presents the results of step-wise regression analysis. When variable "Year" is added, the total variance rises only by 6.84 to 56.29.

Table 5. 23: Step-wise Regression Analysis

STEPS	1	2	3	4
Constant	56.86	32.49	37.95	52.60
Southern	3.52	4.44	4.44	3.80
T. Value	5.74	7.86	8.39	6.36
Central Zone		2.30	2.30	1.76
T. Value		4.88	5.21	3.55
Year			-1.37	-1.37
T.value			-3.26	-3.35
Northern Zone				-0.80
T. Value				-2.93
	11.30	9.79	9.17	8.93
R-Squared	31.99	49.45	56.29	59.15

When the Northern zone is finally added to the equation after all the other variables, it contributes only 2.86%. That brings the total of variance accounted for to 59.15% which was on the high side.

It was also appropriate to find out what information we would get if ID zones were combined and entered into the equation along with the other two predictors? Table 5.24 shows the results when locations by zones are combined into a single IV (predictor) and entered into a regression equation along with the other two independent variables including examination intervals by years, students category by gender, and the response percentage (%) of performance by frequencies. All predictors were statistically significant at $P < 05$. The regression equation is Response % = 99.2 - 1,12 Year - 8.94 Zone. R-Sq. was 62.0%.

Table 5. 24: Regression Summary Table of All Zones Combined and Year Variables

Predictor	Coefficient	StDev.	F	P
Constant	99.24	2.52	39.40	0.000
Year	- 1.13	0.39	- 2.85	0.006
Zone	- 8.94	0.90	- 9.88	0.000

* $P < 0.05$

Table 5. 25: ANOVA Summary Table For All Zones Combined and Year Variables

Source	df	ss	MS	F	P
Regression	3	8176.2	2725.4	37.00	0.000
Error	68	5009.2	73.7		
Total	71	13185.4			

Table 5.26 presents results of a step-wise regression analysis. Location by Zones was entered first and had the highest contribution 54. 57% followed by variable 'Year' which contributes only 4.53% after variable Zone is entered. Gender is entered last and it makes the least contribution of 2.91% after all the other two ID (predictors) are entered into the equation.

Table 5. 26: Step-wise Regression Analysis

STEPS	1	2	3
Constant	97.08	101.54	99.24
Zone	-8.94	-8.94	-8.94
T. Value	-9.17	-9.59	-9.88
Year		-1.12	-1.12
T. Value		-2.77	-2.85
	9.25	9.79	9.17
R-Squared	54.57	49.45	56.29

From the regression analysis we confirm that, the Southern zone contributes the most to the revealed trend components emerging in the last eight years of educational performance in the study sample data. We also note that all the variables together account for only about 60% of the variance and leave 40% unaccounted for. This 40% is what remains to be investigated in the future. That is, there are other factors beyond the identified generators of the observed decline in educational performance in Tanzania.

To summarise the findings we observe that:

- Although there is no general (linear) declining trend in the 1971-1998 national data, the presence a of quadratic trend component reveals disparities in some Regions and deep fluctuations worthy of noting nationally and there is an apparent small overall declining trend in the 1975-1978 period.

- Despite a few significant trends present in one zone and gender categories, the apparent decline in this particular sample is not significant enough to worry about. However, a high range of fluctuation common in many groups is both interesting and worth considering in future studies.

- New schools have revealed hope for future improvement in educational performance. They form the only group in the analysis that reveal a rising trend on average schools' performance over the period examined.

- While performance at the Eastern zone is highest followed by the Northern Zone, performance at the Southern zone is the lowest.

- Overall, boys' boys consistently outperform girls. While girls' performance at the Northern and Eastern zones are comparatively consistent, girls' performance elsewhere statistically declined and is in fact the source for an overall decline in the Southern zone.

We also note that a different performance pattern by one group, as demonstrated in the Southern Zone, greatly affects the others. That is, when performance pattern for boys, for instance, differs greatly from that of girls, the two produce yet a different performance pattern. One would assume the same factor to cause an effect on the overall sample and, to some extent, the national data. That explains why, even though there are significant differences at the sub-groups level, and despite the general linear trend suggested by the fitted lines on the trend analysis plots, the analysis reveals no statistically significant trends on educational performance nationally.

It is also noted from the analysis that not only are many schools in certain categories slightly declining, but also they fluctuate over a very wide range as reflected in the

presence of quadratic trends. We establish here that locations, particularly the underprivileged Regions, gender and old/new schools are among intervening variables responsible for overall performance pattern at the Zones and National levels. The case of new schools is understandable. If we subscribe to the notion that instructional resources are an important underlying variable affecting educational performance, one would expect that old schools already noted to have inherited resources over the years would, in turn, perform better than new schools that lack the heritage. Otherwise the " why " puzzle remains unanswered, and that leads us to the second hypothesis.

Resources Hypothesis

The resources hypothesis states that, "There are other conditions besides instructional resources that also negatively affect educational performance in Tanzania". The study assumes that both teachers and students encounter inhibiting conditions that affect their optimum participation in classroom activities. Thus, when classroom interaction is reduced, the learning process becomes vulnerable. Consequently, educational outcomes may be lowered significantly. Yet, these conditions are not clearly identified, neither by the concerned individuals nor by the administration. To stimulate responses, a set of 15 statement conditions were administered to the sample schools' teachers (n = 414). The teachers were to rank, on a five-point scale, the extent to which each of the statement conditions affected them individually.

Teachers' Responses and Opinions of Factors affecting Performance in Education.

Table 5.28 presents results of a descriptive analysis for all teachers' responses across the

15 statement conditions. The results show group mean, median, variance, skewness and kurtosis. Since the values from I-5 are rank-order data rating from the most to the least influencing, low means and modes reflect the perceived most influencing conditions. However, our degree of influence question is best assessed by skewness in the distribution of group responses.

Thus, positive responses are skewed towards 1 and negative responses towards 5. For instance, we note in the table that four variables are partially negative skewed. That means, they are more to the 4 th and 5th ranks meaning they are perceived as less influencing on the teachers' performance. The rest are all positive and, depending on the degree of skewness, they reflect the extent to which they are perceived to influence educational outcomes

Table 5.28: Descriptive Statistics Across Conditions Affecting Teachers Performance in Tanzania. n = 414

Causal Variables (conditions)	Mean	Median	StdDev	Variance	Skewness	Kurtosis
a. Lack of Discipline among students	2.56	2. 00	1.19	1.19	0.50	- 0.66
b. Disturbance from the community	3.97	4. 00	0.80	0.65	- 0.45	0.29
c. Inadequate desks in the classroom	2.68	3. 00	1.20	1.64	0.14	- 1.13
d. Inadequate retraining opportunities	2.69	3. 00	1.15	1.38	0.20	- 0.30
e. Inadequate instructional resources	2.54	2. 00	1.08	1.51	0.27	- 0.88
f. No lunch for students	2.84	3. 00	1.13	1.35	0.36	- 0.75
g. Overloaded curricula	2.80	3. 00	1.08	1.29	- 0.35	- 0.79
h. Poor English Language competency	2.56	2. 00	1.14	0.84	- 0.26	- 0.95
i. Lack of administrative support	3.14	3. 00	1.21	1.48	- 0.08	- 0.97
j. Inadequate books	2.95	3. 00	0.92	1.30	0.47	- 0.57
k. Teacher assigned extra curricula duties	3.45	4. 00	1.14	1.17	0.18	- 0.73
l. Low teachers salary	2.50	2. 00	1.15	1.27	0.36	- 0.72
m. Irrelevant curricula	2.79	3. 00	1.23	1.17	0.22	- 0.81
n. Students "game playing" attitude	2.86	3. 00	1.18	1.31	0.16	- 0.84
o. High Student /Teacher Ratio	2.95	3. 00	1.28	1.27	0.30	- 0.75

We also observe from the table that, the overall sample is least affected by community interruptions, poor support from the administration and teachers being assigned extra duties. However, they are affected by a lack of discipline among students, shortage of

instructional resources and students' low English language proficiency. Overall, they are also affected by low teachers' pay. Figures 5.18, 5.19, 5.20, and Figure 5.21 show examples of extreme distributions for some selected variables.

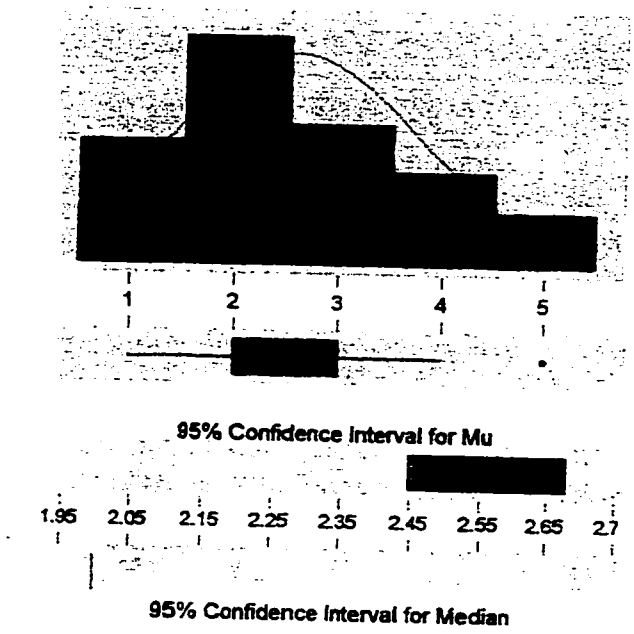


Figure 5.18:
Distribution of Responses on Poor discipline among students

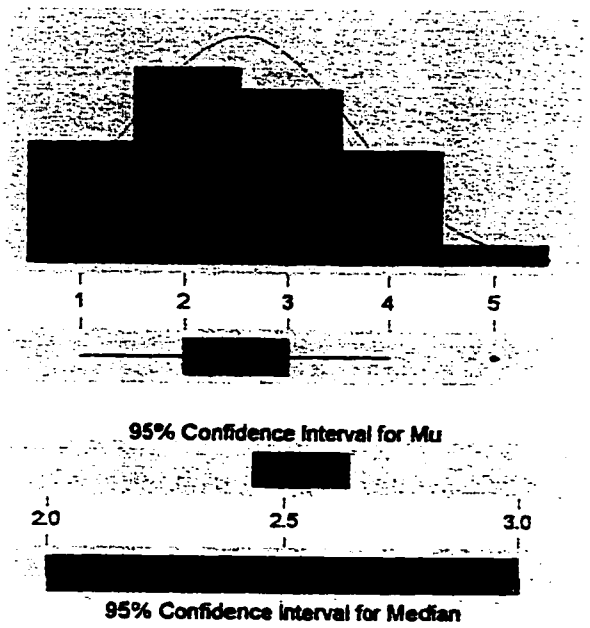


Figure 5.19:
Distribution of Responses on Inadequate Instructional Resources

Many sample teachers in Figure 5.18 are disturbed by students' discipline. The distribution depicted in Figure 5.19 suggests a high kurtosis (0.9) meaning a broad distribution, but positively skewed (0.3). Figures 5.20 and 5.21 are extreme cases of all sample teachers perceiving disturbance from the surrounding community and disturbance from the surrounding community as non-issues. As noted, however, these descriptive statistics do not give us some important information such as the degree of influence and volume of responses by teachers' categories. To determine that, a cross-tabulation is performed for all the 15 statement conditions to determine both the number of teachers responding to each statement condition or variable.

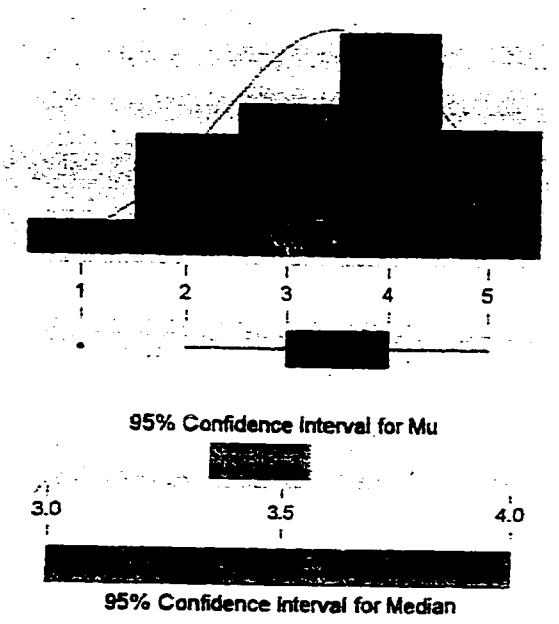


Figure 5.20:
Distribution of Responses on Assignment of Extra-curricula duties

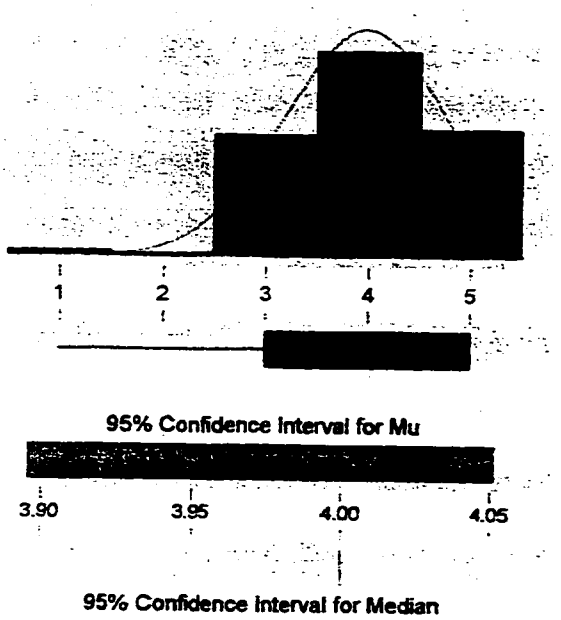


Figure 5.21:
Distribution of Responses on Disturbance from communities

Table 5.29 shows the Tabulation contingency table of teachers responses for one variable by zones. (A full list of tabulations tables for all variables and by different teachers categories is to be found in Appendix C-4). The magnitude of responses to a particular variable in this case having a varying number of respondents, the Row Percentage gives a better estimation of counts per cell proportionate to the total sample = 100%.

The table reveals a general skewing of the whole group to the high side between 1-3 with fewer people in cells for ranks 4 and 5. The impact of inadequate instructional resources, therefore, seems to be perceived as a problem. However, the sum of ranks would be a better estimation of any variable perceived to be the most influencing condition. With that information now available, the overall sample rank order was then calculated .

Table 5.29: An Example of Tabulation Contingency Table on the Variable "Inadequate instructional resources". n = 414 Teachers

Rank levels	1	2	3	4	5	ALL
ZONES						
Eastern Zone	28	55	42	30	4	159 *
	17.6	34.6	26.4	18.9	2.5	100
	35.0	42.0	36.2	40.0	33.3	38.4
Northern Zone	18	29	33	15	3	98 *
	18.4	30.0	33.7	15.3	3.6	100
	22.5	22.2	28.5	20.0	25.0	23.7
Central Zone	22	28	24	19	4	97 *
	22.7	28.9	24.7	19.6	4.2	100.0
	27.5	21.4	20.7	25.3	33.3	14.5
Southern Zone	12	19	17	11	1	60 *
	20.0	31.7	28.3	18.3	1.7	100.0
	15.0	14.5	14.7	14.7	8.3	14.5
ALL a	80	131	116	75	12	414 **
b	19.3	31.6	28.0	18.1	3.0	100.0
c	100.0	100.0	100.0	100.0	100.0	100.0

* = n (total number of teachers in respective Zones
Cells Content: **a** = Frequency Count; **b** = % of row; **c** = % of column-Total 100% **n** =414

- **Sum of Ranks**

Table 5.30 shows the sum of ranks for the 15 statements calculated from the tabulation contingencies. Inadequate retraining opportunities for teachers is ranked highest followed by shortage of instructional resources in schools. Huge classes are a problem and thus, teacher/student ratio has been ranked third highest variable influencing performance. Many schools are day schools and do not provide lunch to students. With hungry students, afternoon lessons are less effective. Thus, teachers have ranked lack of proper lunch for students, fourth highest influencing variable. School curriculum is seen not only as irrelevant to the students' future life realities, but also overloaded with sometimes

undesired subject combinations.[4]

Table 5.30: Sum of Ranks of Teachers' Perceptions of Conditions Affecting their students' Performance both Overall and by Zones

Statement Conditions affecting teachers' Performance	ZONES				Overall
Rank order	East	North	Central	South	Ranked
1. Inadequate retraining opportunities	260	280	238	218	996
2. Inadequate instructional resources	257	255	280	275	1067
3. High Student /Teacher Ratio	251	297	264	256	1068
4. No lunch for students	285	283	367	269	1104
5. Irrelevant curricula	283	278	290	280	1131
6. Overloaded curricula	272	288	302	287	1149
7. Inadequate text books	290	296	293	285	1164
8. Inadequate administrative support	298	302	289	278	1167
9. Teacher assigned extra curricula duties	319	359	274	274	1226
10. Inadequate desks in the classroom	276	256	346	349	1227
11. Lack of Discipline among students	267	205	398	397	1267
12. Low pay for teachers	280	267	351	370	1268
13. Students "Game Playing" attitude	382	300	309	290	1281
14. Poor English Language competency	268	398	324	298	1288
15. interruptions from the community	401	387	256	248	1292

The number of compulsory subjects that students have to take at a particular education level or cycle assesses curriculum overload. At the Ordinary Level from Form I to Form IV, students take up to 11 (normally 9) compulsory subjects. This excludes extra-curricular activities such as self-reliance and socio-cultural activities, subject associations, and recreation. Such excessive number of compulsory courses may reduce the level of concentration and therefore, reduce performance excellence in education. Curricula relevance and over-load have been ranked fifth and sixth highest in their ranking order respectively.

There is a global phenomenon emerging, namely "Game-Playing" by students trying to push for more marks, better grades for very little or no homework. Thus, while quoting

[4] For details of subject combinations refer to Chapter Two.

statements about democratic and human rights, students seek to refrain from homework by which they could gain further practice and experience of what is usually rushed-over during the limited class time. This runs contrary to teachers' determination to maximize efficiency in educational outcomes. Consequently, it is now becoming a problem negatively influencing performance. Although the overall sample teachers in this study rank students game-playing attitude among the lowest both the Southern and Central Zones rank the same variable highest. It is worth of noting the range difference between variables. For example, while there are deeper drops from such variables as 1 to 2 (996 to 1067), 3 to 4, 4 to 5 and 10 to 11, there are also variables ranked very close together such as numbers 7,8,9,10. This may, to some extent, suggest variation both among and within Zones.

To determine ranking order of the variables by zones, the sum of ranks shown in respective columns on table 5.26 above, are sorted in ascending order from most to least affecting variables by zones and entered in Figure 5.22. Interestingly, the sub-group ranks for the Northern and Eastern zones are identical. Causal explanations of that effect may be purely coincidental, especially since the sum of ranks per each variable are different. However, to the researcher's knowledge, duration and impact of exposure to formal education for the two Zones may be somewhat similar.

NORTHERN ZONE			EASTERN ZONE		
Factors Affecting Teachers	Sum	Rank	Factors Affecting Teachers	Sum	Rank
High Teacher/Student Ratio	205	1	High Teacher/Student Ratio	251	1
Inadequate instructional resources	255	2	Inadequate instructional resources	257	2
Inadequate re-training opportunities	256	3	Inadequate re-training opportunities	260	3
Lack of discipline among students	267	4	Lack of discipline among students	267	4
Poor English language competency	278	5	Poor English language competency	268	5
Overloaded curricula	280	6	Overloaded curricula	272	6
Inadequate furniture in classrooms	283	7	Inadequate furniture in classrooms	276	7
Low pay for teachers	288	8	Low pay for teachers	280	8
Irrelevant curricula	296	9	Irrelevant curricula	283	9
No lunch for students	297	10	No lunch for students	285	10
Inadequate textbooks	300	11	Inadequate textbooks	290	11
Poor support from administration	302	12	Poor support from administration	298	12
Teachers assigned other duties	359	13	Teachers assigned other duties	319	13
Students' "Game-Playing" attitude	387	14	Students' "Game-Playing" attitude	382	14
Interruptions from communities	398	15	Interruptions from communities	401	15

CENTRAL ZONE			SOUTHERN ZONE		
Factors Affecting Teachers	Sum	Rank	Factors Affecting Teachers	Sum	Rank
Students' "Game-Playing" attitude	238	1	Students' "Game-Playing" attitude	218	1
Inadequate instructional resources	256	2	Inadequate instructional resources	248	2
Inadequate retraining opportunities	264	3	Low pay for teachers	256	3
Lack of discipline among students	267	4	Poor English language competency	269	4
No lunch for students	274	5	No lunch for students	274	5
Inadequate desks in classrooms	280	6	Inadequate retraining opportunities	275	6
Low pay for teachers	269	7	Overloaded curricula	278	7
Overloaded curricula	290	8	Inadequate text books	280	8
Irrelevant curricula	293	9	Inadequate desks in classrooms	285	9
Inadequate text books	302	10	lack of discipline among students	287	10
Poor English language competency	309	11	High teacher/Student ratio	290	11
Inadequate administrative support	324	12	Irrelevant curricula	298	12
High teacher/Student ratio	346	13	Inadequate administrative support	349	13
Teachers assigned other duties	351	14	Teachers assigned other duties	370	14
Interruptions from communities	398	15	Interruptions from communities	397	15

Figure 5.22: Order and Sum of Ranking of factors perceived by sample teachers as negatively affecting students' performance

According to interviews with education officers, parents' and their children's perception of education in these two Zones differ from those of the other two Zones. For example, it may not be surprising that Northern and Eastern zones rank Teacher/Student ratio the highest and most influencing variable to educational performance because by national records, Kilimanjaro Region ranks the highest in school enrolment for both primary and secondary education nationally. (MOEC, 1999).

In addition, according to interviews at the regional headquarters, Kilimanjaro Region

maintains a high standing of parents' recognition of the importance of education for their children. This is further confirmed by the fact that the Region has the most private secondary schools nationally.

Likewise, Dar es salaam, an urban community composed of mixed sub-cultures that bring together a diverse parents' perceptions and attitudes in favour of children's education brings match with Kilimanjaro in that aspect. Some of these factors may in turn, have influenced teachers responses and classes in both locations are mostly crowded as evidenced by the sum of ranks.

Inadequate retraining opportunities for teachers, which was ranked 2nd by the overall sample, is ranked 3rd by these two tying zones. However, the two zones rank the lack of proper meals for students 10th, in their rank order, but the same condition was ranked 4th by the overall sample. Students English Language proficiency which was ranked 14th by the overall sample, is ranked 5th by the Northern and Eastern Zones. This again reflects the communities literacy level and recognition of the importance of English language for educational advancement.

The Eastern and Northern zones match with the overall sample in their similar rank-order of curricula overload. On each case, the variable is ranked 6 highest. However, the two matching zones elevate inadequate desks, tables and chairs ranked 10th by the overall sample to 7th rank.

Teachers at the Central Zone rank student's 'game-playing' attitude variable the highest followed by shortage of instructional resources. Lack of retraining opportunities for

teachers and poor discipline among students are ranked 3rd and 4th respectively. To the teachers at the Central Zone, lack of proper meals for students come 5th and all the other variables such as inadequate desks, low pay for teachers, overloaded, and irrelevant curricula are perceived as having less influence on their classroom performance.

Ranks by the southern Zone match with the Central Zone in their first and last two variables. Both Zones rank students' game-playing attitude and shortage of instructional resources as most influencing and teachers being assigned extra curricula duties and interruptions from the community as variables least influencing their classroom performance. However, while the Southern zone recognizes the importance of English language proficiency and rank it as lacking 4th, the Central Zone ranks the same variable as low as the 11th of the 15 variables. The two Zones also differ on the question of low pay for teachers.

The Southern zone seems more seriously affected by low pay compared with teachers of the Central Zone. While The Southern Zone ranks low pay for teachers 3rd highest, the Central Zone ranks the same variable 7th. In fact, the Southern Zone indicates to be most affected by low teachers' pay than any of the other three groups as well as by the overall sample.

Comparisons by Arts/Science teachers shown in Table 5.31 yield only one major observation that "Science Subjects" teachers are more affected by inadequate instructional resources in schools than "Arts Subjects" teachers, but neutral on poor language proficiency problem.

Table 5.31: Comparison of Responses Ranking the 15 Causal Conditions by Arts and Science Teachers.

Causal Variables (conditions)	Art Teachers			Science Teachers		
	Mean	Variance	Skew-ness	Mean	Variance	Skew-ness
a. Lack of Discipline among students	2.54	1.44	0.44	2.59	1.39	0.59
b. Disturbance from the community	4.00	0.65	-0.41	4.92	0.63	-0.54
c. Inadequate desks in the classroom	2.67	1.31	0.33	2.68	1.22	0.24
d. Inadequate retraining opportunities	2.58	1.22	0.22	2.86	1.29	-0.64
e. Inadequate instructional resources	3.01	1.62	-0.09	2.42	1.05	0.42
f. No lunch for students	2.89	1.26	0.30	2.78	1.28	0.45
g. Overloaded curricula	2.84	1.10	0.20	2.65	1.27	0.18
h. Poor English Language competency	2.54	1.57	0.45	2.77	1.46	0.22
i. Lack of administrative support	3.20	1.45	-0.12	3.04	1.50	-0.22
j. Inadequate books	2.98	0.84	-0.40	2..89	0.85	-0.33
k. Teacher assigned extra curricula duties	3.45	1.26	-0.24	3.40	1.35	-0.50
l. Low pay for teachers	2.78	1.34	0.15	2.70	1.48	0.38
m. Irrelevant curricula	2.85	1.31	0.31	2.85	1.57	0.30
n. Students' "Game-Playing" attitude	2.84	1.42	0.26	2.87	1.58	0.25
o. High Student /Teacher Ratio	3.05	1.59	0.05	2.86	1.60	0.13

With inadequate equipment and chemicals in science laboratories in schools, coupled with limited use of environmental science noted by Osaki "1991", the teaching of science subjects would appear to be both difficult and unsatisfactory. As already noted, performance in science subjects, is by far lower than performance in the arts subjects. The comparison also reveals differences where each of the two science and the arts subjects teachers are affected by such conditions as lack of lunch for students and low English language proficiency. While art teachers remain neutral (skewness 0.29) on lack of lunch for students, the science teachers are more concerned and more positively skewed (0.46), but taking an opposite position on the English language proficiency problem. Science teachers are rather neutral (skewness 0.22) while the arts teachers feel that poor language proficiency is a drawback in educational outcome. Otherwise responses of the two groups in the remaining of the 15 causal variables are, to some extent, similar.

Table 5.32 shows another comparison by Urban and Rural schools teachers. Two major differences in responses are revealed on poor administrative support in schools and teacher/Students ratio. While teachers are more affected by poor administrative support in the urban schools, the rural schools teachers seem to acknowledge cooperation and support from the administration (negative skewness of -0.30).

Table 5.32: Comparison of Responses to the 15 Causal Conditions by Urban and Rural Teachers.

Causal Variables (conditions)	Rural Schools Teachers			Urban Teachers		
	Means	Variance	Skew-ness	Means	Variance	Skew-ness
a. Lack of Discipline among students	2.03	0.82	0.57	2.03	0.79	0.59
b. Disturbance from the community	3.89	0.58	-0.28	4.01	0.68	-0.56
c. Inadequate desks in the classroom	2.60	1.10	0.28	2.72	1.36	0.29
d. Inadequate retraining opportunities	2.94	1.32	0.24	2.54	1.26	0.24
e. Inadequate instructional resources	2.54	1.28	0.27	2.53	1.12	0.18
f. No lunch for students	2.89	1.08	0.27	2.76	1.37	0.43
g. Overloaded curricula	2.81	1.15	0.29	2.78	1.19	1.16
h. Poor English Language competency	3.09	1.44	0.21	2.71	1.21	0.41
i. Lack of administrative support	3.29	1.47	-0.17	3.06	1.46	0.04
j. Inadequate books	2.89	0.86	-0.30	2.87	0.82	-0.11
k. Teacher assigned extra curricula duties	3.48	1.42	-0.45	3.42	1.22	-0.32
l. Low teachers salary	2.76	1.31	0.39	2.75	1.45	0.23
m. Irrelevant curricula	3.08	1.52	0.26	2.72	1.33	0.45
n. Students' "Game-Playing" attitude	2.48	1.16	0.41	3.06	1.54	0.12
o. High Student /Teacher Ratio	3.60	1.29	-0.42	2.63	1.44	0.42

Likewise, Figures 5. 23 and Figure 5.24 show the distribution of responses to the question of Teacher/Student ratio. Rural schools teachers rank teacher:students' ratio low, but urban schools teachers rank the same problem almost symmetrically opposite with a positive skewness of 0.46 and 0.42 respectively.

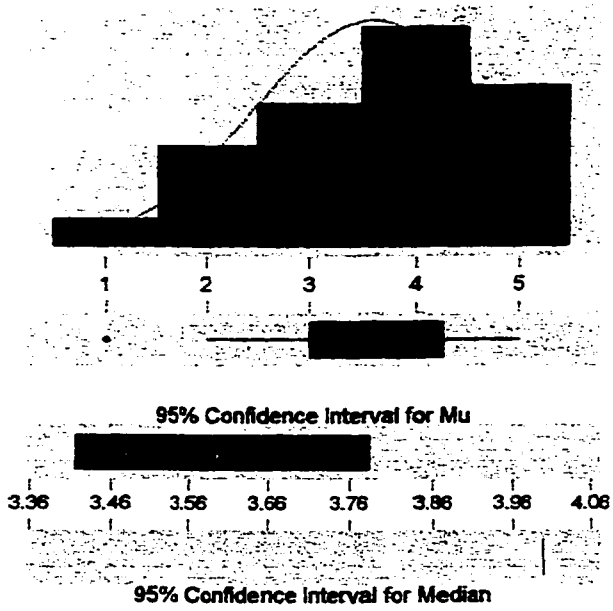
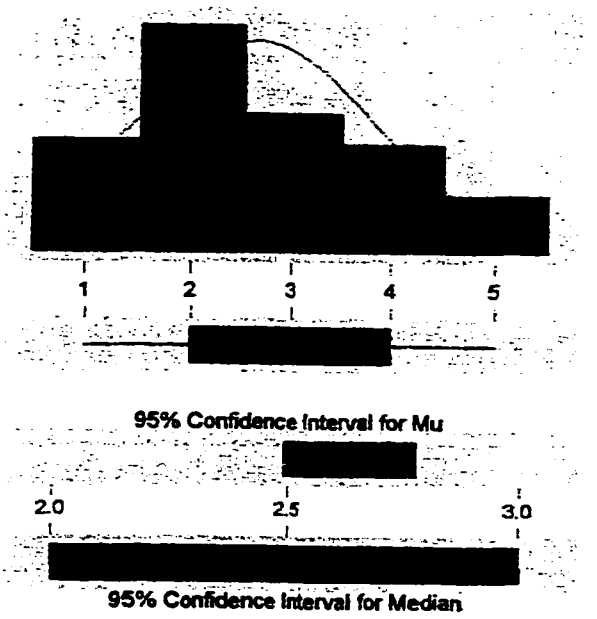


Figure 5.23: Distribution of Responses on eacher/Student ratio by Rural School Teacher



Figur 5.24: Distribution of Responses the Teacher/Student Ratio by Urban Schools Teachers

From the above ranking, we observe the following;

- Ranking of the causal statement conditions by teachers across the four Zones support the hypothesis that there are other important variables beyond instructional resources that either singly or jointly influence classroom performances. Overall, inadequate instructional resources is ranked second after inadequate retraining opportunities for teachers which is ranked highest.

- While results indicate some similarities across Zones, there are differences in the way teachers perceive the problem of educational performance in relation to the perceived causal factors. Differences in the ranking of causal variables as demonstrated by comparison of Eastern/Northern and Central/Southern Zones support that fact.

  For example, responses from the Northern and Central zones regarding teacher/students ratio reflect the actual situation experienced by teachers in the two Zones which do not seem to apply in the other two Zones. The situation is socio-

economic in that, Dar es salaam and Morogoro schools, from which the Eastern zone sample was drawn, are dominated by comparatively wealthier urban communities of parents who differ from those of the Central and Southern Zones. For instance, in the Southern Zone (Mtwara Region), parents are predominantly subsistence farmers producing what they eat, but little, if any, to sell for a reliable income.

As such, parents, constrained by poor economic situations, cannot freely afford to pay for their children's education. In contrast, parents in Kilimanjaro and other "cash-crop" regions grow, in addition to their food crops, cash crops such as coffee, tea, sisal or cotton which they sell and generate a somewhat more reliable income. Thus, they are more able to pay for such services as health and education for their children;

- The first five variables ranked most critical affecting many teachers in this study sample include: lack of retraining opportunities for teachers; inadequate instructional resources; high teacher/Student ratio; hungry students; and curriculum relevance;

- We particularly take note of teachers' self-reported devotion and dedication to their work. Despite their low pay, they rank pay influence as low as 12th in the order of influence. Presumably, they are more concerned with how their students perform rather than how much they earn for their service. It certainly has a limit, but it is a spirit and an attitude of mind true of many teachers;

- Although English language competency is ranked low by the overall sample, recognition of its importance is demonstrated by Northern and Eastern Zones which rank the variable in 5th position

Short List

One of the objectives of this study was to short-list the causal variables to form a list of priorities which, if addressed, could help to improve teachers' performance in the classroom processes. Examining the sum of ranks of the overall sample, we note a relatively close range between variables which suggest a high correlation and somewhat equal degree of importance and impact.

However, we also note diverse priorities at the Zones levels sometimes independent of each other. Thus, identifying a short list from the overall ranking may omit critical priorities in some Zones. The study therefore, adopts a "quota system" approach to accommodate these differences and draw the first five causal variables of each Zone as well as the overall sample rank orders. No substitute is made where variables overlap. Table 5.33 shows the distribution of identified variables making a total of nine critical variables that affect teachers' performance at the sample schools.

Table 5.33: Factors Perceived by Sample Teachers as Most Influential To Their Students Performance

Causal Variable	ZONES*				
	Overall	Eastern	Northern	Central	Southern
i. Lack of retraining opportunities	1	3	3	3	-
ii. Inadequate instructional resources	2	2	2	2	2
iii. Teacher/Students ratio	3	1	1	-	-
iv. No lunch for students	4	-	-	5	5
v. Irrelevant curricula	5	-	-	-	-
vi. Poor discipline among students	-	4	4	4	-
vii. Low English language competency	-	5	5	-	4
viii Students' "Game-Playing" attitude	-	-	-	1	1
ix. Low pay for teachers.	-	-	-	-	3

* Numbers indicate rank order from I - 5 by respective Zones.
Ranks lower than 5 are designated "-"

As stated, this only short lists critical variables, but without ignoring the impact caused by those left out of the short list. Neither can this be claimed as an exhaustive list. From the table we conclude that lack of retraining for teachers, inadequate instructional resources, large class sizes, hunger, curricula relevance, students' discipline, English language competency, students politics and teachers low pay are critical to teachers' effectiveness in the classroom processes. How do these relate with the qualitative data collected at the teachers' discussion groups?

- **Teachers' Group Discussions**

The teachers discussions recognized some efforts taken by the government to address pressing constraints of the teaching profession. However, they hold inconclusive positions on the question of quality of education and whether or not education was declining in Tanzania. They argue that, despite the economic circumstances affecting national inputs into education, assessing performance by examinations outcome alone is neither appropriate nor an adequate measure for "quality in education". Quality in education, they contend, entails the extent by which the educational objectives are accomplished at any one level of the educational system. A full list of the quotes from teachers discussions can be viewed in Appendix C.3. The numbers against some quotes indicate the frequency of occurrence across the 16 sample schools. Thus, quotes without numbers against them were mentioned only once.

The quotes are then grouped into six categories describing management, resources, evaluation, curricula, practices and socio-economic problems and their total frequency of

occurrence shown in Table 5.34. We note in the table some similarities in the statement clusters that combine to form factors influencing teachers' performance discussed above. However, in this case statements regarding evaluation problems are the most recurring followed by management problems. Otherwise, teachers' discussions express similar problems that inhibit optimizing their effectiveness in the classroom.

Table 5.34: Teachers Quotes clustered by description

Ranked Statement clusters.	Frequency
1. Evaluation problems,	44
2. Administrative/management problems,	21
3. Resources problems,	16
4. Practices and procedural problems,	11
5. Socio-economic problems.	10
6. Curricula problems,	9

Students' Responses and Opinions of Factors affecting Their Performance in Education.

The student checklist required students to check-off 10 out of 25 statement conditions that most affected performance in their favourite subjects. Statements with most checks reflect a common problem to that particular category of students. Table 5.35 shows responses tallied and grouped by categories of male/female and the arts/science students as well as day/boarding school students. Ten conditions most affecting students' performance in their favourite subjects are inability to perform experiments in science laboratories, impact of peers outside the school, overcrowded classrooms, a lack of counseling services and inadequate textbooks. Others include inadequate desks, loss of interest, low English language competency, poor support from parents and lack of role models. Shortage of instructional resources including science chemicals and specimens rendering inability to perform experiments in science laboratories has the highest

frequency of 73.5% of all the sample students. One may wonder why arts students also complain of laboratory facilities, but that is explained by to register for Biology at the secondary education level.

Table 5.35: Ranked Factors perceived by students as affecting their performance in their Favourite subjects

Rank Factor description	Arts		Science		Day		Boarding		Total*	
	M	F	M	F	M	F	M	F	No	%
1. Cannot perform experiments in labs	60	69	122	102	117	98	54	84	353	73.5
2. Affected by peers outside school	112	83	55	92	158	113	29	62	342	71.2
3. Overcrowded classrooms	121	73	64	84	94	80	91	77	342	71.2
4. A lack of counseling services	78	103	75	81	121	142	32	42	337	70.2
5. Inadequate textbooks	114	93	33	84	89	118	56	59	324	67.5
6. Inadequate desks and chairs	101	83	44	92	89	92	36	83	320	66.6
7. Losing interest as I get older	96	71	67	84	96	86	67	69	318	66.2
8. Low English language competency	107	72	47	68	94	92	60	48	294	61.3
9. Poor support from parents	24	112	88	39	86	78	26	73	263	54.8
10. Lack of role models	31	78	97	37	61	93	67	22	243	50.6
11. Too many subjects to study	38	41	57	94	64	90	92	43	230	47.9
12. No mid-day meals	116	21	17	54	126	75	11	00	208	43.3
13. Favourite subject teacher transferred	17	21	72	83	46	73	43	31	193	40.2
14. Classes scheduled for late hours	49	32	23	84	66	107	6	3	188	39.2
15. Disturbed by other students	38	69	46	24	57	72	27	21	177	36.9
16. Concepts have become more complex	25	34	46	55	58	73	13	16	160	33.3
17. No career prospects	43	52	29	35	47	67	25	20	159	33.1
18. Discouraged by subject teachers	45	29	43	36	73	59	15	6	153	31.9
19. Less supportive home environment	37	49	41	26	74	58	4	17	153	31.9
20. Preoccupied by domestic chores	23	61	39	21	62	81	0	1	144	30.0
21. Poor living conditions	13	39	48	22	45	41	16	20	122	25.4
22. Engaged in child labour	35	28	7	11	42	37	0	0	81	16.9
23. Distressed by physiological body changes	7	17	33	23	32	32	8	8	80	16.7
24. Swayed away by public media such as TV	9	11	31	18	38	27	2	2	69	14.4
25. Restricted by cultural norms	11	18	22	9	31	27	1	0	60	12.5

* The total is for the two comparison groups either Art & Science or Day & Boarding. (n=414)

In 1998 for instance, 37,280 out of a total of 42,887 candidates, did biology on National Form Four examinations (NECTA 1999). During the same period 15,548 and 21,280 candidates did physics and chemistry, respectively, at the same examinations.

The last two variables are ranked lowest in table 5.28 above. Other variables that seem to constrain some students, but are ranked low overall, are distress or apprehension caused by new experiences in physiological body changes as students enter into adolescence,

engaging in child labour or preoccupation by domestic chores and poor living conditions. It is not surprising that many girls did not respond to such variables as distressed by physiological body changes, for example. This can be attributed to the assumption that while female students are believed to be more distressed than male students in such physiological development, they would be at the middle if not fully matured during the secondary education period.

Based on the limitations of students' ranking consistency, the study takes the top 12 in the overall ranking with the highest frequencies to be the most influencing variables affecting students' performance in education. The first 12 variables in the overall rank also represent at least the top three of each student's categories. (Thus, we are not using the identical approach used in the teachers' top 10 rank order). The top 12 variables in table 5.28 above, with frequencies above 200, are taken as a common set of critical variables affecting students performance in their favourite subjects in secondary schools. The blank row on table 28 serves as a cut-off point to that effect.

This choice of cutoff point at the top 12 prompts such questions as: Are the remaining variables less important? Why for example, is such a variable as "preoccupied by domestic chores" emphasized in Mbilinyi (1991) ranked 20th? Or, are "less supportive homes environments, discouragement by subject teachers, or poor living conditions" suddenly none-issues in Tanzania? The foregoing questions can possibly be answered by assessing the magnitude of frequencies in tabulation tables or the rank order by separate students categories.

To conclude, this chapter has presented some findings that answer, to some extent, the study questions in relation with the hypotheses. Results reveal that overall, examinations results in Tanzania are declining only slightly nationally, but are significantly declining in one zone and in some schools and gender categories. It has also been revealed that even though new schools begin with low performance in their early years, they tend to catch-up, presumably as more experience and familiarity are gained. It is reasonable to hope at this point that the situation will stabilize as establishment of new schools also stabilizes.

With regard to the resources hypothesis, more conditions affecting both students and teachers in classroom processes and, therefore, potentially affecting educational performance in general, have been identified in addition to the assumed inadequacy of instructional resources. The eight variables identified by teachers and the 12 variables identified by students sum-up to twenty additional variables that may affect educational performance generally. That is, it is noted from the teachers' and students' lists that the two are closely correlated and that, in fact, what affects the teachers do, as to some extent, affect the students and vise versa. The next chapter combines both the quantitative and qualitative (interview) findings together with the existing literature, to diagnose what may be causing some of the undesirable effects observed in order to explain what the above findings mean.

CHAPTER SIX

Discussions of the Research Findings

The preceding chapter presented a descriptive form of the findings that 'partly' answers the research questions. 'Partly' because, as already explained, this is an exploratory study that applies both quantitative and qualitative data to answer the seeming educational decline question in Tanzania. Analysis of the quantified data reveal performance patterns characterized by deep fluctuations at both the National level as well as with the sample schools for the years examined. Results reveal that, despite the slight declining trend suggested on many trend analysis plots, tests of statistical significance reveal no significant trend component present in the overall educational performance nationally, for the whole 28 year period, but statistically significant declines occurred recently in several school categories and locations, particularly, in the Southern zone.

Regarding the second hypothesis, findings support the assumption that there are important factors other than inadequate instructional resources that also negatively affect both teachers and students in secondary schools in Tanzania. However, for the revealed decline of educational performance in some zones and school categories, the findings of quantified data tells us only the presence of a declining effect, but with no explanations of what causes the revealed effects. This Chapter addresses itself to the explanatory aspect and it combines both quantitative findings with qualitative data to plausibly explain what

the field study revealed. The Discussion adopts the principal factors derived from the conditions affecting teachers and students in the previous chapter and separately discussed as follows:

- The educational performance decline question,
- Causal variables and priority question,
- The private versus public school question,
- Current concerns and renovations questions,
- The English language proficiency question,
- The teachers' opinions for the way forward, and
- Diseases and epidemic question.

The Educational Decline Question

The term 'decline' becomes meaningless without an established 'quality' or "standard" level from which the decline occurs. In their discussion groups, sample schools teachers deplore the use of the term and caution that, "we are trying to measure for standards that we have not yet set" (Appendix C.3). While the term 'decline' maybe understood simply as a slope from a given level, the term 'quality education' has been used rather vaguely in the field of education (Marshall,1998; Harvey & Green, 1993). There seem to be two schools of thought in the literature.

One school perceives quality in education only in terms of cognitive achievement as measured by homework, quizzes and written examinations (Hess, 1998). In that model of thought, predetermined national norms marking the optimum and minimum, within which candidates are expected to perform, are clearly spelt out and adhered to. Scores

consistently below the minimum are, in actual fact, only substandard or under-performing but of course not necessarily 'declining'. A decline occurs when there is a general process of increasing downward trend below the expected norms over time.

The other school of thought perceives quality of education in its totality. Not only do they see it as a "product", but also as a process contingent on premises surrounding initial enrolment, retention, the actual learning and the expected learning objectives. Talking about quality in education, Malekela (1999) asserts that, "the quality aspect [of education] should be extended to the affective and psychomotor domains" (p.1) used by Bloom (1969) in the taxonomy of educational objectives. Quality in this aspect, should address the question whether or not students graduating from the "school system" demonstrate the norms, attitudes and values aspired to by the society (affective), exhibit acquired life skills, creative arts and crafts, skills in recreational activities(psychomotor) and whether or not, after graduating, they use the knowledge and skills acquired for a good living (cognitive).

Malekela's assertion traces back to the objectives of education. The stated objectives in Tanzania aim to develop the "whole" child in all areas of the cognitive, affective and psychomotor domains. The affective concerns appreciation, social belonging, love as well as spiritual growth. We cannot claim to have attained a high quality educational outcome if the school graduates are cognitively competent, but socially destructive and physically unskilled to take productive roles within the job market. Thus, quality of education should not be evaluated exclusively on cognitive competencies and economic competitiveness, but also with social returns. For example, in the case of the developing

world where population growth is threatening everything, I am of the opininon that school graduates should ideally be role models to demonstrate lower fertility and family planning skills, reduction in gender inequality, and reduction of environmental abuse. They should also engineer job creation and self employment. General knowledge, language(s) and computer skills then become only tools and means but not the end of our educational objectives.

With that conceptual model, there is no single way, such as written examination, that can effectively measure a totality of educational outcomes. What written examinations measure is primarily the "knowing" of compartmentalized knowledge such as biology, physics, math, languages among others; a division meaningful to our convenience, but impracticable in real life situations. We examine in the following section, results of a trend analysis to explain the phenomena explicit in findings based exclusively on expected cognitive performance as measured by written examinations. But, as argued, that tells us only a part of what our school graduates have become as a result of attending formal education.

- **Declining Trend on National Examinations**

The overall performance data has shown a wide range of fluctuations. We note, for example, the continuous drop from a high of 87% in 1971 to the lowest mark of 60% in 1974, an average of 4% every year. There is no direct explanation of that observation beyond the "reorientation" effect introduced in Chapter 2. The National Examinations

Council of Tanzania (NECTA), like many other local institutions formed to replace the outgoing colonial systems, took office in 1970 with minimum expertise.

What we see are effects that may be explained in part, by the reorientation and on-the job training before NECTA officials gained experience in handling national examinations. However, the sudden rise back to 85% in 1975 is not because NECTA had suddenly acquired the expertise. Rather, at a meeting of the National Executive Council of the ruling party (NEC) in 1974, it was realized that the evaluation model used in Tanzania excluded continuous assessment (course work). Thus, it was endorsed that continuous assessment on daily school work be included in national examinations at a weighted ratio of 1:1 (NECTA files; MOEC 1995, p.60). The decision was implemented for the first time in the 1975/76 academic year, and that explains, I believe, the sudden rise back to 85%.

Performance between 1977 and 1983 reveals a particular pattern of fluctuations, but on the high side. It went up to 90% in 1978, but dropped to the same level in 1979. In 1980, it rose again to the highest of 98% and declined gradually to 80% in the following five years. Since then it has been fluctuating with the lowest point of 75% occurring in 1998.

While performance after 1983 shows tolerable fluctuations, the period between 1977-1983 raises a lot of doubts. Again there is no single plausible explanation. The study however, assumes, on the one hand, a continuation of the "reorientation" effect, but now

caused by "unstandardized" course work. This assumption is supported by Mtani S.K[1] in his observations of the anticipated problems of continuous assessment;

- Some teachers would favor or victimize students;
- It is difficult to have uniform standards [unstandardised] given school range, different teachers and varied subjects, and continuous assessment marking components;
- There is more workload for already overloaded teachers in compiling genuine evaluation beyond terminal and final examinations; and
- Some teachers might randomly award free marks for no administered tests.

Basic to Mtani's assertion was the proposed sources of scores for continuous assessment which included:

- Class quizzes and monthly tests;
- Group Projects which tested transfer of knowledge; and
- 'Conduct' measured subjectively and awarded a letter grade by the class teacher.

Without proper instruments, conduct for example, was hard to measure and had been excluded. According to the deputy secretary general to the council, even the daily quizzes have been excluded. Only terminal tests and projects continue to be included in CA. A statement urging teachers to be less generous and not over inflate CA marks was also noted on NECTA files for 1980 (Examination statistics, 1980).

[1] Continuous Assessment in Secondary schools. A Working Paper on file, NECTA 1980

Evidence for efficient standardization of CA in recent years may still be lacking, but according to our interview, NECTA had instituted mechanisms of standardization especially after the exclusion of class quizzes and conduct components. On the other hand, examinations on all science subjects have both "theory and practice". Candidates are provided with equipment, specimens or chemicals in the science laboratories and instructed to perform certain experiments or activities and report their observations. However, with diminishing resource inputs in education, provisions for practical examinations become both difficult and unaffordable. Thus, between 1993 and 1995, picture reading and labeling was adopted as an alternative for practical examinations in some selected science subjects including biology.

While there is evidence that picture-based or illustrated text are superior over text alone (Gibson 1971, Hagen 1974; Lesgold, 1978; Silverstone, 1990), literature in education also shows significant differences in pictorial comprehension across cultures (Ollerenshaw, Aidman, Kid, 1997). It is on record that rural children, particularly in the sub-Saharan Africa, have difficulties in reading and eliciting information embedded in simple line drawing (Deregowski, 1973). Mahenge's (1992) study confirms that weakness even among Tanzanian children. With that pictorial illiteracy among candidates, I believe, the above adoptation must have influenced performance on children's performance on national examinations.

- **Quantity as a Trade-off Against Quality**

Tanzania is committed to 'human rights' and seriously out to implement the philosophy of 'education for all'(UPE) described in Chapter Two. Concurrent with that commitment, Tanzania continues to train people for manpower management in both public and private sectors, implementing economic recovery programmes and maintaining good international relations by keeping up with her due debts. Yet, considering her economic status, and a false start after political independence, Tanzania could not have done any better. Nobody can now turn to say "let us 'provide basic education for only 50% of school-age children and build more highways", nor can Tanzania invest all her resources to one level of education at the expense of other levels.

This study rather assumes the underlying questions to be redefining our objectives and synthesizing the community for a common understanding of 'Education for All' and 'Education for Relevance'. A decline in the socially compartmentalized domains such as secondary school subjects may be important issue to address at the moment. However, such skills are only a part of the overall educational objectives for which we have not defined their desired content and appropriate evaluation strategies. It is fine if we can keep the "quality" while providing for all, but if we shall have to go back to others going without education while a few get quality education we shall be betraying the international call and our own commitment. Lastly, we should be thinking of resolving the seeming problems within the "whole" not separate as though it existed in isolation.

- **Performance Difference by School Categories and Location**

The slight decline revealed in the data analysis stems from performance difference and apparent decline within and among school categories. Results have revealed that while in some zones students score high, others are performing pathetically low. The underlying explanation for low educational performance at the Southern zone may include attitudinal, socioeconomic, and accessibility factors. Ever since the colonial period, the region has been under-privileged primarily due to its location, and problems with transportation. The region has been known for its inaccessibility particularly in wet season. Unless very necessary, trips to the region were avoided. Despite the effort already made to improve access, a trip to the region still lasts long hours. In that context, one can confidently state that the region, typical of many others, have not received as much attention in education as have the easily accessible regions. Based on the above, people's attitude and enthusiasm towards "schooling" seem to decline as evidenced by enrolment falling to 55.3% in some regions[2].

However, each region may have its own causal explanation. For example, while decline in Kagera may be due to threats of conflicts in the neighboring Burundi and Rwanda, the explanation in Arusha may be due to the nomadic culture of the Masai people. Traditionally, Masai are herders and they always migrate in search for pasture Their youths are made to value following cattle more than they should value anything else

[2] For example, by 1998 figures, enrolment in Tanga Region was 48%, Tabora 47.3% Shinyanga 52.4% Rukwa 46.7%, Lindi 47.6%, Kagera 44.0%, Dodoma 51.5% and Arusha 50.7% (MOEC 1999). By UPE standards it should be over 80 to 100%.

including formal education. Thus, to a traditional Masai parent, education for survival while herding cattle in the wilderness is superior to formal education.

On the contrary, regions such as Kilimanjaro, where peoples' attitude towards formal education has always been very positive, enrolment has not only increased in public schools, but the region has the highest number of private secondary schools. By 1997 records for example, Kilimanjaro region had an average of 63 private secondary schools when Mtwara region had only one (1) (Abayo and Kaijage, 1997).

In students responses to conditions affecting their performance, "poor support from parents" and "a lack of role models" were ranked highest by girls and relatively high by boys in the Southern zone. Lack of parents' support reflects peoples' attitude, economic status and probably health conditions; while lack of role models is a condition whereby very few people have successfully gone through formal education and secured a high socio-economic status in a given locality. Thus, a combination of attitudinal, socio-economic, and poor infrastructure have rendered the region a place of limited educational opportunities even after political independence. There are however, current efforts by both the government and non-governmental organizations (NGO's), such as UNICEF, UNESCO, to alleviate the chronic educational problems of not only the Southern zone, but also other regions of similar situations in Tanzania mainland.

- **Declining Trend in Sample Zones**

As already stated, some degree of variance are normal, but only worthy of attention when an apparent variation is realized or when performance in some schools of one region, zone, or type, deviates far from the norms. Schools in the Northern zone, for example, showed a subtle declining trend, but it is revealed in this study to be statistically insignificant enough to raise our attention.

That does not however mean that individual schools do not vary. Uru Seminary for example, is among the Catholic Seminaries at the Northern zone and it is already known to perform highest nationally since the 1980's. At the other extreme, "Lembeni Day" Secondary school in the same zone currently under-performs not only Uru Seminary, but other older schools as well. Thus, differences should not necessarily be considered as evil, but, to some extent, unavoidable realities especially when there are multi objectives governing the process like the case of education in such varied rural localities of Tanzania.

At the Eastern zone students perceive overcrowded classrooms, effects of peers outside school and lack of counseling services as the core variables affecting their performance at school. In fact, the problem is expressed by all the sample zones. The cultural fabric of the Eastern zone varies as a product of multi sub-cultures in an urban setting different from those of the south. For instance, in a culture where adults are used to two instead of three meals a day, typical of urban Dar es salaam, a lack of mid-day meal at school becomes less problematic. Thus, mid-day meals, less supportive home environment and

restrictions by cultural norms are not perceived as a problem in the East to the extent they seem to be for the other zones. Although the differences may be minimal, they may substantially affect and reduce practices that would otherwise restrict schooling. A more national rather than ethnic identity with lifestyle governed by "modernity" currently begin to overshadow "traditions and rapidly reforming attitude and recognition to formal education.

At the Central zone girls are doing better than boys, but on overall their performance pattern fluctuates between 70% and 90%. This may be associated with environmental changes taking place. The current Dodoma could be described as a fast developing township where a lot of changes are taking place and probably affecting education in just the same way as it affects all the other social sectors. The sample schools are situated within the township and therefore, both positive and negatively effected by the growth in terms of migration, the mix of multi-culture effects, mobility, and other urban life factors.

In their responses the students at the central zone, as in other zones indicate that they are affected by overcrowded classrooms, inadequate desks and inability to practice science experiments in the laboratory. Girls indicated a lack of support from parents' counseling services and also seemed more affected by their physiological development than are boys. However, they are least affected by the lack of mid-day meals and influence from public media.

- **Lessons From Statistical Findings**

Based on our sample, there are certainly some elements of decline among zones and school categories. Yet, considering our sampling procedure, limited variables and statistical analyses, we cannot overgeneralize. Nonetheless, the results shed some light on the actual pattern of educational performance in the school sample data set and seemingly across the country.

Attributed causes are highly variable and data are inconclusive. They vary from zone to zone, among regions and even districts. According to students' responses, a list of 'hard core' perceived causal variables checked by most students across the sample regions, has been provided. We note that while students in Tanzania Secondary Schools are constrained by such factors as lack of counseling services, inadequate desks, textbooks and science equipment, they, nonetheless, believe that they are not affected by public media such as television viewing.

Television (TV) in Tanzania mainland is a recent phenomena, with a history not exceeding ten years. The first local TV station was established in 1991, when private companies, with the permission of the State, established ITV and DTV[3] television stations respectively. Since then, other companies have also established private TV stations in Morogoro, and the Southern Highlands. More recently the government has also established public television station in Dar es Salaam. Considering the growth from almost 'nil' in 1990 to 60,000 TV receivers in 1994 (World Fact book, 1998), the number may have tripled over the last six years. With the enthusiasm of an overdue and yet the

[3] ITV stands for Independent Television, and DTV for Dar es salaam Television

most eye-catching media such as television, the study assumed that it would have a great effect on school children particularly in cities and other urban centers. The results do not support that hypothesis, and we conclude that: TV watching is yet to become a problem to secondary school children in Tanzania. That, however, has, on the negative side, an implication that Tanzania cannot yet plan to use TV for effective 'non-formal' education nationally until more households can afford TV receivers.

The Causal Variables Question

Causal variables are conditions believed to affect both teachers and students performance in the classroom teaching/learning process. The most fundamental causal variables identified by the Tanzanian Community is the current shortage of instructional resources in schools. Its definition is broad since it includes categories of human resources, infrastructure, equipment, amenities and instructional materials. While human resources are the qualified teaching staff, administrators; and potential students interact in planned activities to effect the targeted objectives. Instructional materials are physical objects such as textbooks and other information storage materials such as audiovisuals, radio, video cassettes, TV sets and computers. The term 'amenities' is used here to mean inputs for affective learning environment such as stationary, clean water supply, electricity, telephones and, recently, access to internet.

The long list seems enough to cover for everything that a school may need for optimum learning effects, but as Frazen, at al (1999) argue, "putting books in the classroom seems necessary, but not sufficient to improve learning given other unresolved constraints.

Findings of Beishuizem, Stontjesdijk and Putten's (1994) study, Clark's (1983, 1994) and Kozma's (1994) position papers support that argument. Clark argues that media alone without good methods or approaches to address varied needs and cognitive strategies of individual students, does not necessarily have the cognitive gains or benefits. While considering the above arguments one is tempted to raise questions about the perceived roles of such variables as school-community relationship; teacher-parent and teacher-student relationships in the education process?

Thus, the present study set out to investigate answers to some of the above questions. The findings of both the checklists as well as the analysis of data reveal a set of variables that may negatively affect both students and teachers in their daily activities at school. Related variables have been identified and by association include in a short list of principal factors that negatively affect the learning process and educational outcomes. The principal factors in the short list fall into seven areas: evaluation, socio-economic, administrative, managerial, resource supply, procedural and school curriculum factors. The study adds to that list, private versus public schools as factors we discuss each of them as major factors surrounding school performance in the following section.

- **The Evaluation Factors**

When assessing the question of educational decline, sample teachers found it rather difficult to conclude whether or not education in Tanzania was really declining. They observe that "considering our main goals of equal access to education for all, maybe education has rather gone up than declined." The teachers further observe that, "We have

only attempted to set educational objectives, but not the quality of education" and we are, therefore, "trying to measure a standard that we have not set"(see Appendix C- 3).

The teachers raise a fundamental question also implied in Malekela's (1999) valedictory lecture mentioned earlier. Based on the current evaluation criteria, Malekela suspects that the system is only measuring the cognitive aspects of educational achievements while ignoring the affective and psychomotor domain all of which are integral to the "whole" child's development. Both affective and psychomotor domains are ideally assessed by observing response behavior to problem cues and transfer of knowledge into practical livelihood, an approach rarely taken due to costs and time involved. Yet, judging our school graduates exclusively on the basis of written examinations, the teachers argue, does not give the real potential characteristics of our school graduates. According to the sample teachers "we should focus more on our school graduates' ability to harness and manipulate their environment (nature) to earn a satisfactory livelihood as a result of having attended school. Otherwise the teachers acknowledge that the current education of independent Tanzania had expanded to a broader spectrum to include technical, agricultural, cultural, and the degree of socio-economic development of an independent state.

When relating educational outcome to societal norms the teachers say, "if education has declined, then our societal standards have also changed and we seem to be preparing our children for life in the past rather than the present and the future". The statement relates to curriculum relevance discussed under curricula factor. It points out that, to some extent,

the new generation requires skills relevant for life today order to cope with the technologically challenging and economically competitive world. One then wonders if there are enough attempts made to address the question of evaluation of societal needs and change in Tanzania? To what extent has the system of education adequately evaluated and modified school curriculum to match individual needs with a special focus on the success of school graduates in their workplace either in the public or self employment sectors.

Certainly, in the revised "Education and Training Policy" document (MOEC, 1995), written examinations remain a recycled and major means of evaluating educational outcomes. The examinations serve as summative to mark completion of an educational level/cycle and a formative selective index for admission to the next educational level (MOEC,1995 p. 58). Except for teachers training colleges where the Block Teaching Practice (BTP) is incorporated in the student-teachers professional development and practical in the science subjects examinations, any other forms of evaluation procedures are conducted to gauge educational achievement in the formal education sector. In secondary school, section 6.3.4 of the education and training, the policy states;

> The basis for certification of Form IV and Form VI graduates shall be continuous assessment and the results of final written examinations. Private candidates shall be certified on the basis of results of final written examinations only. (Ibid.p.60).

With that addition, school graduates will never be considered acceptable to most Tanzanians. Many of our community members will measure our school graduates using a

different "yard stick" for which our curriculum may not have prepared our school graduates. While the examination council, for instances, judges school graduates by how well they solve mathematical problems and replicate theories of 'science', the community[4] uses a different measure based on response behaviour to gauge how the students conduct themselves before their peers and elders, and respond to social and cultural cues that they encounter in the community of which they are members. Where do the council and community meet and how do their varied indicators affect judgment of quality in education in educational outcomes?

It is stated along with policy statements (Ibid.p.59) that it is appropriate to specify who does what, especially in sensitive positions and delicate undertaking particularly such as selecting candidates to higher levels of education in such competitive circumstances. It requires a high degree of accountability and transparency on the part of the examining body. The examination results are usually released to the entire public in part to defuse the tension and anxiety that usually prevails among students, teachers and parents alike, but also, in part, making examination results public serves as a "feedback mechanism to correct the overall functioning (or dysfunctioning) of the education process" (p.61). However, while a feedback mechanism based on written examinations seem justified in terms of accountability and communication, it should not exclude other measures that may also capture how well we shall have accomplished more global educational objectives. I am of the opinion that parents' and community evaluations of our system of education are potentially relevant. Thus, the system should, whenever appropriate,

[4] Community in this case includes the parents, potential employers and colleagues at the work place, and the social others,

incorporate community ideas in activities of educational reforms and school curriculum changes.

I also strongly believe that there is a need to have a common perspective on what our education objectives are - that they should be derived from a common curriculum development process involving both the education system managers and experts of the educational system and the community at large. In that way there might be less conflict of objectives, and the means for obtaining what we expect from a school graduate in Tanzania.

- **Management and Administrative Factor**

Typical of what is observed about organizational characteristics in the literature, many systems of education in the developing countries have been criticized for their top-down as opposed to bottom-up and two-way administrative systems (Carnoy,1974; Hunter, 1963; Kiggudu,1990). In a 'Top-down' administrative model, information almost always trickles from the top to the bottom of the administrative structure. Thus, teachers and students, being at the receiving end of the hierarchy, receive information and orders from the top, but rarely are they consulted for opinions, or involved in the decision- making process.

To add to the confusion, the ministry has also been receiving more orders from the ruling party especially before political "pluralism" in 1995. With the "veto" powers of the party supremacy, decisions were mostly ad-hoc, sometimes from one man by-passing experts

and ideas, therefore, often not well analysed for their cost benefit analysis and consequences before they are tried out. For example, in my opinion, nationalizing schools in 1962 caused more loss than gain. The Church plans for extensions in teachers' colleges at Tabora, the elegant education plans of Bishop Mihayo in Sumbawanga, the sumptuous extension plans at Marangu Teachers' College in Moshi to include a teachers' resource center, and a vocational training center for girls' education all became instances of 'lost opportunities'. The Catholic and Lutheran churches abandoned all their educational extension plans after the nationalization policy was published. Although the purpose, as stated by Malekela (1983), is well acknowledged, a search for expert advice to reconcile, at least, the manner of nationalization, would have served to a considerable degree, to ameliorate the anger caused to the church community. Yet, as Lessibille, Peng and Sumra (2000) observes, a few years latter, the same Church Communities are urged to participate in establishing private secondary schools. It is on similar observations that in his editorial comments Omari (1998), says;

> ... ultimately it is important to realize that education requires as much of technocratic engineering as it needs social engineering. The Tanzanian parliament will pass a motion to call upon the Ministry of Education and Culture to account for the defeat of a national football team, but will not say a word even if all pupils failed their mathematics in a given year. (p.xi)

In theory, the situation in Tanzania was supposed to have changed following the adaptation of a multiparty system, but in practice nothing much has changed. We still have instances where legal procedures are practiced to seek people's opinion when decisions are already made. We still see huge sums of tax payers' money spent on 'presidential commissions', but reports turned down in favour of the interest of a few

individuals. One wonders how much of the "Makweta's commission" had been implemented before Mayagila's commission was formed? We are yet to see how much of Mayagilas commission report will be implemented, despite the fact that some of its recommendations are at least reflected in the revised Education and Training Policy of 1995.

There has also been a history of successive turnover of staff in administrative posts. Omari and Mosha (1988), observe that staff turnovers in strategic posts were too frequent. For instance, the average number of years that a Minister stayed in office was 3 years and those of the executive officials such as Permanent Secretaries and Directors were 2.7 and 3.4 years respectively. Ten years later Lessibille, Peng and Sumra (2000) note that schools in both private and public sectors experience substantial instability as a consequence of this high turnover of school administrators. More than two-thirds of the sample schools in Lessibille, et al's study had "two or three different school heads" over the six year period studied (p. 20).

While there maybe disadvantages in administrative staff over-staying at the same station, studies also show a general gain as a result of experience and knowing the staff better and providing better informed guides to junior staff for improved performance (Franzen et al, 1999, Donlevy & Donlevy 1986, Hess 1999, Ludwing and Bassi, 1999; Beishuizen et al, 1994). It is therefore certain that frequent turnover of administrative staff reported in Omari and Mosha (1988), and Lessibille et al (2000) may have a negative impacts on educational outcomes.

Finally, since there is no formal training for most administrative posts, let alone proper guidelines in place, new appointees experiment with new theories many of which are ill-thought out and consequently lead to failures. Depending on the duration , many such appointees turn offices, units, and institutions into "experimental laboratories" with neither long term objectives nor hope for substantial achievement. With this pattern of "development by experimentation" the national long-term plans are violated and progress is arguably hampered.

- **Resources Supply Factors**

It is already established in the review of literature that there is an acute shortage of instructional resources at all levels of education in Tanzania. Possible explanations for the underlying causes of the reported shortage are two-fold. Firstly, are the usual 'defense mechanisms' of the financial authorities stating that 'there is no money'. Secondly, there is what I would call an oversight when considering long term plans (LTP), and a lack of commitment and priority. After about forty years of political independence Tanzania, for example, should now have established a viable system of local operation for the production of some school materials. Instead, even long after independence, we still import many instructional materials. While it was thought prudent to have, for example, our own textile industries because we needed clothes to wear and agricultural farm implements industry because we needed hand tools such as hoes for the rural farmers, less was thought of a publishing industry for textbooks and production units for such simple school items like rulers, dusters, protractors, model charts and audio visual materials we would need in the classroom.

Felicity (1985) stresses that "ideally every country should produce its own teaching materials", a statement that is well supported by Torbon (1988), Troxel (1989), and Abu-Jaber (1989). The basic idea behind Felicity's proposition is cultural conservation. Adoption of instructional materials made for and with alien specifications and cultural norms of the industrialized communities raise cultural contradictions as we shall see in later discussions. Felicity's proposition requires that each country prepare its own instructional materials relevant to its own cultures' perceptions, preferences and specifications. Thus, while changes that were made in education after independence are well acknowledged, they lacked vision of the future and setting proper mechanism of internal production of its own resource inputs into education.

Felicity's proposition is well supported by the headmaster's conference held in Arusha in September, 1990. The theme of the conference was "Towards local production of teaching materials", and an exhibition of locally prepared prototype instructional materials was also mounted. Central to the theme was an identification of potential human and industrial resources available for large scale production and research on the needed instructional materials in schools. Figure 6.1 shows some science materials identified at the conference that could be locally produced and the respective potential producers. It was hoped that, after seeing the prototype materials, interested industrialists would then be commissioned to adopt and do further research on the prototype models and develop them to the required standards, then mass-produce and disseminate them to schools for national use. Even at the computer age, an educational software made for one society may on, very rare occasions, be a replica of what is needed in another. Neither

does Felicity's proposition contradict the challenges of globalization. The term globalization does not deny cultural identity and that while there are things shared in common, there will still be differences based on geographical locations, origins and levels of development as well as individual groups or societal objectives in education. Thus, Felicity's proposition is cyclic regardless of scientific age and level of development.

Regrettably, nothing much has so far been achieved out of the commendable work of the Headmasters and Headmistresses conference in 1990. Worse still, both the revised policy document (1995) and the recent March 1999 Education Appraisal are silent about what is an appropriate approach to production and dissemination of instructional materials using local resources. That is, in my opinion, a lack of commitment which, according to Pendaeli quoted in Osaki (1991), made the School Equipment Development Unit (SEDU) project fail to take off in the 1970s. (Osaki, 1991; Minutes of Headmasters and Headmistresses Conference, 1990p.5,16).

Addressing the same forum, president Wade of Senegal makes similar observations and goes further to say "the millions [of money used for the conference] could have been used more usefully in training teachers" (On line BBC News).

Unfortunately that failure would seem to be a problem for many developing countries. That could explain why, commenting on the World Education Forum-Dakar 2000 held in

POTENTIAL PRODUCERS	INSTRUCTIONAL MATERIAL/EQUIPMENT/CHEMICAL
Central science Workshop University of Dar es Salaam	(Glass blowing) beakers, flasks, measuring cylinders, test tubes, metal and wooden physics equipment and models
Faculty of Engineering University of Dar es Salaam	Further research on development and improvement of prototype science models
National Vocational Training Center, Dar es Salaam	Mass production of research and improved upon prototype on wooden metal equipment such as clamps, bench vices, Bunsen burner, chalkboard, set squares, slotted weight, Leslie cubes, eureka cans, copper calorimeters
Medlavet Manufactures and Supplies Ltd.	Key Switches, Standard resisters, pendulum etc
Mount Rubber Factory Ltd. Dar es Salaam	All rubber products
Tanzania Light Source Company Dar es Salaam	Bulbs and light bulbs. Fluorescent
Sido, Moshi	Pulleys, hydraulic jacks, pumps and compressors
Center for Agricultural Mechanization and Rural Technology [CAMARTEC]	Clamps, vices, water pumps, wheelbarrows, bio-gas, converters
M/S Fabri-Equipment Ltd. Dar es Salaam	Retort, burette, stands, boss heads, tripod stands, clamps, spatulas, Bunsen burners
TANALEC and CAMARTEC, Arusha	Electric heating element, ovens, stoves, wire gauze and accumulators, hot plates, rubber stoppers
Tanzania Fertilizers Company-Tanga	Sulfuric acid, Ammonium Sulfate
Southern Paper Mills, Mgololo	Hydrochloric Acid
M/S Morogoro Ceramic Factory	Crucibles, evaporating dishes, tiles, porcelain, mortars and pestles
Kibo Scissors Industry	Dissecting scissors, Forceps, Scalpels and tripod stands
M/S Meru Wood Products	Test tube racks, spatulas
TACONA, Dar es Salaam	Animal Cages
CAMARTEC	Bio-gas
South Paper Mills	All kinds of cardboard and manila paper

Figure 6 . 1: Potential Producers and Science Materials that could be Produced Locally in Tanzania

Dakar Senegal in April 2000, Clement Katulushi says, "The Dakar Conference will be another talking-shop if governments are allowed to give lame excuses about

shortcomings in girls' education, run-down schools, in adequate teaching-learning aids, poor teacher supply and funding" (On line, BBC News).

The main factor is commitment to priorities. Unless governments commit themselves to implement and follow-up decisions reached at such conferences, the whole spirit of the conference is denied. The findings of this study support the teachers' conference deliberations and recommendations. The recommendations answers to the study question, application of local resources to address shortage of instructional resources in schools. Thus, the study urges that the ideas articulated at the teachers' conference in 1990 be revisited and further explored and developed.

- **The Practices and Procedural Factors**

Practices in education can mean various things at different places and time frames. The term is used by teachers here to mean the way things are generally done, mostly when some form of payments are involved. They are particularly concerned with the way their monetary benefits on retirement are processed, unfulfilled promises and limited retraining opportunities. Although there is evidence that some form of retraining takes place once in a while, but considering a total teaching force of 122,432 (MOEC, 1999) resources serving all of them may take a while even if there are continuous efforts.

Needless to say, reducing the probable future cognitive potential of our children due to ill-trained teachers may be just as risky as being operated upon by a poor surgeon. Its impact can only be felt at a later stage when graduates begin to perform below expected

norms of the labour market. The importance of restraining teachers need not be underestimated. Teaching materials policies curriculum environmental circumstances change so fast. Unless teachers are retrained on how to use new curriculum materials, efforts for curriculum change will be another waste. While students talk of computer aided learning their teachers will talk of "abacus" and slide rulers. Retraining to acquaint teachers when major changes occur is the only way to narrow the generation and technology gap.

Meanwhile, teachers' monthly pay, work conditions and retirement benefits are always very sensitive issues in human resources management. For teachers it becomes even more sensitive because they are so far away from their employers in a system that is centralized. In between the teachers and their employers there are people: the account clerks and accounting officers sometimes serving as "shock absorbers" of forces from both ends of the employers and teachers spectrum. Yet they are often not knowledgeable enough to answer the teachers' questions regarding their pay and retirement benefits. Thus, if the teachers have questions regarding their pay, they sometimes have to travel to the headquarters for genuine answers. One wonders what happens in the classroom when the teachers are away and who pays the costs?

One of the most appalling experiences is when the teachers narrate the procedures of retirement benefits. First, it takes a long time before it is approved, as though facts for processing the teachers' retirement were unknown. The final stages require that this retired officer travel to the headquarters, and go through legal procedures before

payments are received. The sample teachers perceive it to be too bureaucratic, time wasting when considering the final "take home".

While precautions taken to ensure that funds intended for one person do not get to the wrong hands are acknowledged, teachers wonder why, with all the computer technology now in place, life is never made simpler for them. The study observes here that some practices underlying the teachers' complaints reflect the attitudes of only a few individuals rather than the entire Ministry headquarters officials. That is, while the Ministry of Education may have the right guidelines in place, individual officers acting in their own interest perform to the contrary. Consequences are brutal to individual teacher, resulting in dissatisfaction and indeed, affecting internal efficiency.

- **Socio-economic Factors**

This concerns to a large extent, the teachers' pay in relation with the living costs and conditions of service. It is on record that the teachers' salaries have always been relatively low in comparison with their counterparts with the same qualifications working in other sectors and in private companies. Galabawa (1989) uses an example of university graduates example and make an effective illustration. After 20 years of experience an engineer, for example, would draw twice as much as a graduate teacher (BA Ed). An Agricultural Officer and a medical doctor of the same qualification (B.Sc. Agriculture and M.D.) would draw three times as much as a graduate teacher. (Galabawa,1989 p. 109). The situation does not seem to have changed in the 1990s. The Marxist's theory of labour value and of states exploiting their own human labour still holds valid (Miles, R. 1987; Kidron, M. 1974). That has however been true of many countries both in Africa and abroad.

For Tanzania where "employment" is still very low, teachers become the largest group of employees across all sectors and the Ministry of Education, therefore, becomes the largest employer (Levin 1996). Yet, MOEC has consistently received a low share of the national budget. Table 6.1 shows budget allocation to education as a percentage of GDP for the years 1990 to 1997. Notice that in 1994 for example, Tanzania's expenditure on education as a percentage of GDP (2.87%), does not only linger in the category of "least developed" countries (2.5%), but getting even lower (2.33%) in the later years.

Table 6.1: Budget Allocation for Education as a Percentage of GDP in T'Shillings

YEAR	GDP in Billions	ALLOCATION TO EDUCATION	PERCENTAGE
1990	758.05	53.47	7.06
1991	935.07	57.58	6.16
1992	1,130.60	58.70	5.19
1993	1,267.43	56.99	4.50
1994	1,635.47	63.23	3.87
1995	2.284.30	76.17	3.33
1996	3.394.00	79.10	2.33
1997	4,105.00	95.47	2.33

Source: Public Expenditure Review (PER)- World Bank: Tanzania, 1997

Literature of education reveals lack of commitment and a sense of priority on education in many developing countries (Colclough and Lewin, 1993; Vandermortele, 1998; UNDP, 1998). In Tanzania, Omari (1997) noted the need to prioritize and focus more on education. Only then can MOEC get more budget allocations and, hopefully, be able to invest more on teachers' welfare. That may have a long term effect on the teachers' satisfaction and, hopefully, an increased internal efficiency.

- **Curriculum Factors**

The study has revealed complaints from both the teacher and students about the school curriculum. While students complain about too many subjects to learn, the teachers criticize the curriculum for being overcrowded and irrelevant. This is a belief held by many members of the Tanzanian community. Whether the Tanzanian community has a common understanding of the term curriculum is another questions.

The literature of education seems inconclusive regarding a definition of the term. Since the 1950s, literature has recorded a variety of definitions including basic ones by Rugg (1947), Smith et al (1957) Good (1959), Taba1(962), Foshay and Tannes (1975). Selected definitions can correctly be divided into two major categories. The first category are definitions that view curriculum as a plan of content or specific materials of instruction. This is sometimes described as content oriented curriculum (Komba,1998). The second category views curriculum as a set of potential experiences. While the first category suggests curriculum to be a set of material plans, topics or chapters to be covered in a course, the later sees it as a process: the learners' personal and the group is continuous and purposeful growth. Connelly and Clandinin (1988) writes:

> When we set our imaginations free from the narrow notion that a course of study is series of text books or specific outline of topics to be covered and objectives to be attained, broader and more meaningful notions emerge. A curriculum can become one's life course of action. It can mean paths we have followed and paths we intended to follow (p. 1).

It is this broad sense of curriculum as a personal life experience on which the present study bases totality of experiences and interdisciplinary, principles that make education better suited to real life situations.

The students' concept of curriculum, on the other hand, is content-oriented. Compartmentalized into subjects that have now become too many for them to follow. They do not see the 'wholeness' in a curriculum because they count curriculum in terms of biology, physics, math, languages etc taught by different teachers at different places in the school. Since such compartments exist at the school, curriculum other experiences outside the school and experiences at home also seek their own compartments to fit into the same learner. Thus the school curriculum and extra school curriculum outside the school and at home conflict with each other, not only in the mind of the learner, but also in community beliefs and expectations. The science at school has no place in the home science and vice versa because of the varied ways they are experienced by the learners. Osaki (1991) adopting from constructionism, urges the use of environment in experiencing science knowledge, a healthy proposition, but encountering varied obstacles.

- **Curriculum for Relevance**

The message underlying all the above is curriculum for relevance. Life experiences that are relevant from the time they are initially experienced to the time they are eventually transferred and applied in real life situations. Teachers who subscribe to Osaki's proposition with respect to environmental locations have a problem because unfortunately

This study adopts Komba's (1998) position that, while there is a need to retain certain core topics and subjects nationally "various disciplines could be integrated" into interdisciplinary processes which would better facilitate use of co-operative and participatory teaching/learning approaches and indeed give room for developing a curriculum for regional relevance (p.49).

The 'Private' versus 'Public' schools questions

The distinction between public and private schools in the literature of education can be rather confusing. The criteria for distinguishing between public and private schools varies from country to country and one system to another. According to UNESCO reports, for example, Lesotho has 100% of its primary schools as "private schools" simply because they are run by Church Organizations, but they are known to be predominantly funded by the state.

In a paper prepared for the Pan-African Seminar on the financial management of education in Africa in 1997, Kitaeve (1997) explores ways of differentiating between private and public schools. In the end the author lists nine dimensions of consideration to include ownership of buildings, input into buildings, decision to establish school, curriculum control, admissions, hiring and payment of teachers, and control over supplies. According to Kitaev's model, when all the above is decided and controlled by the State, the school is public and when all the dimensions are decided and controlled by non-governmental organization or individuals the school is private. For many countries, including the Lesotho example, both the private and the state contribute in some ways to

the same, school which by Kitaev's model, the school would neither be private nor public. Figure 6.4 presents the Tanzanian model of public and private control dimensions. Based on the model, the Tanzanian context of private school is different from the Lesotho example.

Tanzania Public and Private School Model*	
PRIVATE SCHOOLS	**PUBLIC SCHOOLS**
Decision to establish a school	
Interested party/community or organization decides on type and of a Private School	Government planners decide on type, location and construction of a school
Land ownership	
Government owns land, but issues a tittle deed to school owner	Government owns land
Ownership of School Buildings	
Private School owner builds and owns all school buildings	The Government builds and owns all the school buildings
Input into School Buildings	
Private Schools fully equipped by the Private School owners.	Buildings completely built and equipped by government
Control over Curriculum	
Government has control of all aspects of school curriculum, but owners may choose desired approaches.	Government has full control of all aspects of school curriculum
Control over Admission	
Owners have full control of admission	The government determines admission policy for all public schools
Control over School Supplies	
Private school owner provides all school supplies	Government provides all supplies
Appointment of Teachers	
Owners select and hire their own teachers	The Government establishes and appoints teachers to schools
Teachers' Payment	
School owner pays all teachers costs including salary and other benefits	The Government covers all teachers costs including salary and other benefits

* Dimensions adopted from Kitaev, 1997

Figure 6.3 : Tanzania Public and Private School Model

Except for the land which is state owned, and the school curriculum which is centralized and controlled by the state, a private school in Tanzania is private in the real sense of the

Except for the land which is state owned, and the school curriculum which is centralized and controlled by the state, a private school in Tanzania is private in the real sense of the term. Thus, the state owns the land on which a private school is built, but provides a "title deed" to pass on the right ownership of that demarcated piece of land on which the school stands, to the private school owner. Then everything else, apart from the curriculum, is determined by the owner of the school.

- **Proliferation of Private Schools in Tanzania**

Essentially proliferation of private schools occurs in various ways and for various reasons. Often such schools are a result of individuals, communities and organizers exercising their right to establish such institutions in the absence of what they deem to be adequate provision by the state (Estelle James,1993; Buckland, 2000; Jimenez et al,1991). In some instances the establishment of private schools is a direct consequence of state policies (Carnoy,1998) such as is the case in Tanzania. In other cases, though rare, some previously state-owned institutions are "privatized" by being transferred or sold to communities or church organizations either because the state is no longer able to maintain them[5]. or because the purpose for which they were built is already accomplished.

The Tanzanian case combines both the first and the second reasons. Even years before liberalization in the mid 1980's there were privately owned schools in Tanzania. These were built by communities and church organizations because they needed such schools for their children in given areas (Lessibille, Peng and Sumra, 2000). This also resulted

described in Chapter Two, Tanzania realized that it could no longer afford providing all educational opportunities required by a country striving to achieve basic 'education for all', and 'self reliance' by developing its manpower needs for real economic development. Alternatively, in the later years of 1980's the government gave up the old state monopoly in the provision of education and adopted new policies that stimulated the growth of non-government schools particularly in the secondary school sector. Interested communities, church organizations as well as individuals, have, since then, invested in private schools.

Admission to public secondary schools is determined exclusively by scores obtained in the National Certificate of Primary Education examinations taken at the end of the seven years of the primary education cycle. Table 6.2. shows the trend for Primary school graduates and the selection rates to both public and private secondary schools from 1991 and 1997.

As noted though, there were enough places for only 8.5% of total primary graduates in the public schools by the 1997 figures. Thus, after candidates with highest scores in the national grade seven examinations (Primary School Leaving Examination) are selected for admission into public secondary schools, the remaining students, at their own expenses, seek admission into private secondary schools. The opposite may be the case in other countries where private schools get the best performers. Admission in individual private schools is based on competitive entry examinations administered by the respective private schools, and the parent's ability to pay school fees.

Table 6.2: Primary Education Graduates Transition Rate to Secondary Education Level (Form One) for Every Five Years

Year	Primary level Graduates	NUMBER SELECTED TO SECONDARY FORM ONE					
		SECONDARY SCHOOL SECTOR				Total	%
		Public		Private Secondary			
		Number	%	Number	%		
1965	29367	5942	20.2	2329	7.9	8271	28.2
1970	54630	7350	11.4	3254	5.0	10604	16.4
1975	13559	8680	6.3	5786	4.2	14466	10.5
1980	212446	8913	4.2	7095	3.3	16008	7.5
1985	429194	10881	2.5	12625	2.9	23506	5.5
1990	306656	19673	6.4	27554	9.0	47227	15.4
1995	386584	28412	7.3	28002	7.2	56414	14.6
1997	414069	35054	8.5	37266	9.0	72320	16.5

Source: BEST, 1998 p.

The table presents proportions of admissions into public and private secondary schools in Tanzania from 1980 onwards. Overall, only 16.5% of the total primary school graduates secure admission to secondary education while 83.5% go without any form of secondary education. The liberalization effect reflected by the increased transition effective late 1980s, is well acknowledged, but the 16.5 is still 9.5% away from MOEC target estimates for the year 2025 discussed below.

The foregoing selection indices trigger one fundamental question especially in a society currently conscious of quality. Since the private secondary schools draw students from a pool of left-over after selection to public secondary schools is done, how do students in those two types of schools differing in selectivity indices perform in their later years of secondary education? It would appear that with weak entry qualifications, performance in private secondary schools should be lower than that of public secondary schools.

However, in their study, Peng and Sumra (2000) found out that "public and private schools differ only to a limited extent in their impact on student learning"(p.2). Otherwise, other characteristics of the two school modes are basically the same except for the way they function administratively. For example while the central government decides on financial spending in public schools as shown in the model above, school boards and managers do the same for private schools. Both school models follow public school calendar with minimum variation in a few private schools as there may also be some variations in some public schools.

There are, however, those variations given in Chapter Two concerning staff contracts or conditions of service percentages and teacher/students ratios, teaching load, and teaching subjects unrelated to the individual's training and qualifications. Despite the variations in staffing and management Lessibille, Peng and Sumra's study (1995) has confirmed that qualitatively performance in the two school sectors is essentially the same. That gives the community some confidence that they are providing a fair share to both groups of children attending either public and private schools in Tanzania.

- **Financing and Financial Management**

Previously, most of the education sector in Tanzania has been fully funded directly by the state. However, effective the 1980s, in addition to the normal school fees, parents were required to pay such costs as transportation, stationary, textbooks, and uniforms. Table 6.3 presents an approximate parents' contribution towards their children's education per year. It is noted that the amount of demanded contributions as a percentage proportionate

to the actual cost of education paid by the public vary across education levels. In secondary schools for example, every 5 Tanzanian shilling spent on education for one child, the parent pays 2 Tanzanian shillings.

Table 6. 3: Estimated Parents' Contribution to Education in Tanzania in Shillings[6]

Educational Level	Average Contribution	As Ratio of public contribution per student
Primary Education	27,500	2:1
Secondary Education	202,500	2:5
Teacher Education	190,000	1:7
Higher Education (UDSM)	476,000	0:41

Source: MOEC, 1999.

The same parents pays the actual school fees presented in Table 6.4. We note that fees in private primary schools, commonly known as "English Medium or Academy"[7], are not only more than fees in public primary schools, but higher than all other levels including teacher training. It takes the cost of 20 children in a public secondary school to educate one student at a public university.

Table 6. 4: School Fees Rates Per Year in 1997/98 in Tanzania Shillings

Education Level	Public Schools	Private Schools
Primary Schools Day	2,000	180,000
Primary Boarding	NA	300,000
Secondary Schools Boarding	70,000	140,000
Secondary Schools Day	40,000	80,000
Teacher Training Coll. (Boarding)	130,000	150,000
Higher Education	1,500,000 (UDSM)	500,000 *

Source: MOEC 1998 and UDSM (1998). * Currently only on St. Patrick (Private) University

We could conclude from the above figures that, by standards of a common person in Tanzania with an average GDP of slightly over $ 250, it takes an enormous sacrifice in

[6] The exchange rate is 800 Tanzanian Shillings for 1 (one) US $.
[7] Fairly recent phenomenon and applicable in major cities particularly the capital – Dar es salaam

order to send more than one child to post-primary education. Despite the impressive local community initiatives and donor support, the government of Tanzania, like any other government, will continue with the obligation of providing its youths with formal education. It has to devise methods of response mobilization, ensure successful decentralization already in progress and empowering local community for primary education. That will certainly require what Omari's urge for "political commitment", while at the same time considering an effective coordination of all those involved in providing formal education. That cannot be when politicians are divided in terms of commitment and priorities, but "...only when the politicians will rally around educational reforms and progress that both the financial and moral support will get the initiative going" (Omari 1998, p.xi).

The English Language Proficiency Question

Both the teacher and student samples rank the English language proficiency variable 8th out of 15 and 25 conditions affecting educational performance, respectively. These findings are in line with the on going debate regarding language of instruction (LOI) in Tanzania. The pro-Kiswahili argue why Tanzania should continue using English and not Kiswahili as a medium of instruction in secondary and higher education.

Kiswahili has been used as a medium of instruction for primary education since the introduction of western education during the German administration (Dodd, 1970; Rubagumya, 1999). When the British took over in 1918, they introduced English taught as a subject in primary schools. When education was extended to 'Middle Schools'

(Standards 5-8) in the1940's, English was used as the LOI for standard Seven and Eight (STD.VII and STD.VIII) because candidates were to write British Examinations at the end of the Primary School cycle. Secondary education level which was introduced later, used exclusively English as the LOI . English was then the language of the learned, a language of the rulers (the British) in administration, but not a common language spoken outside school and workplaces.

After attaining political independence in 1961, local politicians used Kiswahili to identify themselves with the masses, and the status of English language declined. Qorro(1997) gives five reasons why English language proficiency has declined among Tanzanian scholars as the following:

- In the 1940's-50's English was the language of rulers and therefore, and therefore, perceived as a "symbol of power" wielded by politicians. Thus, the students' desire to identify themselves with the language of the rulers acted as a motivating factor in mastering English language at school. That factor changed as a result of the replacement of foreign by local "rulers" addressing the masses in Kiswahili and not English anymore;

- Since better education with high English language skills was also correlated with employment opportunities, it served as a motivation to learn English as a prerequisite for lucrative employment. In the current Tanzania, although the language continues to be the official language used when dealing with non-

Swahili speakers, English is a less important condition for employment. That has in turn, lowered the motivation role it otherwise served previously;.

- In the 1950's teaching English in Tanzania was done either by the native English speakers or well qualified natives. Today, Qorro argues, "there are very few qualified teachers of English and therefore, it is not possible for the teaching of English to reach the level that it did in the 1940's and 1950's" (p. 132);

- In the past there were plenty of English books readily available in schools and libraries that students could read. Today they are rare;

- A language is best learned by using it. In the 1950's Qorro asserts, "most secondary schools were boarding and encouraging the use of English after school hours by prohibiting the use of vernacular was then practicable" (p.132). With more day secondary schools in modern Tanzania, prohibiting use of language other than English after school hours is almost impossible.

Using Qorro's reasons causing the decline of English language proficiency in Tanzania, the pro-Kiswahili camp is proposing Kiswahili to be the language of instruction at all levels of the formal education system through university in Tanzania. The pro-English camp, on the other hand, opposes the notion and argue against two assumptions made by the pro-Kiswahili that the standards of English have been falling and that when used as LOI, it negatively affects comprehension and subsequently educational performance.

They (pro-English) argue that, as matter of fact, data and literature in education shows lowest performances in the sciences and not English (Omari 1998, p.96).

Meanwhile, although no statistical significance test was performed in a study conducted by Campbell and Qorro (1997), the difference between English and Kiswahili scores (41.5 and 45.9 respectively) was not large enough to support the Pro-Kiswahili argument. (Campbell & Qorro 1997 p. 160). According to Omari, what is perceived to be a decline could possibly be the increased variations due to increased enrolment"(page 96), which is both natural and an expected phenomenon in all education systems. In other words, Qorro's claim that best performers of the 1950s no longer exist in the current system is an oversight. They perform equally but with increased enrolment to address equity, best performers are subsumed in a larger[8] crowd of generally educated people. However, there is no doubt that with the increased enrolment in an almost stagnant economy there has been a mismatch between enrolment and textbook supplies already noted in the review of literature. Yet, English is not the only subject affected by the shortage of instructional resources in Tanzania.

In their second assumption, the pro-Kiswahili claim that the current poor performance in education is an after-effect of using English as a language of instruction in post secondary education. They cannot extend that argument to the primary school level where the LOI is exclusively Kiswahili and yet performance is not any better, I would agree with them that LOI that is a second or a third language to the learner, presents the most obvious obstacle for instructional effectiveness. For the second or third language

competency, reading and instruction takes longer to comprehend (Hetes, 1996), and articulation may be slower and difficult (Elvin, 1961). All of which may lead to what is known in the literature as "second language discomfort, embarrassment and fatigue (Alder & Kiggundu 1975).

However, Qorro admits in her five reasons above that, English is not mastered well enough in Tanzania because it is not practiced enough. By using it as the LOI in higher levels of education, after the basics are mastered at the primary education level is believed and indeed the objective, to give students more opportunity to practice the language which they cannot practice at home. Otherwise learning a second language is a national objective stipulated in Education and Training Policy as:

> To promote the development of competency in linguistic ability and effective use of communication skills in Kiswahili and in at least one foreign language (MOEC, 1995 p.6).

Coupled with the overall objective of secondary education listed earlier, "to prepare students for tertiary and higher education, vocational, technical, and professional training" the language policy leaves a common Tanzanian with three interrelated questions:

- Does teaching in English really an exclusive variable reducing the effectiveness of secondary education in Tanzania?

- If switching to Kiswahili as LOI will automatically improve performance how do we explain an equally low performance in primary schools where Kiswahili is exclusively the LOI?

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[8] than the educated crowd of the 1950s.

- Already there are urban based English speaking families in Tanzania. Do children of such families accrue superior chances of access and better performance in post-secondary institutions both within Tanzania and abroad?

The answers will probably help winding up the language debate when we realize that there are evidence that language preference is not just a matter of pedagogic efficiency, but linked to wider political and socioeconomic factors including the perceived status (Yates 1995).

Rubagumya (1999) takes a neutral position and proposes "bilingualism". That is giving people a choice of what medium they want their children to use and by that way address to the interest of all. Rubagumya's proposition is supported by the already emerging attitude of rich parents sending their children to English medium schools (Academy) despite the high costs noted earlier. He argues that with current liberalization in place, "... a policy could be put in place which would give everybody equal access to education in a language understood by everybody, but this would not prevent those who want their children educated in a foreign language from doing so their own expenses" (p. 141).

Personally, I think the bottom line is hatred; not wanting to use the language of the former ruler and associating English with colonialism. Yet the fact remains that Tanzania will continue to be a part of the global village where English language dominates as a necessary prerequisite for survival at the regional and international competition in trade, technological advancement, exchange of human capital, and indeed, the spring-board for

advanced education. Recognizing Kiswahili as superior to any other language is politically correct, but ignoring English and therefore, denying future links to the external world will not only be socially incorrect, but also render Tanzania's socio-economic advancement disabled.

- **Diseases and Epidemic Factors**

Diseases and epidemics were not mentioned by the study sample as a plausible factor affecting educational performance. May be because people have lived with such common diseases as 'malaria' dysentery and malnutrition for centuries in the developing world and Tanzania in particular. The diseases have become a part of life and people take little notice of their (diseases) impact to many of their activities. However, not aids. This study observed in the field and school records, particularly in the enrolment trends that diseases, poor health, malnutrition, and now Aids, make detrimental impact to educational performance.

Recent figures for Aids infection in Sab Saharan Africa are scaring. Table 6.5 shows recent figures and percentages of infection rates in top ten countries of sub-Saharan Africa. It is estimated that by the end of the year 2000 Africa will have 12.1 million orphans. The fact that Tanzania, Uganda, Burundi, Mozambique among others are not the list does not mean any less infected. Many people are dying and thousands of children are orphaned. In Tanzania the case of declining enrolment rates noted by Sumra (1995), Katunzi (1999) and MOEC (1999) support this fact.

Table 6.5: Aids infection rates in Sab Saharan Africa by % of population

Country	Percentage	Actual Number
Botswana	35.8	280,000
Swaziland	25.3	120,000
Zimbabwe	25.1	1,400,000
Lesotho	23.6	240,000
Zambia	20.0	830,000
South Africa	19.9	4,100,000
Namibia	19.5	150,000
Malawi	16.0	760,000
Kenya	14.0	200,000
Central African Rep.	13.8	230,000

Source: The Guardian Weekly, July 13-19, 2000

The most commonly asked question is "who will bring up the orphaned children?" Nevertheless, bringing them up includes education and that adds to the question, "Who will educate them? This are very current as opposed to future questions, a challenge to governments, but also a challenge to the traditional communities too. The traditional 'extended family' life style of Africa, where orphans were, and continue to be, distributed among 'survivors' to care for and bring can no longer cope with the flooding number of Aids victims unfortunately ineffective and gradually fading away. Experience in the field also suggested some degree of fear to contact orphans of aids victims, which this study perceives as a challenge to educators for mass education to the Tanzanian community. Based on the above facts, diseases and epidemics were observed as important variables also affecting educational performance in Tanzania and included in the factors identified derived from the sample data.

Current Concerns and Renovations

Although there are effective reform plans at the primary education level, there are none for secondary education level yet (Omari 1998). There are however, ongoing studies for expansion of physical infrastructure, quality improvement and ensuring equity and already there are proposals and recommendations from both by the Ministry of Education and the donor community[9] regarding resource mobilization and reinvestment strategies. The World Bank, for example, recommends that for a viable education investment model Tanzania should;

- Redirect her resources to basic education and privatize higher education;
- Give more autonomy to institutions of higher learning ;
- Encourage Institutions to generate their own funds;
- Use contracted services rather than providing them;
- Abolish the current students loans scheme from the government and let students use commercial banks;
- Use private and employers based training;
- Donor community should target primary and secondary education and ; and
- Encourage private initiatives.

The bottom line is privatization ideology and local resource mobilization. The proposition assumes that, if resources are redirected from higher education to both primary and secondary education level, the Ministry of Education and culture would have

[9] Major members of the donor community include the World Bank, DANIDA, SSIDA, UNICEF, ODA

enough resources to invest and bring about more effective reforms in the two sectors. That would include improved teachers' services and work schemes, and to provide basic requirements in the classroom particularly instructional materials.

Meanwhile, higher education institutions should be privatized and made more autonomous. While the foregoing proposals would make some sense in more developed economy, Omari (1998) observes that, "in a country such as Tanzania where the majority of the people live below poverty line, privatizing universities, for example, without government subsidies would be risking the life of higher education in Tanzania. (p.vii). Likewise, although private and employer based training reads very well, in a list industrialized country where employment is less than 20%, who are the chief employers?

The Ministry of Education, we note, employs a total of 122,432 classroom teachers and about 2453 administrators and inspectors (MOEC,1999). That makes MOEC the chief employer in Tanzania (Levin,1994) which according to World Bank's proposal, employer based training will still exhaust the meager public resources. Proposals for higher education students to use commercial banks does not seem practicable nor acceptable to private banks given uncertainty of employment and subsequent problem of tracking graduates for repayment formalities.

Meanwhile, local initiatives have instituted an Education Sector Development Programme (ESDP) in response to the current education crisis. The ESDP has the task of

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Irish Aid, and NORAD among others.

planning and implementing education reform plans including quality control, equity, teacher realization and retrenchment.

Unfortunately however, most of the ESDP plans and activities above are donor funded and have their future at the hands of the donor community. Already the two parties- the donor community and the recipients disagree on fundamental issues. Tanzania, for example, wants to embark on both long term and short term plans in an integrated and 'wholistic' approach to her educational problems. To realize that a "donor-basket" is proposed where resources would be pooled together to have a stronger financial capacity. That would also facilitate a coherent thinking frame and avoid overlaps caused by individual donor initiative of stand-alone projects.

Whether or not the proposal was wholly agreeable to all donors is more interesting than the proposal itself. While many would support the donor-basket idea in public meetings as they did at the education appraisal in March 1999, individually the donors do not subscribe to it. They rather prefer stand-alone projects approach because, I believe, they want the world community to recognize how much each has individually "donated to the particular poor". Meanwhile, some are grants and loans that "poor Tanzania" will have to repay sometimes with high interest rates. It is again regrettably noted that, in many instances what the developing countries get in the name of grants and loans bring with them ties of expenditure dictated from the original donors. In the process, a substantial proportion of the funds return to the donor country only to defeat the original purpose of the financial aid.

Mobilization of local resources is a great idea. It might take a little while longer, but capacities are enormous when properly harnessed. The current move towards decentralization and empowering local community to have a say on basic education for their own children is worthwhile. According to the 1999 Appraisal documents, the reform strategies cover:

- Establishment of a transparent, comprehension and accessible legal regime to demarcate responsibilities, clarify roles, and minimize conflicts;
- Introduction of education management information systems, that responds to central and district needs and conditions;
- Establishment of a supra ministerial statutory body to coordinate all ministries and agencies involved in the provision of post secondary education and training. (ESDP 1999 b, page 6).

The primary education level already functions under district councils while the central government takes a coordinating role. At the secondary school level, decentralization is still at a proposal stage (Galabawa, 1997). However, according to ESDP, the central government intends to "devolve operational management of secondary schools to the schools, and address issues related to the growing management inconsistencies between school categories. The government will also have in place a sound, two-way communication system by which to secure full capture of information sharing between schools and all levels of the administration. The objectives again underscores holistic

ideology, decentralization of responsibilities to involve local communities and establishing transparency for public awareness of what takes place and hopefully see where they can also participate, in order to achieve the goals. The objectives include:

- a 25% increase in students performance by 2004 with gender equity and urban/rural, public/private properly disparities;
- a revised curriculum for quality and relevance and draw up strategic plans for implementation;
- a sustainable a demand-driven instructional materials system including cost-sharing measures and target book grants by government to poor families;
- restored academic standards and students achievement through strengthening quality control measures and regulatory systems, including inspections, mandatory teacher qualifications and retraining; and
- a system for the selected rehabilitation of existing schools through community participation and locally based contractors (ESDP 1999a, p.46).

Teachers' Opinions For the Way Forward

The sample teachers were asked for their opinions regarding what they perceived to be an appropriate way forward towards improved educational performance in Tanzania. Their opinions were broad, but somehow similar to ESDP proposals discussed above. The following are ten summary statements of their opinions:

- Encourage more private secondary schools;
- Rethink a new school curriculum that addresses community needs;
- Decentralize public secondary schools to the regional administration;
- Train school administrators;
- Put in place a national unit for instructional materials renovations using potential resources available locally and addressing local needs and specifications;
- Ensure an equal distribution of rare resources regardless of school type and locations;
- Consider using electronic technology for educational processing and delivery systems such as computers, instructional television and radio school broadcasts;
- Respect and effect recommendations derived in recognised teachers' forums;
- Develop information dissemination systems for information and knowledge charring between schools.

Only the proposed use of electronic processing and far-reaching educational delivery systems such as computer application and school broadcasts through Television and radio are additional to the ESDP action plans discussed earlier which need not to be repeated here. Thus, this section briefly examines only the 'Schools Broadcast' proposal. Computer assisted instruction is also dropped for two reasons. While the price of a computer unit has remarkably lowered, to consider 'whole sale' adopting computer technology form alien systems to the Tanzanian school situation will not only be irrelevant, but over-stretching the already drowning economy. However, computer

technology may be used as an administrative tool for information retrieval through internet and reproduced (observing copy rights) for wider use within schools as well as a word processing and record keeping tool, but asking the government to squeeze the poor tax-payers further in order to supply computers for CAI in formal education is presently both impracticable and unethical.

- **Broadcasting to Schools Through Television and Radio**

The promise in the application of far reaching electronic technology had attracted much enthusiasm world-wide since the 1960s. The flush of Television which was supposed to revolutionise educational delivery in the 1960s has faded into memory. For instance, many of the ITV projects that were adopted to serve educational crisis in newly independent states in the third world countries such as the Niger, the Ivory Coast and the American Samoa TV projects, never kept the promise (Chu & Schramm, 1977). Rather, they were short-lived and could not solve the long term problem of limited educational opportunities in those countries (Hawkridge & Robinson, 1982; Gayeski, 1989, Brock, 1994).

Basic questions that a country needs to consider before adopting instructional technology to address educational problems should include among others; why ITV; what other options exists; what are the actual costs involved, who and where are the target audience; and what potentials exist? Jegede, 1992; Levira,1997). Reasons for opting ITV in the above example varied from country to country, but the most common reasons included inadequate school places for all school-age children, scattered communities,

inaccessibility due to poor infrastructure, and inadequate qualified human resources particularly teachers (Hawkridge & Robinson, 1982; Siepman, 1970, Schramm, 1973). Other options too, will depend on the nature of the problem and potential answers to the rest of the above questions. However, the best option for most effective and, yet affordable option, is always training enough teachers, face-to-face interventions in a conventional classroom. The costs involved in ITV are arguably enormous (Carnoy, 1975; Fieden, 1978, Goto, 1972 and UNESCO, 1977). Without external sources, a typical poor country such as Tanzania might run at risk by opting ITV as a solution to her current educational problem.

As Siepman (1970) would argue, cost effectiveness of ITV require a large and scattered target audience. Tanzania assumes scattered communities such as the Masai community of the northern Tanzania, but in the current state of affairs, Tanzania should not, in my opinion, consider using ITV for obvious reasons of her limited resources and existing potential alternatives.

Although the 'why fail' question of the ITV projects mentioned above has always drawn inconclusive findings, many critics regard the quality of educational programmes as the fundamental cause for the failure (Cathcart, 1993). Meanwhile, Britain diagnosed the fault to lie with the education authority and classroom teachers (Becker,1965). Schramm et al associates the failure with irrelevance of programmes and materials, excessive costs, culturally conflicting ideas on message designs among viewers, and evaluation flaws. Yet, even when all the above are present, Hooper (1967) argues that without top level

commitment, there will be no favourable climate in which change can happen through ITV. It is also in our memories that the above mentioned projects were, to a large extent, externally funded mostly by former colonial masters. That meant a transfer of alien programmes relevant to the metropole, but forced to new cultures for which they were unrelated.

Upon consideration of the above, this study concludes that Tanzania does not, at this point in time, have major problems that warrant undertaking of such expensive options as ITV. However, Tanzanian experienced the enthusiasm of "Radio Broadcasting" to schools in the 1950s and 1960s, the national Health and Political Campaigns of the newly independent Tanzania still ring in our memories. A common Tanzanian present at that time does not need foreign evidence in order to acknowledge the effective role played by Radio Broadcast to "Middle Schools"[10] and Secondary Schools in common curriculum subjects such as the natural sciences, languages, civics, music and drama. A single radio teacher in Dar es Salaam addressed all the target schools grades all over the country at once resulting into a common understanding of general concepts that might otherwise have been understood differently by individual teachers' approach.

Reasons for the abandonment of radio broadcast to schools in the 1970s were not well published and therefore, allow various speculations. The Majority were made to believe that the shortage of alkaline batteries during the economic recession period of the 1970s accounts to it all. Yet, some could associate it with lack of commitment by the authority. Whatever the reasons, Tanzania is now faced with such a situations of inadequately

qualified teachers in English language claimed by Qorro and Rubagumya above, and true of similar shortage of teachers in the sciences. By schools broadcast the expertise of the few qualified teachers available, could effectively be shared among all schools in Tanzania through radio broadcast. That could be a short term solution to the problem of English language incompetence among students subject pending long-term solutions through quality training of teachers and administrators. Given the potentials now available such as power supply in most secondary schools, solar energy technology where hydro electric power supply is still missing, and "crank radios"[11], the present Tanzania can certainly afford Radio broadcast to schools.

To conclude, this chapter has discussed to some detail, the findings revealed in the study and some emerging issues. The objective was to use qualitative data also collected in the study to provide explanation of patterns revealed in quantitative data analysis in Chapter Five. Adequacy of explanation has largely depended upon information available through interviews, discussions, research instruments, as well as the researcher's experience of many years of service in the system of education in Tanzania. Though limited, the responses from the study sample has provided some useful support data for discussion. The teachers' opinions at the end of the present chapter have initiated a discussion on educational broadcasting which, the study hopes, the Ministry of Education and Culture will reconsider reviving as an additional solution to the current problem of education in Tanzania, particularly in the languages as an aspect of culture and natural sciences. The

[10] Then Standards V to VIII, now Primary V to VII.
[11] Crank Radios operate by self generated electricity by a winding device.

next chapter summarises the study and makes final recommendations before it states the limitations of the study and suggestions for further research.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to investigate the current educational performance pattern in relation to adequacy of instructional resources in Tanzania. The theme was prompted by the views expressed by the Tanzanian Community regarding what has been described as a declining trend in educational outcome as evidenced by students' performance on national examinations.

Inadequate instructional resources in schools has been perceived, as the cause of the decline. However, based on the literature of education and the observations this study exhibited other variables that probably negatively affect students' performance in Tanzania. This study set out to investigate both possibilities based on the following hypotheses:

- There is a declining trend in educational performance varying with school types and locations in Tanzania;

- There are other conditions beyond instructional resources that also negatively influence educational performance in Tanzania.

The First Hypothesis

To test the first hypothesis, a trend analysis was performed to determine presence of any declining trend. Results partly support the hypothesis. Although trend analysis plots suggested declining trends in all the Zones and school categories, the statistical tests carried out revealed a significant general declining trend only in the Southern Zone, and a decline for boys only at the Central zone. The rest of the regions showed no overall statistically significant trends.

When analyzed separately by 'Old' and 'New Schools', results revealed a trend polarity. At one end, although performing high, 'Old Schools' were significantly declining. On the positive side, although performing generally low when newly established, performance for 'New schools' rose significantly for the years examined. Results also reveal performance differences between gender groups with female students consistently under-performing male students. The two competing trends of decline in some areas on the one hand, and a rising trend on the other hand in other areas makes some alarm plausible, and yet, for the whole nation the overall declining trend in the last twenty years is minor.

Regarding the performance differences by Zones, qualitative data and records reveal that some regions (e.g. Mtwara, Lindi, Rukwa, and Kigoma) had generally received less attention ever since the introduction and development of formal education. Coupled with underdevelopment in cash crop economy, such Regions did not keep pace with the more privileged Regions where the introduction of cash crop economy stimulated social change as well as the refining of peoples' attitudes and responses to formal education. Additionally, the old traditions and beliefs in the less privileged Regions have persisted over time and now

denying children's access to educational opportunities particularly to girls. Thus, although they are gradually phasing out, early marriages among the 'Yao', the 'Ngoni', and the 'Zaramo' of the East-Southern Tanzania for example, are obvious factors negatively affecting girls' full participation in formal education. It has been argued in this study that, unless such oppressive customs are eradicated, our national goals and objectives of equal enrolment particularly among gender groups at all levels of formal education will not be uniformly achieved. The study recommends that such obsolete practices be identified from within the sub-cultures and that there be a national priority to bridge the gap between the two regional extremes of the privileged and under-privileged Zones.

The study also observes that, although people have often pointed an accusing figure at the "government" for poor services, inadequacy, inefficiency and a lack of commitment, the government reflects the people and therefore, some members of the community are also a cause. On the one hand, a government does not exist in isolation, but is an organ made, enabled by, and to serve the people. The study believes that some of these flaws for which the government is often blamed are, to some extent, a function of the acts of many individuals who, based on their own interest and egoism, use their positions to deny others the rights and services which they deserve.

Adopting quotations from Mohanty's (1991) "politics of location" and from the words of "Mwalimu Nyerere"; "It can be done, play your part", this study recommends that individuals in their varied capacities and their own initiatives locate themselves for efficient participation towards national objectives. It is only then that Tanzania will be adhering to

what Paulo Freire says that: through 'conscientization' we understand our situation and through our 'praxis' we transform the state in which we have been trapped (Freire, 1970).

The Second Hypothesis

To test the second hypothesis, qualitative, rank survey and interview data were collected from both teachers and students in a broad sample of secondary schools. Results of the sum of ranks analysis of the survey data support the hypothesis on multiple causality. A total of twenty other variables in addition to inadequacy of instructional resources, were identified also as being perceived as negatively affecting educational performance in Tanzania. Both teachers' and students' derived variables were categorized into six principal factors affecting educational outcome in Tanzania, namely;

- Evaluation factors;
- Administrative factors ;
- Resources supply factor;
- Practices and procedural factors;
- Socio-economic factors;
- School curriculum factors; and
- Diseases and epidemics factors

The assertion can plausibly be made that since many children are orphaned, and in fact some infected, the AIDS epidemic and endemic diseases constitute a health variable which is probably important in influencing educational performance.

The discussions

In the discussions Chapter, where both the qualitative and quantitative data are combined to answer the 'why' question, the study finds that, given the multiple objectives and the commitment to provide basic education for all in Tanzania, opportunity costs are unavoidable. The study concludes that the performance decline do exist locally. Considering the stated commitments and objectives in the perspective of the almost stagnant economy, the limited local declines are outweighed by the advances in access. Thus, local declines are (or ought to be) best seen as rather a worthwhile sacrifice made for the good purpose of a broader accessibility. This is a sacrifice that ought to be better understood given our philosophy of socialism based on the principles described in Chapter Two, e.g. "Nobody gets a second exercise book before everybody else has a page to write on".

It is also argued that if quality in education means well qualified teachers, adequate supply of instructional materials in schools, quality services and, subsequently, high scores on national examinations, then Tanzanians can now know 'why' this experience changes either both for the worse and for the better. We consider, for example: five years of training of enough teachers only through distance education to meet the demand for increased enrolment, building new classrooms and doubling the school supplies which has been achieved. All this in a country whose GDP is only about $200 and where over 50% of its people are living below the poverty line. Nowhere in the literature has any country of the developing world been able to achieve both equity and high quality together without sacrificing one or the other.

Tanzania cannot afford to reverse its commitments to universal education in order to enroll a selected few more into 'excellent' learning environment to produce "qualitatively higher" educational outcomes, at the cost of denying millions of other children access to basic education. We need to become fully aware of our commitment and the costs involved and we need to better understand what opportunities exist and what roles each one of us has to play in our various capacities in order to gradually realize both objectives.

Causes for inadequate resource supply in schools have, in turn, publicly been associated with the diminishing budgetary allocation to education in recent years. However, again based on qualitative data and records, this study disagrees with that assumption and concludes that the problem is one more of administrative oversight. Since independence preparations for the production and supply for school materials have not received adequate attention nationally. Apart from some textbooks, there has been very little effort to locally produce school materials and particularly school equipment for instructional purposes. Consequently, there is continued importation of foreign school materials which are both an economic drain and irrelevant or inadequate to our local need specifications. Based on that fact, this study recommends that the Ministry of Education revisit and revive the, temporarily shelved, proposal to establish a School Equipment Development Unit (SEDU) as discussed in Chapter Six.

Recommendations

In addition to the foregoing conclusions, and on the basis of the foregoing findings, interpretations, and on the basis of the literature, this study makes five general, related, recommendations as follows:

1: Import Substitution

Adopting from Felicity (1985) and Tobon (1988), Levira (1997) recommends "import substitution" of "instructional materials"[1] for schools in the developing countries. That means to adapt from what already exists, simple school material and equipment, modify and reproduce locally to address the questions of adequacy, cultural and geographic relevance and for the reduction of economic drains. Adoption of such Tanzanian innovations, it is argued, would also use, largely, local resources available and produce school materials that are culturally relevant to both school syllabus and local specifications.

The SEDU should be the starting point and, in a sense, this would develop a form of school materials production industry, a unit just as important as the agricultural and textile industries. Ideas and prototypes would come from teachers through Subject Teachers' Associations (STA), Teachers' Resource Centers (TRC), as well as from individual teacher's creativity. These prototypes would, in turn, be further researched upon, improved and tested before they are reproduced for wider school use nationally. Such materials might also generate income by being exported to other African countries using Kiswahili and English languages.

[1] Excludes Human Resources

2: Writing Workshops

TANZANIA/ UNICEF Complementary Basic Education Programme (COBET) seems to have succeeded in developing instructional materials for out of school children through writing workshops. Already, basic education booklets on numeracy, life skills, language and general knowledge have been produced and are now used in selected pilot districts. However, there is no doubt that the costs involved in such workshops are large and may raise doubts about cost-effectiveness until compared with the costs of importing ineffective foreign materials. It may also seem to work well at the basic education material development level, but possibly less well for more advanced knowledge at the post primary level.

The Open University of Tanzania (OUT) takes a different approach and commissions potential individual writers (subject experts). Manuscripts are then subjected to a series of formative evaluation procedures before they are approved for publication (OUT 1998). Adopting from OUT approach, this study recommends that the same approach be used for writing secondary school textbooks. This is in addition to the current self initiative writers and, would imply that either curriculum developers or the Ministry of Education identify, persuade, guide and commission potentials writers to write for specific school audience. Manuscripts would then be formatively evaluated through pilot testing with learners, and by subject teachers associations as well as by other distinguished subject experts.

3: Learning From the Past

The old ways of doing things are not always the worst nor are they hopeless. Story telling, songs, folklore and drama were once very effective educational strategies in traditional communities, but are now overshadowed by new techniques some of which however fashionable, are rather ineffective in some community settings. For instance, the success of Radio Broadcasts to schools in the 1950s and 1960s, in the Functional Literacy Campaigns, and more recently, in the training of over 35 thousand teachers to meet UPE deadline in Tanzania was phenomenal. Yet, radio now seems to be considered obsolete in the presence of the computer age and is not thought of as the probable solution to current educational problems which it can be.

In a situation where 80% of primary school graduates have no access to secondary education for example, selected topics in biology and modern farming methods, would be a prerequisite to improving agricultural sector. These could be taught through radio supplemented by simple printed texts or primers. This study recommends that Radio broadcasting be reconsidered as a viable information delivery system, one capable of disseminating the basics of secondary school topics to youths who have no access to conventional secondary schools since almost all young people have access and listens to radios.

4: Curriculum Change

Osaki (1998) notices many changes in the primary school curriculum within a few years of post independence. Although the desire for the changes have been genuine and for spearheading the national goals, the implementation of the changes have often been

inefficient, overlapping, and unsatisfactory. One of the reasons is a lack of focus. Not many of our policy implementers are clear about what we need to achieve in the primary curriculum. Is it a springboard for secondary level education or a prerequisite for active participation in the agricultural village adult life or both? Trying to combine the two objectives has resulted in an overcrowded curriculum as discussed in the previous chapters.

While the combination seems necessary, this study supports Komba's (1998) proposal to merge some areas into an interdisciplinary curriculum that will subsequently reduce the unnecessary 'compartmentalization' and redundancy currently overloading the secondary school curriculum as revealed in this study. The curriculum at the secondary education level would then have to be adjusted to match the entry point after changes at the primary school sector are effected. Otherwise, the end of primary education and the beginning of secondary education would be unrelated.

5: Participation by All

Basic to our education and development weaknesses in most of what has been discussed in this study, are the obsolescent top-down management systems and the lack of participation by all. Participation by all is lacking when a system rewards 'thinkers' at the top, but encourages only a few, if any, to take active roles in the middle towards realization of national objectives. Meanwhile, staff 'robots' at the lower end mechanically implement ready-made plans without providing any of their own creative mental input. Thus, teachers and students being at the receiving end, tend merely to receive orders to do what has been prepared for them, regardless of their preferences or their workability of the orders.

Consequently, even where opportunities exist, individuals shy away from trying new ideas, to avoid risks and therefore, they fail to invest their best towards national goals.

This study adopts results from Mohanty's (1991) study and recommends participation by all, both at the decision-making as well as the implementation stages. Thus, every citizen in their own rights and capacities whether as administrators, representatives, parents and guardians should helped to become aware of national objectives (e.g. through mass media, fliers and functional literacy classes) and to locate themselves on where and how they should get involved towards the realization of national objectives through local organizations. Community of parents should, for example, release their daughters from the oppressive practices that subject girls to arranged and early marriages in some societies, and from biased house chores, unequal gender relations and subsequent disparities in access to educational opportunities. Likewise, representatives and public officials should be helped (e.g. through civil service in-service training), to consider their positions as trusts by the community to provide efficient services with maximum transparency and fairness.

Recommendations for Further Research

The findings of this study shed light on educational performance patterns in relation to school types and locations in Tanzania. Yet the study leaves a lot of 'why' questions unanswered, partly because of the limited available data, duration of study and costs involved. There were also problems of inaccessible locations that dictated a sampling procedure by which only tentative inferences can be made nationally. However, given more resources, this study recommends that further studies in three areas be made:

First, to investigate how the lack of or inadequacy of specific instructional materials actually influences performance in the classroom and what alternatives for providing better resources exist. Results in this group of studies would determine priorities of instructional materials necessary for any effective learning; an information required by SEDU recommended above. Studies should focus on activities inside the classroom, the learners in relation with their teacher and the learning environment. Monitoring performance should be by longitudinal studies to determine how students from a combination of location and school type variables perform overtime in order to determine future input priorities.

Secondly, a group of studies to investigate potential topics from and relevant to. different ethnic sub-cultures and workplace, that need to be considered when reforming the school curriculum to address the question of curriculum relevance to the local culture and economy should be carried out.

Studies here should include some on the differential upbringing of children in different sub-cultures with emphasis on gender relations, religious orientations, and how current instructional materials in schools individually or generally affect these groups in learning processes. Results will not only shed light to curriculum planners, but also give the community an opportunity to participate in determining desired prerequisite knowledge and life skills necessary for sustainable community life and national economic returns. Results will also facilitate determination and elimination of oppressive practices present in some sub-cultures to which female children and other minorities such as children with disabilities are most vulnerable.

Thirdly, but not least, a group of studies concerning educational importance of students' health problems: epidemics and endemic factors particularly the dreadful killer 'AIDS' and the orphaned should be carried out. This dissertation study has noted declining enrolment in some Regions and Zones and whose probable cause may be; health problems and orphaned children. Recommended studies in this area could encounter some peoples' unwillingness to reveal facts about "AIDS", but it nonetheless requires emphasis that to help orphaned children with access to education and of course to teach nursing for those who are already infected detailed information is needed.

With all the above information and analysis now at hand we can be more enlightened about additional factors affecting educational outcomes, (including curricular needs) which designers, planners and school authorities may now use to make better informed decisions and to implement more effective and more publicly convincing educational practices in this 21st Century.

References

Abayo, A.G. & Kaijage, E.S.(1997). Economic Efficiency of Secondary and Tertiary Education and Training Sector in Tanzania. *Papers in Education and Development, No.18, p.1-30*

Alexander, P.A. & Judy, J.E. (1988). The Interaction of Domain-Specific and Strategic Knowledge in Academic Performance. *Review of Educational Research, 58, p. 375-404*

Aoki, M.& Havenner, S. (Ed)(1997). Application of Computer Aided Time Series Modeling. Springer – Verlag : N.Y, Inc. New York.

Baker, L & Brown, A. L.(1984). Metacognitive Skills and Reading. In P. D. Pearson (Ed.). Handbook of Reading Research (353-394) Anglewood Cliffs, New Jersey.

Bassett and Smythe (1978). Communication and Instruction. Harper & Row, New York.

Banathy, B.H. (1991). Systems Design of Education: A Journey to the Center of the Future. Englewood Cliffs; N.J. Educational Technology Publishers.

Becker, S. L.(1985).The Utilization of Television Schools Broadcasts in England. The University of Nottingham; Institute of Education.

Beishuizen, J. Stoutjesdijk & Van-Putten, K.(1994). Studying Textbooks: Effects of Learning Styles, Study Task, and Instruction. Learning and Instruction 4, 151-174.

Belle, W. & Harvey, B. A.(1987). Assessment and development of potential of high school pupils in the third world context of Kwa-Zulu/Natal, *Part I. Gifted education International, Vol. 5, p.6 - 9*

Belle, W. & Harvey, B. A.(1988a). Assessment and development of potential of high school pupils in the third world context of Kwa-Zulu/Natal, Part II. *Gifted education International. Vol. 5, p. 72 - 79*

Belle, W. & Harvey, B. A. (1988b). Assessment and development of potential of high school pupils in the third world context of Kwa-Zulu/Natal, Part III. *Gifted education International. Vol. 5, p. 132 - 137*

Bendera, S. (1997). Intervention for the Promotion of Girls Education in Tanzania. *Papers in Education and Development, University Dar es salaam, No.18, p.84-96*

Bendera, S. (1997). Intervention for the Promotion of Girls Education in Tanzania. *Papers in Education and Development, University Dar es salaam, No.18, p.84-96*

Bendera, S.(1994). Gender and Education. *Papers in Education and Development., University of Dar es salaam. No. 15 p. 7-18.*

Bestor, A.E. (1955). The restoration of Learning: A program for redeeming the unfilled promise of American education. New York: Knopf.

Beth, M. (1965). Education as a Discipline: A study of the role models in thinking. Boston: Allyn and Bacon.

Bloom, B. (1969).Taxonomy of Educational Objectives. New York: McKay.

Bower, T.G.R. (1965). Stimulus Variables Determining Space Perception in Infants. *Science, 147, p. 88-89.*

Box, E. P. & Jenkins, M.G. (1978). Time Series Analysis: Forecasting and Control Oakland Cliff; Toronto: Holden Day.

Box, E.P. & Jenkins, M.G. (1994). Time Series Analysis: Forecasting and Control. Englewood Cliffs, N.J.: Prentice Hall.

Boyd, G.(1988). The Impact of Society on Educational Technology. *British Journal of Educational Technology, 19 (2), p.114-122.*

Brock, P.A. (1994). Technology on the Classroom. Angle wood Cliffs, New Jersey.

Brown, A. J. and Ferrara, R.A. (1985). Diagnosing Zones of Proximal Development; In Wertsch, J.V.Communication and Cognition: Vygitskian Perspectives. Cambridge University Press, New York.

Brown, H. (1979). Perception, Theory and Commitment. Chicago: Chicago University Press.

Bruner, J. (1985). Vygotsky: A Historical and Conceptual Perspective, In Wertsch, J.V. Culture, Communication and Cognition: Vygotskian Perspective. New York: Cambridge University Press.

Buckland, P. (2000). Making Quality Basic Education Affordable: What Have we Learned? UNICEF PD - ED. Education Programme.

Burns, D.G. (1965). African Education: An Introductory Survey of Education in Commonwealth Countries. Oxford University press, London.

Busia, K.A.(1964). Purposeful Education for Africa. London: Mouton & Co. Publishers.

Bryson, V. (1992). Feminist Political Theory: An Introduction. Paragon House, New York.

Cain, M. A. (1980). Boys and Girls Together. Holmes Beach: Learning Publications.

Cameron, J. & Dodd,W. (1970). Society, Schools, and Progress in Tanzania. Oxford, Pergamon Press.

Campbell, Z.M.R., & Qorro, M.A.S.(1997). Language Crisis in Tanzania. The Myth of English Versus Education. Dar es Salaam: Mkuki na Nyota Publishers.

Carnoy, M.(1974). Education as Cultural Imperialism. David McKay Company, Inc. NY.

Cathcart, H.R. (1993).Educational Broadcasting. In Columbia Encyclopedia (5th ed.), Columbia University Press.

Chapman, D.W. et. al (1991). Teacher Incentives in the Third World: Research Report for International Development Reports, (IDCA), Washington, DC.

Chatfield, C.(1975). The Analysis of Time Series: Theory and Practice. Chapman & Hall Ltd: London.

Checkland, P.(1981). Systems Thinking, Systems Practice. NY: John Willey & Sons.

Chilangwa, W.B. (1970). The Growth of ETV in Zambia. *Times: Educational Supplement, 128-130.*

Clark, R. E.(1983). Reconsidering Research on Learning from Media. *Review of Educational Research, Vol. 53 (4) p. 445-459.*

Clark, R. E.(1994). Media and Methods. *Educational Technology Reseach and Development, Vol. 42 (2) p. 45-47.*

Cleghorn, A., Merritt, M., & Abagi, J. (1989). Language Policy and Science Instruction Kenyan Primary Schools. *Comparative Education Review, 33 (1) p. 21-39.*

Clemson, B.(1984). Cybernetics: A new management tool. London: Abacus.

Coarnoy, M. (1975). The Economic Costs and Return of Educational Television. *Economic Development and Cultural Change 23 (2) p.207-248.*

Chonjo, P. (1994). The Quality of Education in Tanzania Primary Schools: An Assessment of Physical Facilities and Teaching and Learning Materials. *Utafiti, Vol.1*

Colclough & Lewin. (1993). Educating all the Children: Strategies for Primary Schooling in the South. Oxford: Clarendson Press.

Cole, M.(1985). The Zone of Proximal Development Where Culture and Cognition Create each Other; In Wertsch, J. V. Communication and Cognition: Vygitskian Perspectives. Cambridge University Press, New York.

Connelly, F. M. & Clandinin, D,J. (1988). Teachers as Curriculum Planners : Narratives of Experience. Teachers' College Press, New York.

Court, D. & Kinyanjui, R. (1980). Development and Educational Opportunity: The Experience of Kenya and Tanzania, In G. Carron & T.N. Chau (Eds.), Regional Disparities in Educational Development. Paris: UNESCO.

Chu, G. C. & Schramm, W. (1967). Learning from Television: What the Research Says. Washington: National Association of Broadcasters.

Donlevy J.G. & Donlevy T.R. (1996). Teachers, Technology, and Training: Perspectives on School Reform and the Developing Role of the Teachers: A New Template. International. *Journal of Instructional Media, 23 (1) 1-9.*

Donlevy, J. & Donlevy, T. (1995). The Paths to the Middle Class: Developing Social Skills Employing Positive Peer Culture. International. *Journal of Instructional Media, 22 (4) 167-176.*

Delamont, S. (1990). Sex Roles and the School. London; Routledge.

Deregowski, J. B. (1968). Difficulties in Pictorial Depth Perception in Africa. British *Journal of Psychology 59, 195-204.*

Deregowski, J.B. (1973). Illustrations and Culture In R.L. Gregory & E.H. Gombrich, (pp. 161-192). Illusions in Nature and Art. London: Duckworth.

Dick. W., & Carey, L. (1996). The Systemic Design of Instruction. (4th ed.) Glenview, IL: Scott Furegman.

Driscoll, (1994). Psychology of Learning for Instruction. Boston: Allyn & Bacon

Donlevy, J. G.; and Donlevy, T.R (1996). Teachers, Technology, and Training. Perspectives on School Reform and the Developing Role of the Teacher: A New Template. *Instructional Journal of Educational Media, 23(1), p. 1-9.*

Ely. D. P. (1983). The use of educational communication media in different cultures. *Educational Media International*, (1), 12-16.

Emberley, P.C. & Newell, W.R. (1994). Bankrupt Education: The Decline of Liberal Education in Canada. Toronto: University of Toronto Press.

Estelle, J. (1993). Why do Different Countries Choose a Different Public-Private Sector Mix of Educational Services? *Journal of Human Resources 28 (3) 571-592.*

Felicity, S.K., (1985). Teaching Aids at Low Cost. *Media in Education and Development, June. p. 68-72.*

Ferrara, J. (1996). Peer Mediation: Finding a Way to Care. York ME: Sten House Publishers.

Feyerabend, P.K. (1966). Mind matter and method: Essays in Philosophy and science Minneapolis: University of Minnesota Press.

Finn, C. (1991). We Must Take Churge: Our Schools and Our Future. New York: The Free Press.

Fieden, J. (1978). The Coast of Innovation and Change in Education. Programmed Learning and educational Technology, XV (1), 16-25.

Frshay, A.W.(1969). Curriculum. In R. I. Ebel(Eds.).Encyclopedia of educational research: A project of American Educational Research Association (4th ed.)p.5-119). New York: Macmillan

Franzen, A. M.; Yokoi, L., and Brooks, G. (1999). Putting Books in the Classroom Seems Necessary But not Sufficient. *The Journal of Educational Research, 93(2), p. 67-74.*

Freire, P.(1970). Pedagogy of the Oppressed. New York, Herder & Herder.

Gagne R. M. (1965). The Tradition of Learning. Holt, New York: Richard and Winston,

Gagne, R. M. (1985). The Cognitive Psychology of School Learning. Boston: Little Brown.

Galabawa, C. J.(1989). Cost-benefit Analysis of Private Returns to University Schooling in Tanzania. Unpublished Ph.D. Thesis, University of Alberta.

Galabawa, C. J. (1991). Funding, Selected Issues and Trends in Tanzania Higher Education. *Higher Education 21 (1), p. 49-61.*

Galabawa, C. J. (1994). Status and Future Challenges of the Tanzania Primary and Secondary Education; in Msambichaka, L. A. Development Challenges and Strategies for Tanzania: An Agenda for 21st Century. Dar es salaam: University Press

Galabawa, J.C.J. (1997). Issues and Strategies for Primary and Secondary Education Decentralization in Tanzania.*Papers in Education and Development, 18, p. 66-83.*

Gayeshi, (1989). Why Information Technology Fail. *Educational Technology. Feb. 1989. P.917*

Gibson, J.J. (1971). The Information Available in Pictures. *Leonardo, 4 , 27-35.*

Glass. G.V. and Hopkins, K.D. (1984). Statistical Methods in Education and Psychology. Prentice-Hall Ins., Englewood Cliffs, New Jersey.

Gorman, T.& Fernandes, C. (1992). Reading in Recession. A Report on a Comparative Reading Survey submitted to The National Foundations for Educational Research: England.

Good, C.V.(Ed.) (1959). Dictionary of Education (2nd ed.). New York: McGraw-Hill.

Grissmer, D. (1999). Class Size Effects: Assessing the Evidence, its Policy Implications, and Future Research Agenda. *Educational Evaluation and Policy Analysis, 21(2), p. 231-248.*

Grolund, L. E. (1993). Understanding the National Goals. Office of Educational Research and Improvement(Ed.). Washington DC.

Hagen, M. A. (1974). Picture Perception: Toward a Theoretical Model. *Psychological Bulletin, 81(8), p. 471-497.*

Harvey, L. (1998). An Assessment of Past and Current Approaches to Quality in Higher Education. *Australian Journal of Education, Vol. 42 (3) p. 237-256.*

Harvey, L. & Green, D. (1993). Defining Quality. *Assessment and Evaluation in Higher Education: An International Journal, 18 (19), p. 9 – 34.*

Hawkridge and Robinson. (1982). Organizing Educational Broadcasting. Paris, UNESCO.

Hayes, J.R. (1989). The Complete Problem Solver (2nd ed.). Haillsdale, NJ: Erlbaum.

Heinich et al, (1996). Instructional Media and the New Technology of Instruction. New York: Jon Wiley & Sons Inc.

Herz B. et al (1991). Letting Girls Learn: Promising Approaches in Primary and Secondary Education. Working Paper, World Bank.Washington, DC.

Hess, G.A. (1999). Understanding Achievement (and Other) Changes Under Chicago School Reform. *Educational Evaluation and Policy Analysis, Vol. 21(1) p.16-32.*

Heyneman, S. P. (1989). Economic Crisis and the Quality of Education. *International Journal of Education, 10 (2). p.115-129).*

Hites, J.M. (1996). Design and Delivery of Training for Intrnational Trainees: A Case Study. Performance Improvement Quartely, Vol. 9 (2) p. 57-74

Holmes, A. C. (1963). A Study of Understanding of Visual Symbols in Kenya. London: Overseas Visual Aids Center.

Hudson, W. (1960). Pictorial Depth Perception in sub-cultural Groups in Africa. *Journal of Social Psychology, 52, p.183-208.*

Hudson, W. (1962). Cultural Problems in Pictorial Perception. *South African Journal of Science, 58, p.189-195.*

Hunter, G. (1963). Education for a Developing Nation . P.E.D. London, George Allen and Unwin Ltd.

Hurn, C. (1985). The Limits and Possibilities of Schooling: An Introduction to the Sociology of Education. Botson: Allyn & Bacon

Issa-Fullata, M.M. (1988). Spending in Education in Saudi Arabia. *International Journal of instructional Media, Vol.15(3), 123-133.*

Jackson, C. M. (1987). Systems Methods for Organizational Analysis and Design. *The International Foundations for Systems Research, p. 201 - 209*

Jegede, O.J. & Okebukola, P.A. (1992). Adopting Technology in the Third World Classrooms: Students Viewpoint about Computers in Science Teaching and Learning. *Journal of Educational Technology Systems. 20 (4) p.327-334.*

Jimenez, M. L. & Paqueo, V. (1991). The Relative Efficiency of Private and Public Schools in Developing Countries. World Bank Research Observer, 6 (2) 205-218.

Johnson, F.C. (1960). Feedback in Instructional Television. *Journal of Communication, 10 p. 140-146.*

Kahn & Rehgeluth, C. (1993). Educational Systems Design (ESD): An Integration, Disciplined Inquiry in Schools of Education. *Educational Technology, June,1993.*

Katunzi, N. (1999). Complementary Basic Education for Tanzania (COBET). *Papers in Education and Development , University of Dares Salaam No 20, p.37-52.*

Kelly, M.J. (1991). Education in a Declining Economy: The Case of Zambia: 1975-1985. Research Report for World Bank.

Kelly, A. (Ed) (1987). Science For Girls Milto. Keynes; Open University Press

Keppel, G. (1982)(2nd ed.). Design and Analysis: A Researcher's handbook. Prentice-Hall Inc., Englewood Cliffs: New Jersey.

Kidron, (1974). Capitalism and Theory. London: Pluto Press.

Kitaev, I (1997).Re-examining the role of private education: issues of private primary and secondary education in Sub-Saharan Africa" Discussion paper for the Pan-African Seminar on Financial Management of Education in Africa, Dakar, 12 – 14 October 1997. Paris: UNESCO.

Kiwia, S. F. (1999). Development and Sustenance of the Teachers' resource Center Strategy in Tanzania. *Papers in Education and development, 20, p. 110-124.*

Klir, G. (1985). Architecture of Systems Problem Solving. Plenum Press, NY.

Komba, W.L.M. (1998). Disciplinary Versus Multidisciplinary Teaching in the Socials in Tanzania. *Papers in Education and Development, No.20, p.18-36*

Komba, D. et al. (1995). Declining Enrollment and Quality of Primary Education in Tanzania Mainland. Research Report for MOEC/UNICEF.

Komba, D. (1996). Education for Self-Reliance Revisited in Light of the Worlds Declaration on Education for All. *Papers in Education and Development, University of Dar es salaam, No17, p.1-7*

Kortetz, D.(1992). What Happened to Test Scores, and Why? *Educational Measurement Issues and Practice, Vol. 11, No. 4, p.7-11*

Kozma, R.B. (1994a). Will Media Influence Learning? *Educational Technology Research and Development, 42(2), 7 - 10.*

Kozma, R.B. (1994b). A Reply: Media and Methods. *Educational Technology Research and Development, 42(3), 7 - 19*

Kuh, G.D. and Hu, S.(1999). Unraveling the Complexity of the Increase in College Grades From the Mid-1990s . *Educational Evaluation and Policy Analysis, 21(3), p.297-319.*

Lesgold, A. M. & Perfetti, C. A. (Eds.)(1981). Interactive Process in Reading. Hillsdale, NJ: Erlbaum.

Levin, I. (1994). Study on Social Facilities in Tanzania. Report submitted to The World Bank, 1994.

Levine, R. (1996). Human Resources Development and Utilization in Education Sector in Tanzania. *Papers in Education and Development, University of Dar es salaam, No.17, p.90-113.*

Levira, M.A. (1997). Instructional Technology in the Developing Countries at the Crossroads: Should `the Countries go Electronic? International Journal of Instructional Media, 24 (2) p. 99-110.

Lewis, R. G. & Smith,. D. H. (1994). Total Quality in in Higher Education. Delray Beach, Florida.: St. Lucie Press.

Lessibille, G; Tan, P.J. & Sumra S.(2000). Expansion of Private Secondary Education: Lessons from Recent Experience in Tanzania. *Comparative Education Review, 44 (1), p. 1-28.*

Lonsdale, A. (1990). Achieving Instructional Excellence Through Empowering Staff: An approach to performance management in Higher education. In I. Moses (Ed.), High Education in the Late Twentieth Century: Reflections on a Changing System,. - A Festschrift for Ernest Roe. Sydney: Higher Education Research and Development Society of Australia.

Lonsdale, A. (1998). Performance Appraisal, Performance Management and Quality in Higher Education: Contradictions, Issues and Guiding Principles for the Future. *Autsralian Journal of Education, 42(3), p. 303-320*

Ludwig, J. and Bassi L.(1999). The Puzzling Case of School Resources and Student Achievement. *Educational Evaluation and Policy Analysis. 21(4), p.38 –56.*

Mahenge, S.T. (1992). Pictorial comprehension as experienced by Tanzanian students. *Tanzania Education Journal, No. 20, p. 11-15.*

Mahenge, S.& Kent, D.(1999).Gender and Academic Achievement of 14 Year Pupils: A Comparatice Study Between Tanzania and England + Wales. *Journal of The Open University of Tanzania.*

Malekela, G. A.(1983). Access to Secondary Education in Sub-Saharan Africa: The Tanzanian Experiment. Unpublished Ph.D. Thesis; University of Chicago

Malekela, G. A.(1995). Equality and Equity in Primary Education. *Papers in Education and Development, University of Dar es Salaam, No.16, p. 65-74*

Malekela, G. A.(1999). Declining Quality of Education in Tanzania: What can We Teachers Do? Unpublished Valedictory Lecture Notes; University of Dar es salaam.

Marland, M. (Ed.) (1983). Sex Differentiation and Schooling. London; Heinemann

Marshall, S.J. (1984). Sex Differentiation and Schooling. London: Heinemenn

Marshall, S. J. (1998). Professional Development and Quality in Higher Education Institutions of the 21st Century. *Australian Journal of Education, 42(3), p. 321-334*

Masudi, A. (1998). The Predicament of Private Education in Tanzania: Quantity Versus Quality. *Papers in Education and Development, University Dar es salaam, No.20, p.18-36.*

Materu, P.N. & Omari, I. M. (1997). Critical Issues in Post Primary Education in Tanzania. *Papers in Education and Development, University of Dar es salaam, No.18, p.31-5.1*

Meyer, H. (1991). A Solution to the Performance Appraisal Feedback Enigma. *Academy of Management Executive, 5, P.68-76*

Means, B. (1994). Technology and Educational Reform. Jossey -Bass Educational Series. N.Y.

Mbilinyi, M.; Mbuguni, P.; Meena, R. & Ole Kambaine, P.(1991). Education in Tanzania with Gender.Report submitted to SIDA Dar es salaam, April, 1991.

Mbonile,, M.J. Quota System and Educational Mobility in Tanzania. Papers in Education and Development, 18, p. 110-128

Mbunda, F. et al (Eds) (1991). The Teaching-Learning Process in Tanzanian Primary Schools: A Classroom Interaction Analysis. *Study Report; Phase 1 Vol.1. Faculty of Education, University of Dar es Salaam.*

Mbunda, F. (1996). Inside a Primary School Classroom in Tanzania. *Papers in Education and Development, University of Dar es salaam, No17, p.27-38.*

Means, B. (1994). Technology and educational reform.: The reality behind the promise. NY: Jossey Bass: Education Series.

Miles, R. (1987). Capitalism And Free Labour: A Normality or Necessity. New York: Tavistock.

Mitchell, P. D. (1978). Educational Technology. In D. Unwin, and R. McAleese (ed.). Encyclopedia of Educational Media Communications and Technology. London: Macmillan Publishers.

Morgan, G.(1986). Images of Organization. California :SAGE Publications.

Mohanty, C.T. (1991). Third World and Politics of Feminism Bloomington University Press.

Morrison, D. R. (1976). Education and Politics in Africa: The Tanzanian Case. London: Heineman

Mulugu, M. (1999). Obstacles to Women's Participation in Post-Colonial Education in Tanzania: What is to be Done? Unpublished Ph.D. Thesis, Department of Interdisciplinary Studies, Concordia University.

Murphy, J. (1991). Tanzania Women and Development. World Bank report No. 9108

Mvungi, M. (1974). Language Policy in Tanzania With Emphasis on Implementation. Unpublished M. A. Dissertation, University of Dar es Salaam.

Nyerere, J.K. (1967a). Education for Self Reliance Dar es Salaam: The Government Printer.

Nyerere, J.K. (1968). Ujamaa: Essays on Socialism. Nairobi: Oxford University Press.

Nyerere, J.K.(1967b). The Arusha Declaration . Dar es Salaam: The Government Printer.

Nyerere, J.K. (1973). Freedom and Development/Uhuru na Maendeleo: A selection of writing and Speeches. Dar es salaam: Oxford University Press, London

O'Connor, E.(1974). Contrasts in Educational Development in Kenys and Tanzania *African Affairs Number 76 p. 677-84.*

Ollerenshaw, A., Aidman. E., & Kidd. G. (1997). Is an Illustration Always Worth Ten thousand Words?: Effects of Prior knowledge, learning style and Multimedia Illustraions on Text Comprehension. *International Journal of Instructional Media, 24(3) p.227-238.*

Omari I.M & Mosha. J.H. (1988). The Quality of Primary Education in Tanzania. *Nairobi: Man Graphics.*

Omari, I. M. (1995). Conceptualizing Quality in Primary Education, *Papers in Education and Development, No.16. 23-35.*

Omari I. M. (1998). Book Review: Language Crisis in Tanzania, By Campbell, Z. & Qorro, M. *Papers in Education and Development, 19 , p. 96-99.*

Osaki, K.M.(1998). The Changing Forms, Content and Interpretation of Curriculum in Tanzania. *Papers in Education and Development, 17, p. 8-19.*

Osaki, K.M. (1991). Factors Influencing the Use of the Environment in Science Teaching, Unpublished Ph.D. Thesis, University of Alberta. AB.

Possi, M.K. (1999). The Place of Special Children in Educational Reforms in Tanzania: A Critique. *Papers in Education and Development, No. 20, p.87-92*

Primavera, L.H.,Herron, W.G. and Jauier, R.A.(1996). The Effect of Viewing Television Violence on Aggression. *International Journal of Instructional Media, 23(1) p.91-103.*

Qorro, M. (1997). The Role and Place of Language in Education and Society: The Case of Kiswahili and English in Tanzania. *Papers in Education and Development, 18, p.129-144.*

Reason, R. (1989). Evidence of Progress? *British Journal of Special Education; Vol.16, p. 149-52.*

Resnick, I.N. (1968). Tanzania: Revolution by Education. Dar es Salaam: Longmans of Tanzania Ltd.

Rubagumya, C. M. (1998). Choosing the Language of Instruction in Post-Colonial Africa: lessons from Tanzania. *Papers in Education and Development, 20, p.125-145*

Rugg, H.O. (1947). Foundations for American Education: An introduction to children's learning. London: Falmer Press.

Samoff, J. & Sumra, S. (1994). Financial Crisis, Structural adjustment, and Educational Policy in Tanzania (revised). Paper presented at the Annual meeting of the American Educational Research Association, New Orleans LA, April 4-8

Samoff, J. (1979). Education in Tanzania: Class Formation and Reproduction. *The Journal of Modern African Studies; 17, p. 47-70.*

Schonborn, B.G. (1975). An Investigation of Attitudes of Elementary School Teachers. Unpublished Ph.D. thesis; University of Dar es Salaam: Tanzania

Schramm, W. (1981). Bold Experience: The Story of Educational Television in American Samoa. Stanford California: Stanford University Press.

Semboja, J. & O. Therkildsen, (1995). Social Services Under Stress in East Africa. State, NGOs and People's and Organizations. London: James Currey.

Schoderebek, P.P., Schoderderbek, C.G., & Kefalas A.G.(1990). Management Systems: Conceptual Consideration(4thed.). Plano, TX: Business Publications.

Siepmann, C.A. (1970). ITV in Perspective - An Reappraisal. *Educational Television, January. p. 11-13*

Silverstone, D. M. (1990). Reading and Assessing the Still Picture. *International Journal of Instructional Media, 17 (2) p.159-162.*

Smith, R.G.(1971) System Concepts in Education. In D. Lee (ed.) Encyclopedia of Education. New York: MacMillan & The Free Press,.

Smith, B.O., Stanley, W.O., & Shores, J.H.(1957). Foundations of Curriculum Development. New York: Harcourt, Brace and World.

Smith, M. (1993). Partners in Learning: Collaborating around teaching. In M. Weinner (Ed.), Faculty as Teachers: Taking stock of what we know. Washington: George Washington University, National Center on post-secondary teaching, learning and assessment.

Smith, M.(1994). Culture is the limit: Pushing the boundaries of graphic design criticism and practice. *Visible Language* 28(4), 297-313.

Smith, L., Kleine,P.,Prunty, J., & Dwyer,D. (1957).Education Innovators: Then and Now. London: Falmer press.

Spencer, K.(1991). Modes, Media and Methods: The Search for Educational Effectiveness. *British Journal of Educational Technology* 22(1), p. 12.22.

Sternberg, R.J. (1986). Intelligence Applied: Understanding and Increasing your Intellectual Skills. San Diegfo: Harcourt, Brack, Jovanovich.

Sumra, S.A.(1995). Enrollment Trends in Tanzania. *Papers in Education and Development, University of Dar es salaam, No 16. p. 46-64.*

Taba, H. (1962). Curriculum Development : Theory and Practice. New York: Harcourt, Brace and World

Tabachnick, B.G. and Fidel, L. S. (3rd ed.)(1996). Using Multivariate Statistics. New York : HarperCollins College Publishers.

Tanner , D., & Tanner, L.N. (1975). Curriculum and Development: Theory into Practice. New York: Macmillan

Thakur, D. S. (1991). Implementing Educational Policies in Sub-Saharan Africa : A review Essay. *Economics of Educational Review 10(4) p.385-390.*

Therkildsen, O. (1998). Local Government and Households in Primary Education in Tanzania: Some Lessons for Reform. CDR Working Paper, June, 2998.

Thomas,G. E.(1996). Teaching Students With Mental Retadation: A Life Goal curriculum Planning Approach. Englewood Cliffs, NJ: Merrill.

Thompson, A. R. (1968). Ideas Underlining British Colonial Education Policy in Tanganyika. In Resnick (Ed). Tanzania: Revolution by Education. Dar es Salaam; Longmans of Tanzania.

Thompson, A. R. (1981). Education and Development in Africa. New York: St. Martins Press

Tobias, S. (1978). Overcoming Mathematics Anxiety. Boston; Houghton Mifflin.

Tobon, K. (1988). The Use of Microcomputer in Teaching and Learning. New York: Berwyn.

Troxel, D.K.& Grady, W.F. (1989). The State of Educational Technology in the United States of America. *International Journal of Instructional Media,Vol.16(1) p.1-13.*

Tuma, D.T., Reif, F.,(ed) (1980). Problem-solving and Education: Issues in Teaching and Research. Hillsdale NJ: Lowrence Eribaum.

UNESCO (1977). The Economics of New Educational Media. Paris: Unesco.

UNDP. (1998). Human Development Report, 1998. New York: UNDP.

United Republic of Tanzania: Education for All: Meeting Basic Learning Needs to the year 2000. Ministry of Education and Culture (MOEC), Dar es Salaam, 1989.

United Republic of Tanzania: Implementation of Universal Primary Education. Ministry of Education and Culture (MOEC), Dar es salaam,1989.

United Republic of Tanzania: The Tanzania Education System for the 21^{sst} Century, Task Force Report, Ministry of Education & Culture, Dar es Salaam, 1993.

United Republic of Tanzania: Education and Training Policy. The Ministry of Education and Culture (MOEC), Dar es salaam, 1995.

United Republic of Tanzania : Basic Education Statistics in Tanzania, The Ministry of Education and Culture.(MOEC), Dar es Salaam: Government Printers. 1995.

United Republic of Tanzania: Basic Education Statistics in Tanzania (BEST). Ministry of Education and Culture (MOEC), 1996.

United Republic of Tanzania: Basic Education Statistics in Tanzania (BEST). Ministry of Education and Culture (MOEC), 1998.

United Republic of Tanzania: Basic Education Statistic, Tanzania. Ministry of Education and Culture (MOEC), Dar es Salaam, 1998.

United Republic of Tanzania: Education Indicators in Tanzania. Ministry of Education and Culture (MOEC), Dar es Salaam, 1999.

United Republic of Tanzania: Education Indicators in Tanzania. Ministry of Education and Culture(MOEC), Dar es salaam. 1999.

United Republic of Tanzania: The Education Sector Reform and Development Programme (ESRDP) Appraisal Document. Ministry of Education and Culture(MOEC), Dar es salaam. 1999.

United Republic of Tanzania: Tanzania Education Sector Development Programme (ESDP) : Appraisal Coordination Team Final Overview Report. Ministry of Education and Culture(MOEC), Dar es salaam. 1999.

University of Dar es Salaam, (1997). Facts and Figures. Dar es salaam University Press

Van Manen, Max. (1990). Researching Lived Experience. London Ontario, Althouse Press.

Vandermortele, J (1995). "A note on estimating the global cost of universal primary education" Office of Social Policy and Economic Analysis memorandum. New York: UNICEF.

Vandermortele, J. (1998)."Aggregate cost calculations by region to achieve net enrolment ratios of 100" Internal note, EPP UNICEF July 1998.

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher psychological Processes. (Edited and translated by Cole Metal) Cambridge, Mass. Harvard University Press.

Wallence, B., Adams, H.B.(1987). Assessment and Development Potential of High School Pupils in the Third World Context of Natal Kwa-Zulu (Part 1). *Gifted Education International 5 (1) p.1-4.*

Wallence, B., Adams, H.B.(1987). Assessment and Development Potential of High School Pupils in the Third World Context of Natal Kwa-Zulu (Part 2). *Gifted Education International 5 (2) p.23-32.*

Wallence, B., Adams, H.B.(1987). Assessment and Development Potential of High School Pupils in the Third World Context of Natal Kwa-Zulu (Part 3). *Gifted Education International 5 (1) p.9-15.*

Ward, J. T. & Clark, H. T. (1991). A Reexamination of Public-Versus Private-School Achievement: The case for Missing Data. Journal of Educational Research, 84 (3) 153-163.

Warfield, L.N. Societal systems : Planning, Policy and Complexity. John Wiley & Sons. NY: New York.

Webb, V.N. (ed.). (1995). Language in South Africa: The LICCA (SA) Report, Pritoria.

Westbury, I., & Steimer, W.(1971). Curriculum : A discipline in search of its problems. School Review, 79, 243-67

Wertsch. J.V. (1985). Culture, Communication and Cognition: Vygotskian Perspectives. NY: Cambridge University Press.

Whyte, J. (1986). Girls into Science and Technology: The Story of Project. London; Routledge and Kegan Paul.

World Bank. (1988). Education in Sub Saharan Africa: Policies for adjustment, Revitalization, and Expansion. A World Bank Policy Study. Washington, DC: The Word Bank.

World Bank. (1991). United Republic of Tanzania. Teachers and the Financing of Education. Report No. 9863-TA.

World Bank. (1994). The Role of Government: Public Experience Review (vol.1& 2). Washington DC : World Bank.

World Bank. (1995). Investing in People. The World Bank in Action. Washington DC: World Bank.

World Bank Report No. 9108-TA (1991). Tanzania Women and Development. (Murhy, Jeannette).

World Bank. (1996). Investing in People. The World Bank in Action. Washington, DC: World Bank.

World Bank, The (1998). *World Development Indicators 1998*; Washington: The World Bank.

Yates, R. (1995). Fundamental Literacy and the Language Question. International Journal of Educational Development. 15 (4), p. 437-447.

Yorke, M.(1996). Shouldn't Quality be enhanced, Rather than Assessed? Tertiary Education and Management, 2(1) p.86-94.

Young, D. J. (1994). The Effect of the Science Learning Environment on Science Achievement and Equity. Paper presented at the Meeting of the International Congress for School Effectiveness and Improvement (Melbourne, Victoria, Australia, January 1994.

APPENDIX A
Research Clearance

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND CULTURE

Cable: "ELIMU"
Telephone: 110146/9 - 110150/2
FAX 113271
Telex: 41742 Elimu TZ.
In reply please quote:

Ref. No.ED/ME/RSE/VOL.2/

MINISTRY OF EDUCATION
AND CULTURE
P. O. Box 9121
DAR ES SALAAM.

Date: 05/10/98

To: Zonal Inspector of Schools/Regional Education Officer:
Dar Es salaam/Kilimanjaro,
Iringa/Dodoma

RESEARCH CLEARANCE FOR MR. MODEST A. LEVIRA

The Coordinating Unit for Research and Evaluation (CURE) has granted Mr. Modest Athman Levira of the Concordia University, Canada permission to conduct a research as part fulfillment of his Ph.D. He will be conducting his study/research in a number of secondary schools in your area. The topic of the study is: **INSTRUCTIONAL RESOURCE MATERIAL AS A FACTOR IN EDUCATIONAL PERFORMANCE: A CASE STUDY IN TANZANIA.**

By a copy of this letter you are kindly requested to grant him permission to visit schools in your area and facilitate successful completion of his field study.

Yours Sincerely,

Michael W. Macharia
For: PERMANENT SECRETARY

THE UNITED REPUBLIC OF TANZANIA

REGIONAL COMMISSIONERS OFFICE
Ministry of Education,
P.O. Box 3052,
MOSHI

Ref. No. E.10/11/123 9.11.1998

Headmaster Old Moshi Sec. School,
P.O. Box 3021,
MOSHI

Headmistress
Ashira Girls Sec. School,
P.O. Box 200
MARANGU

Headmaster
Pakula Sec. School,
MOSHI

RE: INTRODUCTION

Mr. Nadest Athanas Levira a Ph. D. Student of Concordia University, Canada has been permitted by the Ministry of Education and Culture (MOEC) to carry out a study/research in some Secondary Schools.

Your school has been selected for this purpose. Please give him maximum assistance.

(Clement M. Matenga)
for: REGIONAL EDUCATION OFFICER
KILIMANJARO

AFISA ELIMU WA MKOA
MKOA WA KILIMANJARO

APPENDIX B
Research Instruments

Instructional Resources as a Factor in Educational Performance:
A Case Study in Tanzania

QUESTIONNAIRE FOR TEACHERS

Thank you for participating in the discussion regarding educational performance in Tanzania. In addition to the discussion, the following questionnaire is designed to give you an opportunity to communicate your own feelings regarding current changes in education. Instructions are given at the beginning of each section. It is advisable to read through the entire questionnaire before responding to any of the items. Findings will be reported in a study titled "Instructional Resources as a Factor in Educational Performance: A Case Study in Tanzania". None of the information given shall be used for any other purpose and individual names shall not appear on the final report.

A: Demographic particulars

(i) Teacher's name (optional) .....

(ii) Male..... Female..... (Check one)

(iii) Name of school..... Rural / Urban (Circle one)

(iv) Teaching experience 0-10, 11-20, 21-30, 3 1+ years (circle one rage)

(v) Are you in the - ARTS - or - SCIENCE Subjects ? (Circle one):

B: Factors affecting your role as a teacher.

Considering changes taking place in education, there must have been some positive as well as negative things that have influenced you in your role as a classroom teacher. In a point form, which are some of the good things within the educational change that have enabled you accomplish your daily teaching plans?

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.....

Use the back of this page if necessary

People have complained that ,along with the changes in education, certain things and conditions have inhibited their teaching efficiency. In a five point scale, rate the extent to which conditions described below may have also influence you. (5 = most influenced and 1 = least influenced).

1	Lack of discipline among students	1.( )
2	Interruptions from the surrounding community	2.( )
3	Insufficient desks and chairs in the classrooms	3.( )
4	Lack of teacher retraining opportunities	4.( )
5	Inadequate textbooks and supplementary readers	5.( )
6	Lack of proper midday meals for students	6.( )
7	Overloaded curriculum - too many topics to cover in a year	7.( )
8	Students' low level of English language proficiency	8.( )
9	Poor support from the administration	9.( )
10	Inadequate instructional resources besides textbooks	10.( )
11	Teachers assigned extra-curricula duties	11.( )
12	Low pay for teachers	12.( )
13	Irrelevant curricula	13.( )
14	Students' politics - demanding democratic negotiations	14.( )
15	High Teacher : Student ratio	15.( )

Add others if not listed above

.....

.....

.....

C: Indicators of Educational Decline

People have complained that education of the 1990s has declined. In your opinion, would you consider any of the following to be indicators of a decline in education? (Check up to, but not more than 5 ranked on their order of relevance)

16	Students under-perform in national examinations	16.( )
17	Declining percentage of students selected for higher education	17.( )
18	Students inability to complete their homework efficiently	18.( )
19	School graduates not knowing how to earn a living after school	19.( )
20	School environment becoming less attractive for students	20.( )
21	Graduates' performance in work places not measuring up to employers' expectations	21.( )
22	Diminishing English language proficiency among students	22.( )
23	High dropout rate	23.( )

24	High unemployment rate	24.( )
25	Stagnant economy	25.( )

Add others if not listed above

.....

.....

.....

D: Assessing expectations

In your own words briefly respond to the following

26 As a subject teacher and a key player in education processes, what does the school administration expect of you?

.....

.....

.....

27 What are your expectations of the students you teach?

.....

.....

.....

28 What have you learning from the surrounding community, are parents' expectations of their children who attend you school?

.....

.....

.....

29 As a practitioner, are you free to try new instructional methods/approaches additional to those advocated by the school management?

.....

.....

.....

E. Suggesting Educational Reform

Education delivery, like other services, is bound to change with time. In your opinion what two strong points do you recommend that, if implemented, would better improve your performance.

I .....

.....

.....

II .....

.....

.....

Thank you for responding to this questionnaire. *1999*

Instructional Resource as a Factor in Educational Performance:
A Case Study in Tanzania

STUDENTS' CHECKLIST

Thank you for participating in the discussion. In addition to the discussion, the following check list requires you to give your personal opinion regarding performance in your favorite subject/s. Findings will be reported in a study titled "Instructional Resources as a Factor in Educational Performance: a Case Study in Tanzania". Individual names nor that of your school shall not appear in the final report. Please read through the whole list first before responding to any statement.

A: Demographic Information

(i). Student's Name (Optional) ....Form(Grade).....

(ii). Sex Male ( ) Female (.....) (Circle one)

(iii). Name of School.....Location - Urban/Rural (Circle one)

(iv). Type of school (a) Boys – Girls – Coeducation (Circle one)
(b) Boarding – Day (Circle one)

B: Favorite subjects

(v). Is/are your most favorite subject(s) in the Arts or Sciences? (Check one)

Arts	Science

(vi). How well are you performing in your favorite subject(s)?

Very well ( ) Average ( ) Poorly ( ) (Check one)

GENERAL INSTRUCTIONS: If you checked "No in question "vi" above, move on and complete Section B. If you checked "Yes", move on to section "C"at the bottom of pg. 2.

B: Factors affecting performance

Some students claim that the following conditions affect their schooling. Which of the conditions do you feel influence your schooling performance too? Check up to, but not more than, ten (10) factors that are most influential to you.

1. Poor English Language competency	1. ( )
2. Inadequate textbooks	2. ( )
3. Less supporting home environment	3. ( )
4. Overworked with obligatory domestic chores	4. ( )
5. Restricted by cultural norms	5. ( )
6. Engaged with farm work to support family earning	6. ( )
7. Inadequate desks and chairs in the classrooms	7. ( )
8. Disturbed by other students in class	8. ( )
9. Discouraged by the subject teacher/s	9. (
10. Concepts have become more complex	10 ( )
11. Overcrowded classrooms	11.(.)
12. Lack of role models	12.( )
13. Lack of counseling services	13.( )
14. Disturbed by the physical body changes in adolescence	14.( )
15. Discouragement by parents	15.( )
16. Poor living conditions at home	16 ( )
17. Classes often scheduled late in the day	17.( )
18. No midday meals	18.( )
19. Affected by peer pressures outside school	19.( )
20. No career prospects	20.( )
21. Too many subjects	21.( )
22. Cannot conduct experiments in science labs	22.( )
23. Losing interest as I grow	23.( )
24. My best subject teacher got transferred	24.( )
25. Swayed by public media such as TV .	25.( )

C: Attempt this if only you checked "Yes" in question "iv".

At the **back of this page** briefly describe conditions that have helped you to perform well in your favorite subject/s.

Once again, thank you for taking part in this study, and good luck with your studies

APPENDIX C

Trend Analysis Models

APPENDIX C - 1

Sample Data

DESCTRIPTIVE STATISTICS

The Average of Schools' Performance in Each Zone by Years.

YEAR	Schools	1991		1992	
Zones		Zonal Mean	StDev.	Zonal Mean	StDev.
Northern Zone	4	96.20	7.99	90.04	9.82
Eastern Zone	5	96.01	3.64	97.69	1.63
Central Zone	3	81.11	.21.77	84.12	13.12
Southern Zone	4	81.82	1.61	76.29	5.33
Sample Means		88.79		87.02	
StDev.		8.46		9.06	

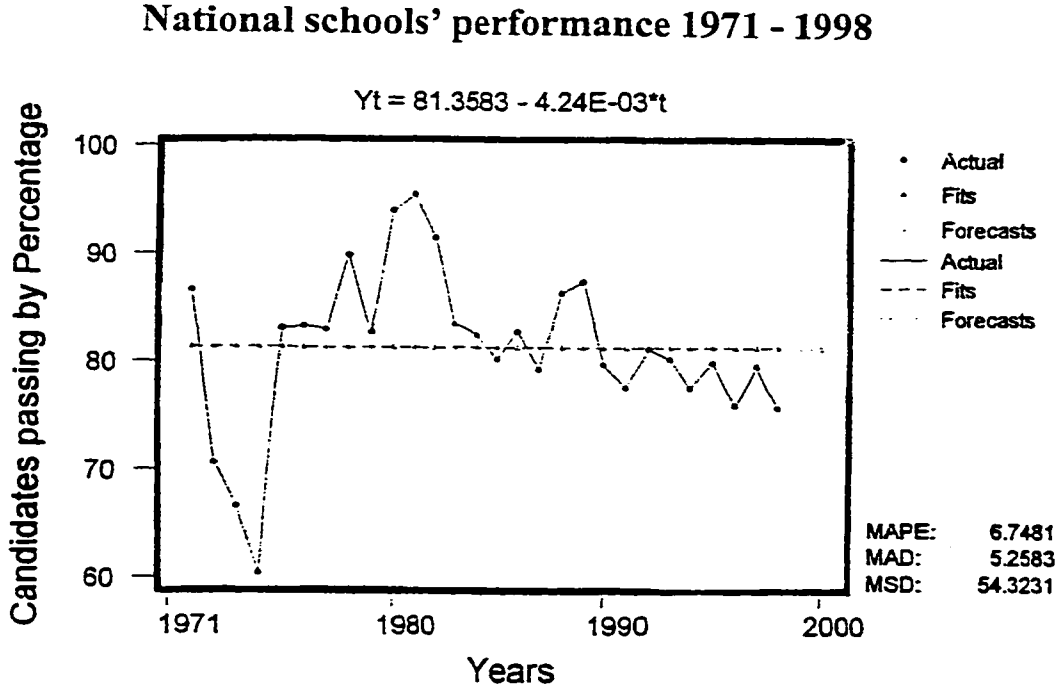
YEAR	Schools	1993		1994	
Zones		Zonal Mean	StDev.	Zonal mean	StDev.
Northern Zone	4	78.69	21.49	91.53	8.18
Eastern Zone	5	95.89	4.27	95.06	5.62
Central Zone	3	78.18	4.91	76.53	17.82
Southern Zone	4	74.29	9.15	67.01	5.64
Sample Means		8188		82.53	
StDev.		9.62		13.10	

YEAR	Schools	1995		1996	
Zones		Zonal Mean	StDev.	Zonal Mean	StDev.
Northern Zone	4	94.36	3.85	74.90	17.42
Eastern Zone	5	96.56	4.91	95.83	6.44
Central Zone	3	79.21	18.87	70.49	19.08
Southern Zone	4	59.78	2.67	74.21	14.53
Sample Means		81.23		75.35	
StDev.		16.94		11.48	

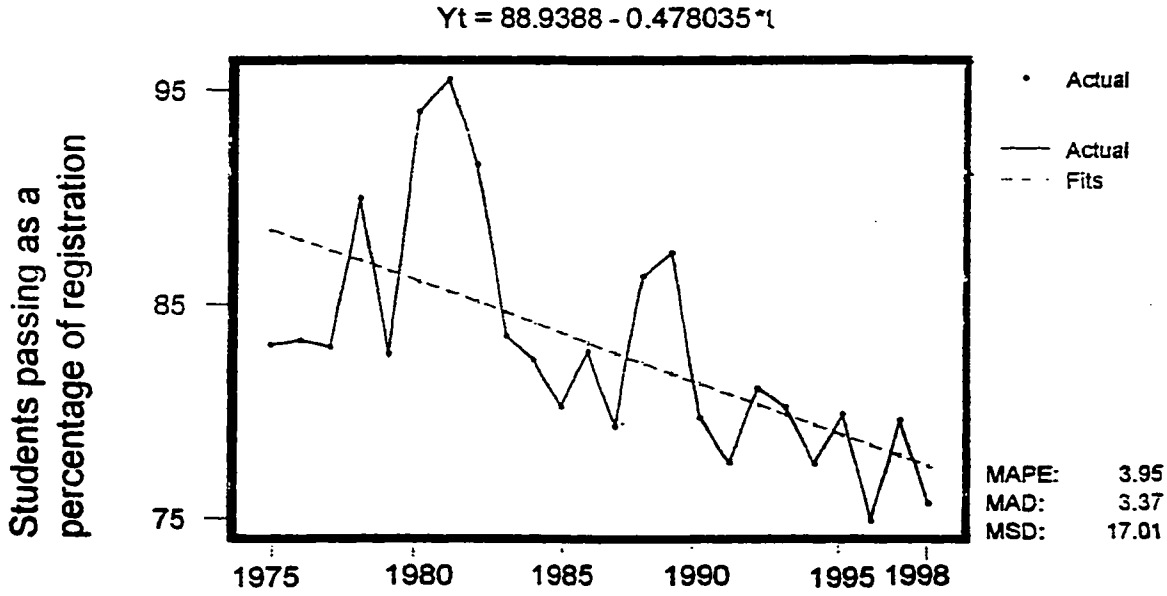
YEAR	Schools	1997		1998	
Zones		Zonal Mean	StDev.	Zonal Mean	StDev.
Northern Zone	4	95.68	4.49	94.70	5.67
Eastern Zone	5	96.61	4.38	96.78	5.27
Central Zone	3	78.86	26.25	84.90	21.87
Southern Zone	4	61.48	7.04	64.84	7.84
Sample Means		83.15		85.30	
StDev.		16.60		12.64	

APPENDIX C – 2

Trend Analysis Models



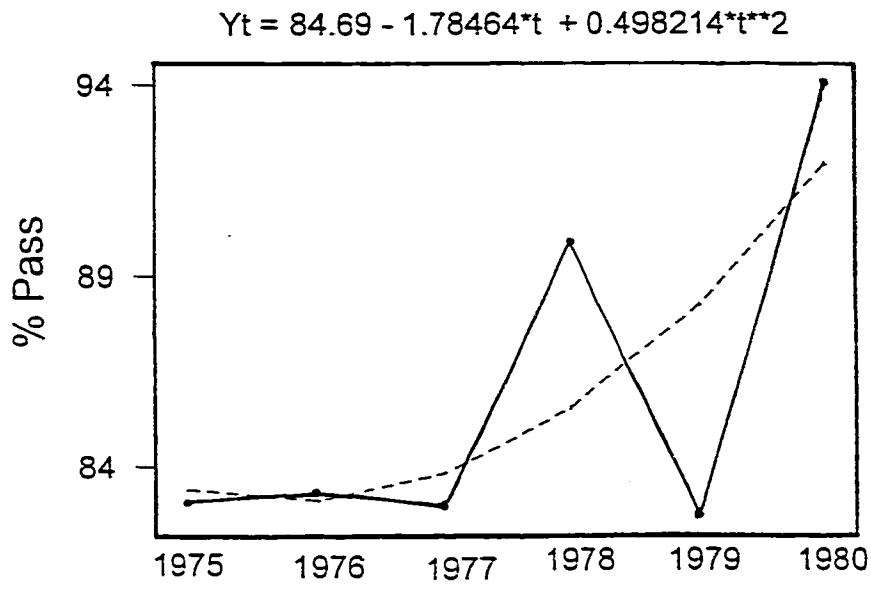
Average National Schools' Performance from 1971 – 1998



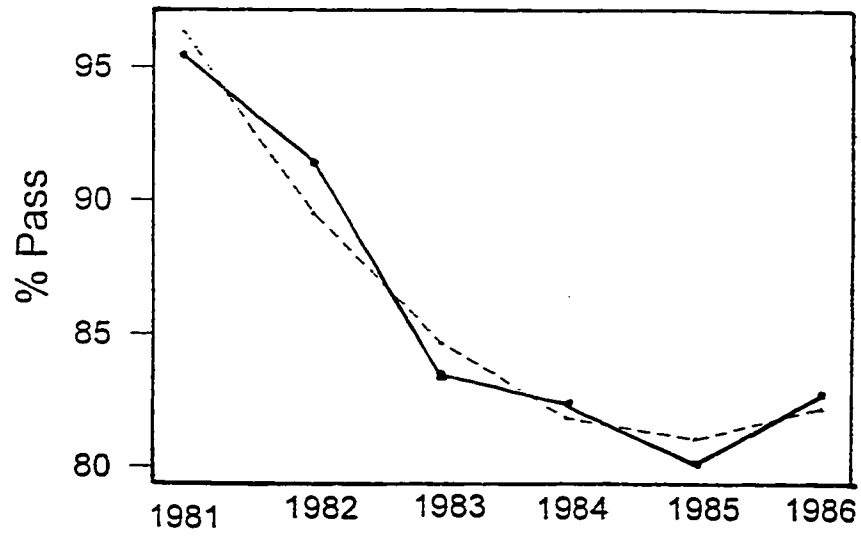
Average National Schools' Performance from 1975 – 1998

Notice the effect of the trend after the first 4 years are removed, and the trend after 1980.

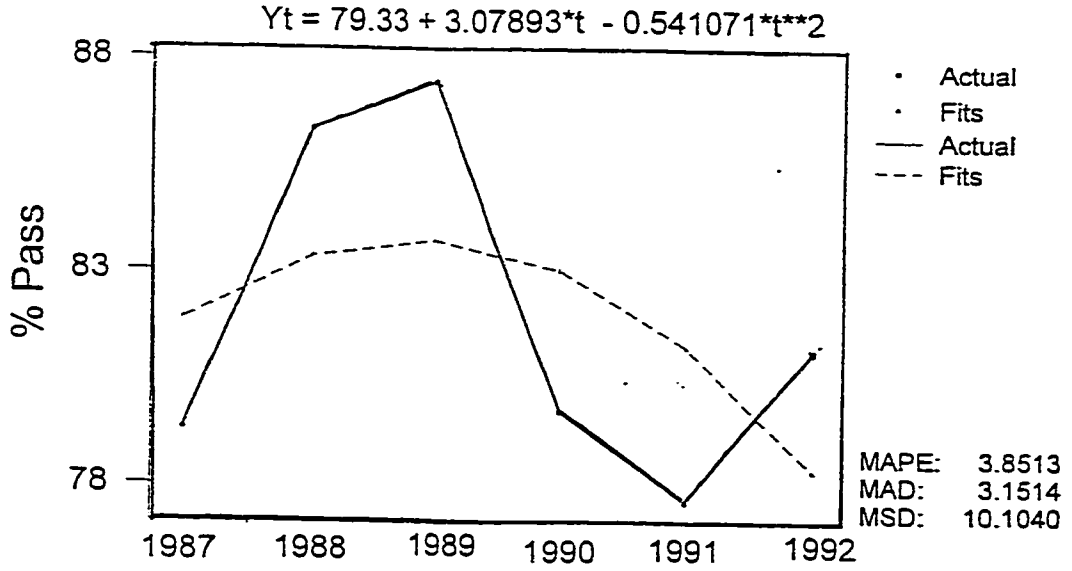
Trend Analysis Plots - Quadratic Models



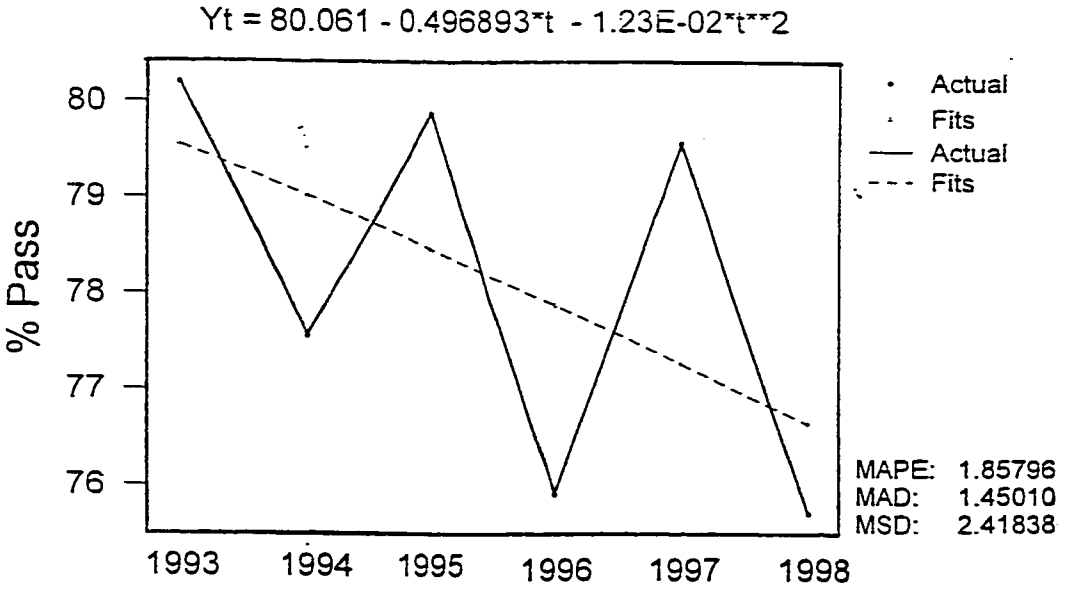
Performance Nationally - 1975 - 1980



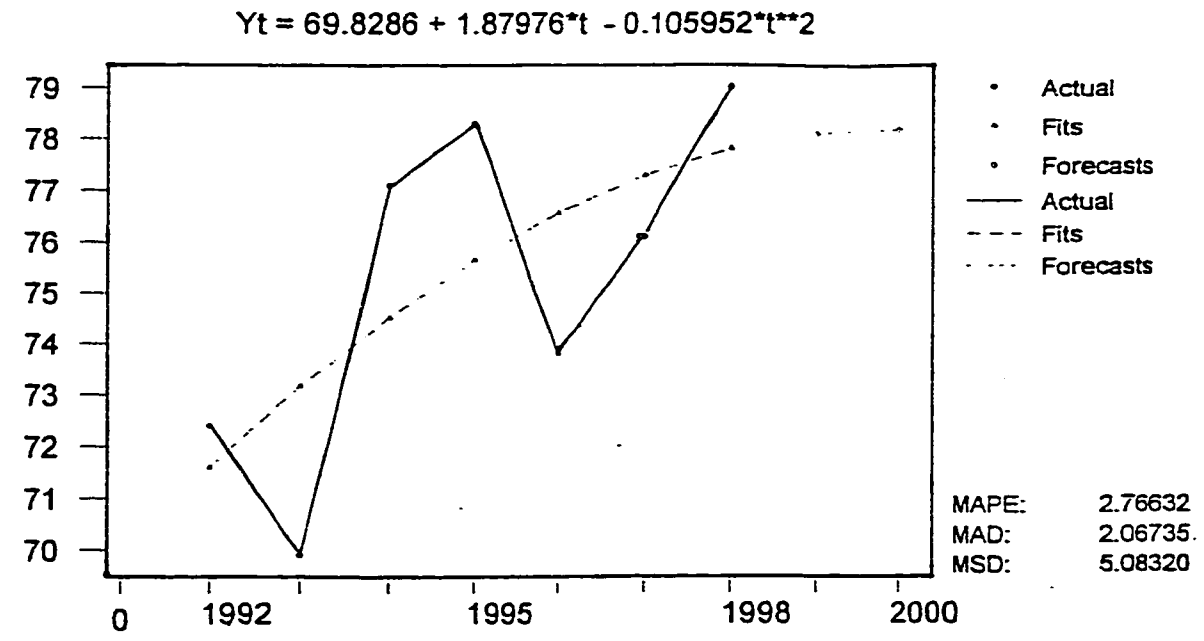
Performance Nationally - 1981- 1986



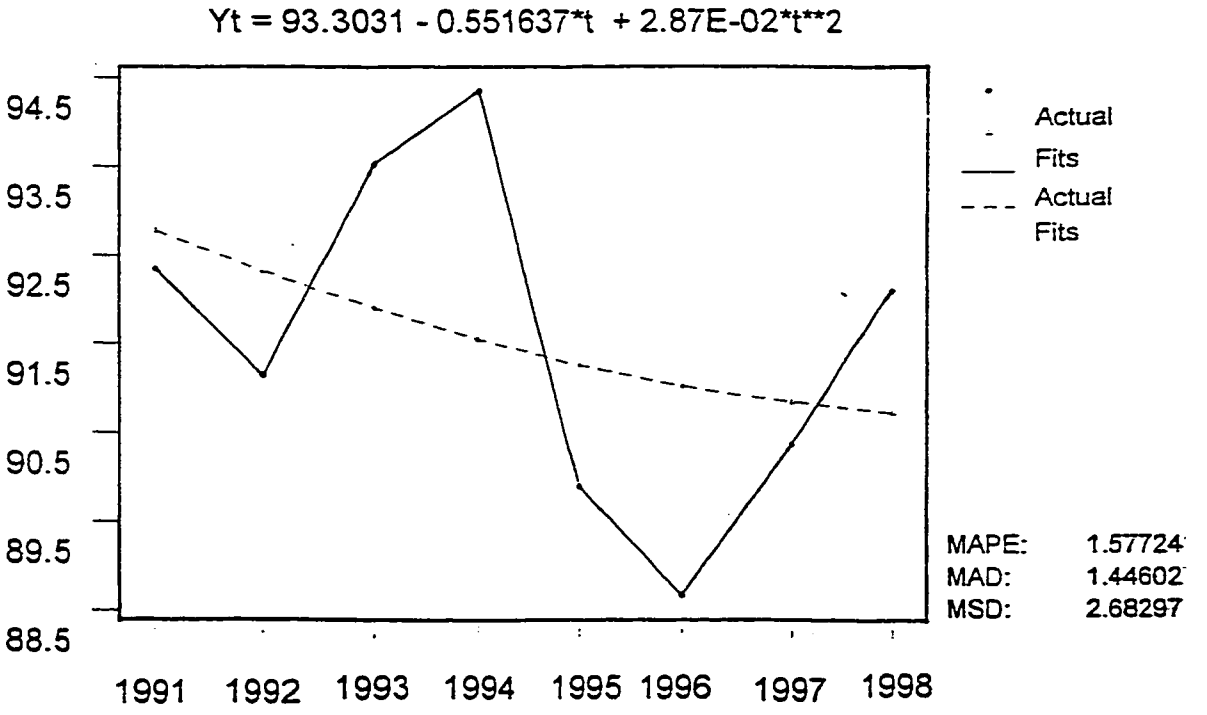
Performance Nationally - 1987 - 1992



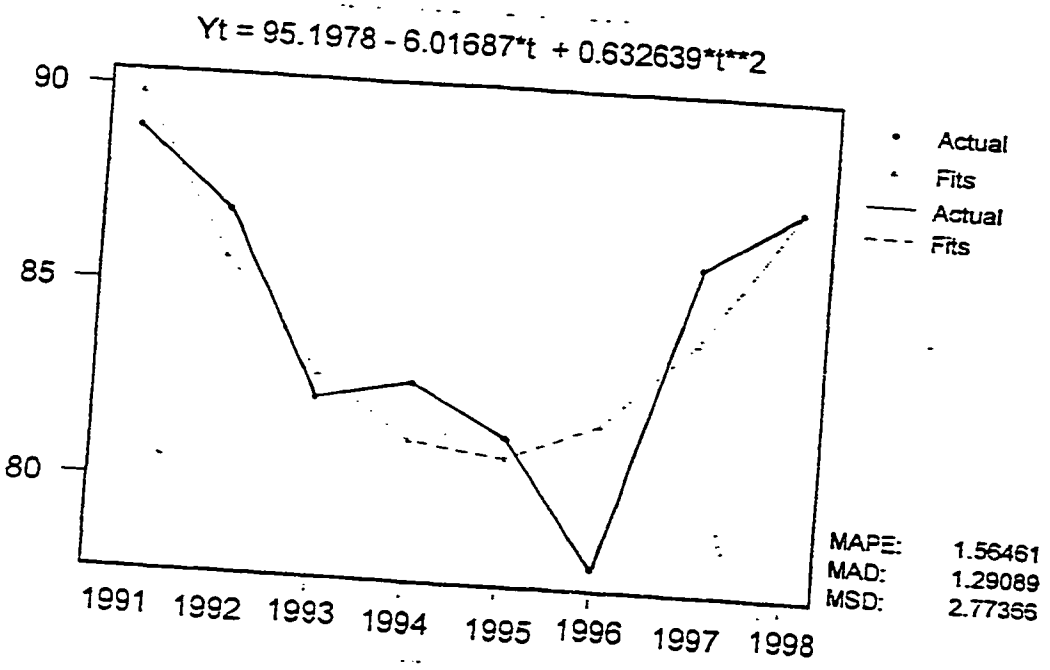
Performance Nationally - 1993 - 1998



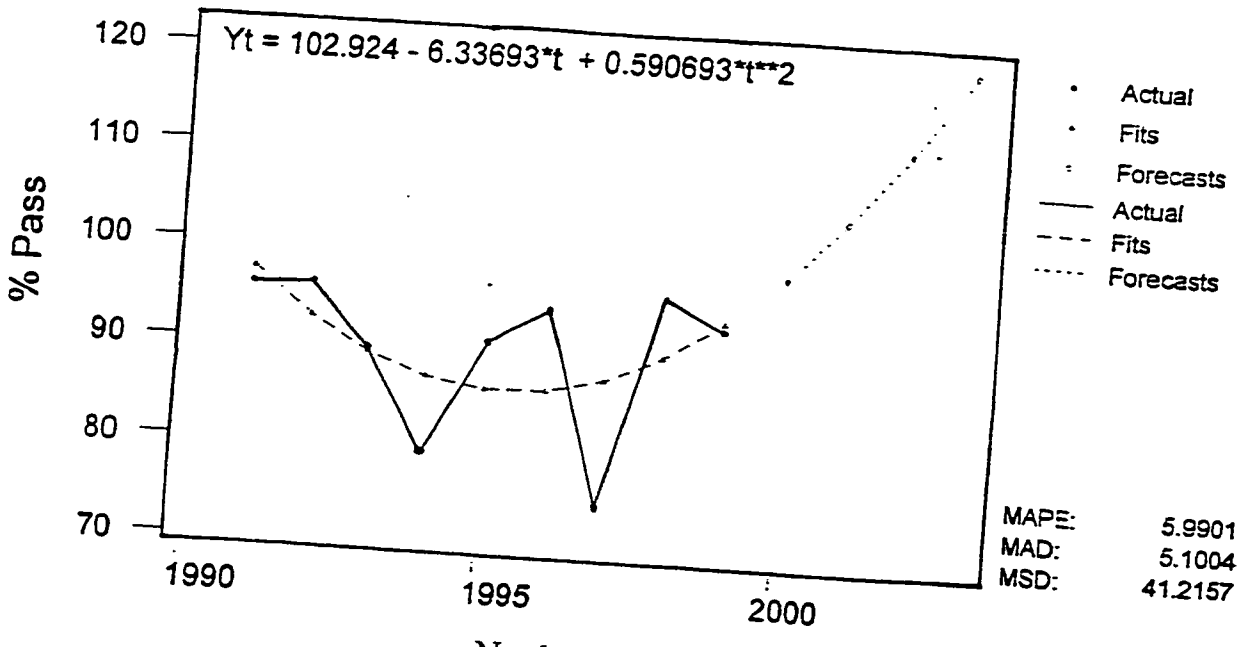
New Schools
1991 -1998



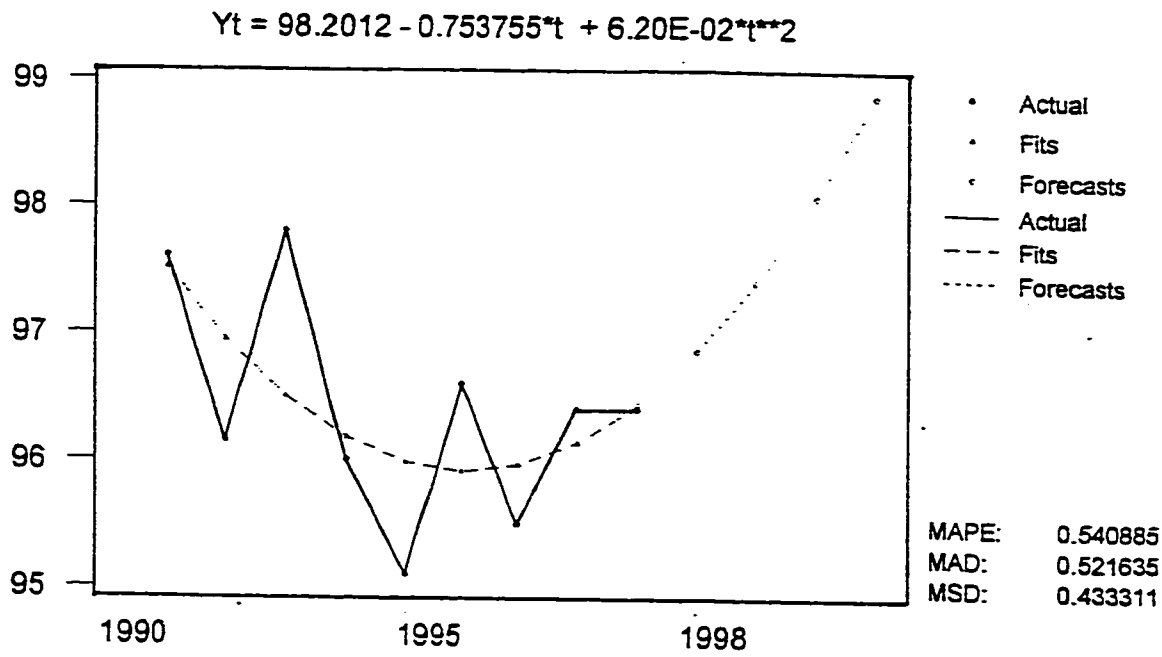
Old Schools
1991 - 1998



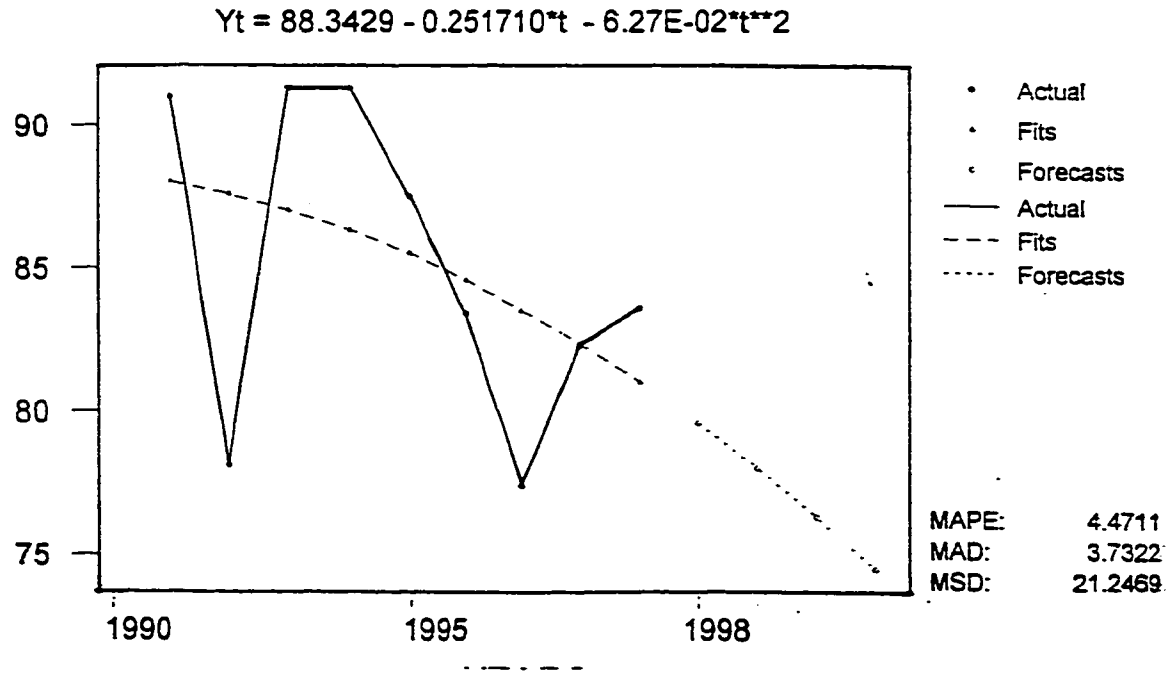
Sample Schools - Overall
1991 -1998



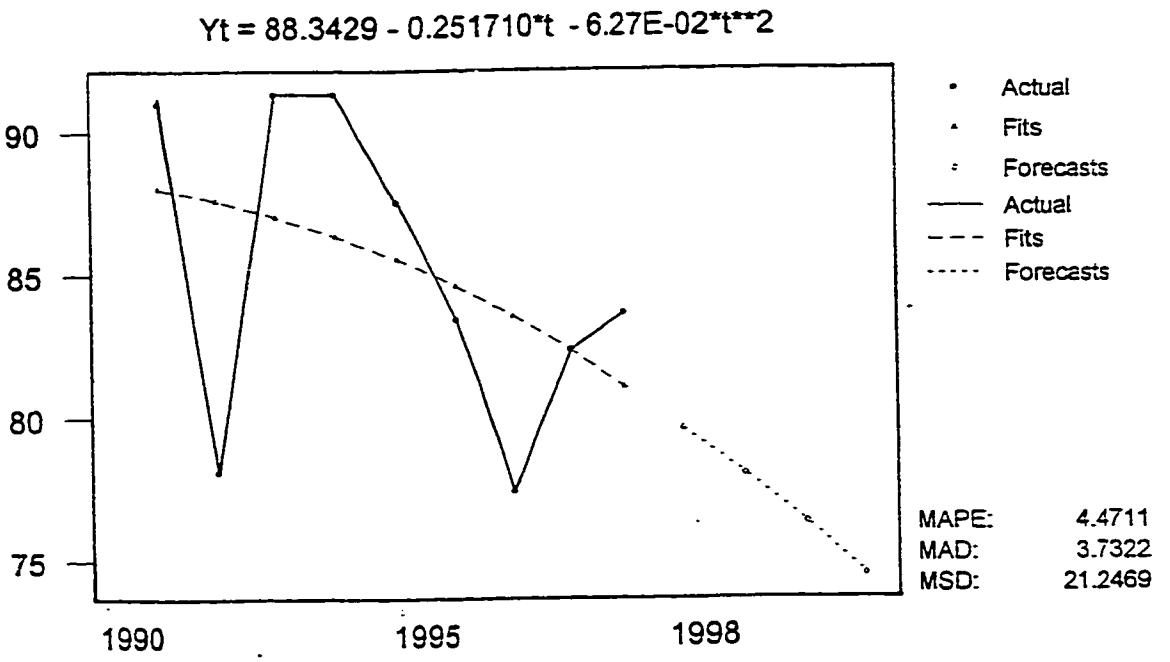
Northern Zone
1991 -1998



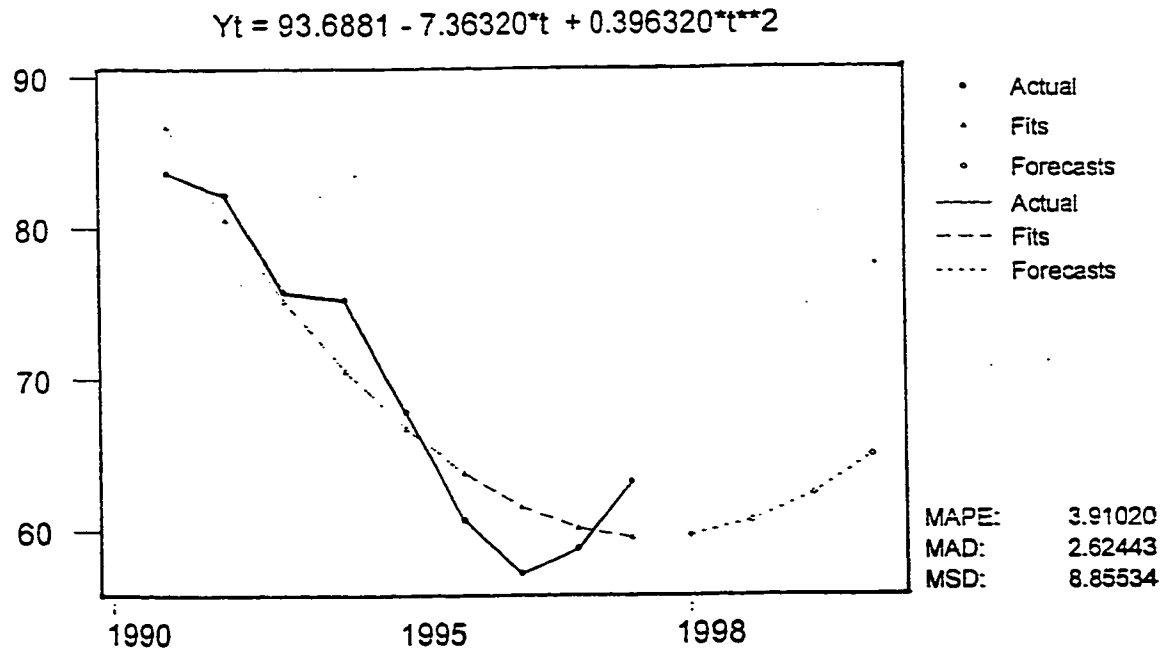
Eastern Zone
1991 -1998



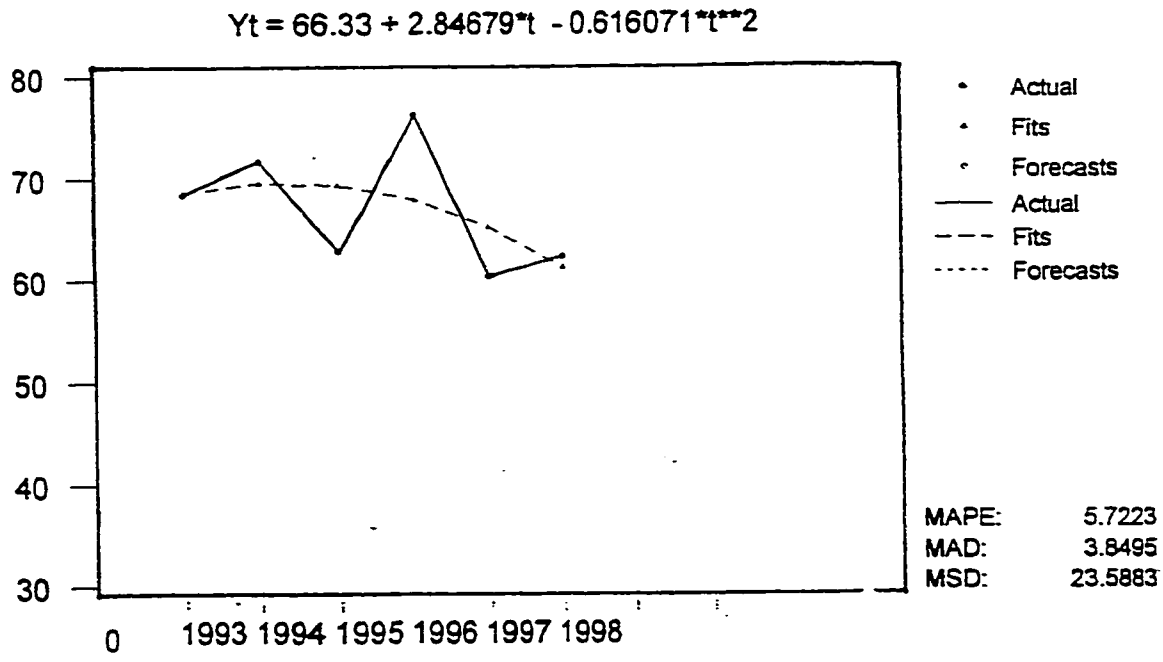
Central Zone
1991 -1998



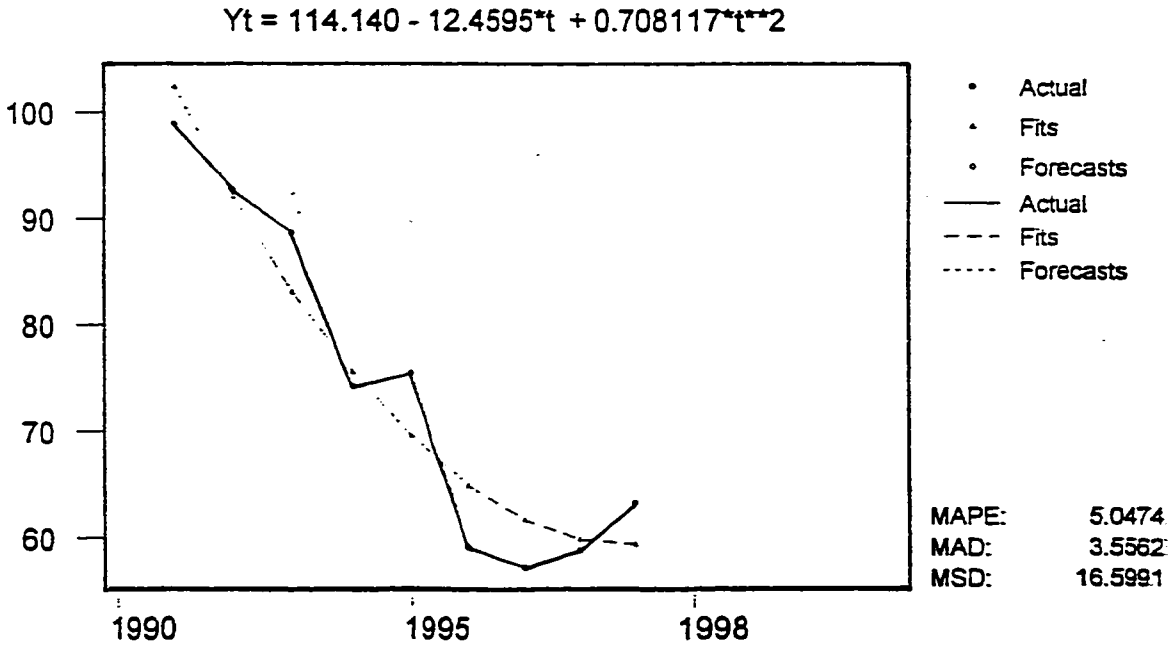
Central Zone - Boys
1991 -1998



Southern Zone
1991 -1998



Southern Zone - Boys
1991 -1998



Southern Zone - Girls
1991 -1998

APPENDIX C - 3

One way ANOVA Summary Tables

National Data

One Way Analysis of Variance Summary Table for the National Data, N = 4 years

Source	DF	SS	MS	F	P
ANOVA	6	929.0	154.8	5.47	0.002
Error	21	594.4	28.3		
Total	27	1523.4			

Sample Schools' Data

ANOVA Summary Table for the Overall Sample N = 4 Zones

Source	DF	SS	MS	F	P
ANOVA	3	3647.1	1215.7	30.26	0.000
Error	28	1124.8	40.2		
Total	31	4771.9			

ANOVA Summary Table for the Average Schools Performance in the Northern Zone, N = 4 Schools

Source	DF	SS	MS	F	P
ANOVA	3	1925.3	641.8	8.88	0.000
Error	28	2023.7	72.3		
Total	31	3949.0			

ANOVA Summary Table for the Average Boys' Performance in the Northern Zone, N = 3 Streams.

Source	DF	SS	MS	F	P
ANOVA	2	3313	1656	9.84	0.000
Error	21	3536	168		
Total	23	6848			

ANOVA Summary Table for Average Girls' Performance in the Northern Zone, N = 2 Streams.

Source	DF	SS	MS	F	P
ANOVA	1	178.8	178.8	3.08	0.101
Error	14	813.8	58.1		
Total	15	992.7			

ANOVA Summary Table for the Average Schools' Performance in the Eastern Zone, N = 5 Schools.

Source	DF	SS	MS	F	P
ANOVA	4	608.82	152.21	43.39	0.000
Error	35	122.77	3.51		
Total	39	731.59			

ANOVA Summary Table for the Average Boys' Performance in the Eastern Zone, N = 4 Streams.

Source	DF	SS	MS	F	P
ANOVA	3	656.16	218.72	30.97	0.000
Error	28	197.72	7.06		
Total	39	853.88			

One Way ANOVA Summary Table for the Average Girls' Performance, Eastern Zone - N = 4 Streams.

Source	DF	SS	MS	F	P
ANOVA	3	413.69	137.90	26.44	0.000
Error	28	146.05	5.22		
Total	31	559.75			

One Way ANOVA Summary Table for the Average Schools' Performance in the Central Zone, N = 3 Schools.

Source	DF	SS	MS	F	P
ANOVA	2	5098.0	2549.0	31.90	0.000
Error	21	1677.9	79.9		
Total	23	6775.9			

One Way ANOVA Summary Table for the Average Boys' Performance in the Central Zone, N = 3 Streams.

Source	DF	SS	MS	F	P
ANOVA	2	6487	3244	17.84	0.000
Error	21	33819	182		
Total	23	10306			

One Way ANOVA Summary Table for the Average Girls' Performance in the Central Zone, N = 3 Streams.

Source	DF	SS	MS	F	P
ANOVA	2	3877.6	1938.8	41.55	0.000
Error	21	980.0	46.7		
Total	23	4857.6			

One Way ANOVA Summary Table for the Average Schools' Performance in the Southern Zone, N = 4 Schools.

Source	DF	SS	MS	F	P
ANOVA	3	2866	955.33	11.95	0.149
Error	28	2239	79.96		
Total	31	5105			

One Way ANOVA Summary Table for the Average Boys' Performance in the Southern Zone, N = 2 Streams.

Source	DF	SS	MS	F	P
ANOVA	1	1103.6	1103.6	13.46	0.003
Error	14	1147.7	82.0		
Total	15	2251.3			

One Way ANOVA Summary Table for the Average Girls' Performance in the Southern Zone, N = 4 Streams.

Source	DF	SS	MS	F	P
ANOVA	3	824.6	274.87	6.845	0.170
Error	28	1124.3	40.15		
Total	31	1949.9			

One Way ANOVA Summary Table for the Average 'Old' Schools' Performance (from the overall sample) N = 11 Schools.

Source	DF	SS	MS	F	P
ANOVA	10	2074.6	207.5	8.07	0.000
Error	77	1979.6	25.7		
Total	87	4054.2			

One Way Analysis of Variance Summary Table for the Average 'New' Schools' Performance (from the overall Sample), N = 5 Schools

Source	DF	SS	MS	F	P
ANOVA	4	7098.9	1774.7	36.64	0.000
Error	35	1695.3	48.4		
Total	39	8794.3			

Tabulation Tables

Raws : 7 = Arts Teachers, 8 = Science Teachers
: 1,2,3,4,5 = rank levels

Cell Contents
Row 1 = Count
Row 2 = % of Row
Row 3 = % of Table

Arts/Science teachers across the 15 conditions

Variable/condition 1: lack of discipline among students

	1	2	3	4	5	All
	55	82	59	38	19	253
	21.74	32.41	23.32	15.02	7.51	100.00
	13.29	19.81	14.25	9.18	4.59	61.11
	25	67	32	22	15	161
	15.53	41.61	19.88	13.66	9.32	100.00
	6.04	16.18	7.73	5.31	3.62	38.89
All	80	149	91	60	34	414
	19.32	35.99	21.98	14.49	8.21	100.00
	19.32	35.99	21.98	14.49	8.21	100.00

Variable/condition: 2: Disturbance from the Community

	1	2	3	4	5	All
7	2	1	67	107	76	253
	0.79	0.40	26.48	42.29	30.04	100.00
	0.48	0.24	16.18	25.85	18.36	61.11
8	2	1	42	78	38	161
	1.24	0.62	26.09	48.45	23.60	100.00
	0.48	0.24	10.14	18.84	9.18	38.89
All	4	2	109	185	114	414
	0.97	0.48	26.33	44.69	27.54	100.00
	0.97	0.48	26.33	44.69	27.54	100.00

Variable/condition: 3 - Inadequate desks

	1	2	3	4	5	All
7	38	86	66	45	18	253
	15.02	33.99	26.09	17.79	7.11	100.00
	9.18	20.77	15.94	10.87	4.35	61.11
8	22	56	41	34	8	161
	13.66	34.78	25.47	21.12	4.97	100.00
	5.31	13.53	9.90	8.21	1.93	38.89
All	60	142	107	79	26	414
	14.49	34.30	25.85	19.08	6.28	100.00
	14.49	34.30	25.85	19.08	6.28	100.00

Variable/condition 4:Lack of retraining for teachers

	1	2	3	4	5	All
7	52	71	73	45	12	253
	20.55	28.06	28.85	17.79	4.74	100.00
	12.56	17.15	17.63	10.87	2.90	61.11
8	20	44	47	38	12	161
	12.42	27.33	29.19	23.60	7.45	100.00
	4.83	10.63	11.35	9.18	2.90	38.89
All	72	115	120	83	24	414
	17.39	27.78	28.99	20.05	5.80	100.00
	17.39	27.78	28.99	20.05	5.80	100.00

Chi-Square = 6.670, DF = 4, P-Value = 0.154

Variable/condition 5: inadequate instructional resources

	1	2	3	4	5	All
7	49	72	68	57	7	253
	19.37	28.46	26.88	22.53	2.77	100.00
	11.84	17.39	16.43	13.77	1.69	61.11
8	31	59	48	18	5	161
	19.25	36.65	29.81	11.18	3.11	100.00
	7.49	14.25	11.59	4.35	1.21	38.89
All	80	131	116	75	12	414
	19.32	31.64	28.02	18.12	2.90	100.00
	19.32	31.64	28.02	18.12	2.90	100.00

Variable/condition 6: No lunck for students

	1	2	3	4	5	All
7	20	89	67	52	25	253
	7.91	35.18	26.48	20.55	9.88	100.00
	4.83	21.50	16.18	12.56	6.04	61.11
8	17	60	45	23	16	161
	10.56	37.27	27.95	14.29	9.94	100.00
	4.11	14.49	10.87	5.56	3.86	38.89
All	37	149	112	75	41	414
	8.94	35.99	27.05	18.12	9.90	100.00
	8.94	35.99	27.05	18.12	9.90	100.00

Variable/condition 7: Overloaded curricula

	1	2	3	4	5	All
7	20	86	74	58	15	253
	7.91	33.99	29.25	22.92	5.93	100.00
	4.83	20.77	17.87	14.01	3.62	61.11
8	24	48	47	32	10	161
	14.91	29.81	29.19	19.88	6.21	100.00
	5.80	11.59	11.35	7.73	2.42	38.89
All	44	134	121	90	25	414
	10.63	32.37	29.23	21.74	6.04	100.00
	10.63	32.37	29.23	21.74	6.04	100.00

Variable/condition 8: Low English language prficiency

	1	2	3	4	5	All
7	28	94	57	46	28	253
	11.07	37.15	22.53	18.18	11.07	100.00
	6.76	22.71	13.77	11.11	6.76	61.11
8	10	56	47	32	16	161
	6.21	34.78	29.19	19.88	9.94	100.00
	2.42	13.53	11.35	7.73	3.86	38.89
All	38	150	104	78	44	414
	9.18	36.23	25.12	18.84	10.63	100.00
	9.18	36.23	25.12	18.84	10.63	100.00

Variable/condition 9.Inadequate administrative support

	1	2	3	4	5	All
7	21	57	65	68	42	253
	8.30	22.53	25.69	26.88	16.60	100.00
	5.07	13.77	15.70	16.43	10.14	61.11
8	19	38	43	39	22	161
	11.80	23.60	26.71	24.22	13.66	100.00
	4.59	9.18	10.39	9.42	5.31	38.89
All	40	95	108	107	64	414
	9.66	22.95	26.09	25.85	15.46	100.00
	9.66	22.95	26.09	25.85	15.46	100.00

Variable/condition 10: Inadeqaute textbooks

	1	2	3	4	5	All
7	15	62	89	86	1	253
	5.93	24.51	35.18	33.99	0.40	100.00
	3.62	14.98	21.50	20.77	0.24	61.11
8	6	58	45	51	1	161
	3.73	36.02	27.95	31.68	0.62	100.00
	1.45	14.01	10.87	12.32	0.24	38.89
All	21	120	134	137	2	414
	5.07	28.99	32.37	33.09	0.48	100.00
	5.07	28.99	32.37	33.09	0.48	100.00

Variable/condition 11: Teachers given extra duties

	1	2	3	4	5	All
7	8	54	57	84	50	253
	3.16	21.34	22.53	33.20	19.76	100.00
	1.93	13.04	13.77	20.29	12.08	61.11
8	12	22	39	58	30	161
	7.45	13.66	24.22	36.02	18.63	100.00
	2.90	5.31	9.42	14.01	7.25	38.89
All	20	76	96	142	80	414
	4.83	18.36	23.19	34.30	19.32	100.00
	4.83	18.36	23.19	34.30	19.32	100.00

Variable/condition 12: Low salary for teacheers

	1	2	3	4	5	All
7	37	72	71	54	19	253
	14.62	28.46	28.06	21.34	7.51	100.00
	8.94	17.39	17.15	13.04	4.59	61.11
8	26	54	39	25	17	161
	16.15	33.54	24.22	15.53	10.56	100.00
	6.28	13.04	9.42	6.04	4.11	38.89
All	63	126	110	79	36	414
	15.22	30.43	26.57	19.08	8.70	100.00
	15.22	30.43	26.57	19.08	8.70	100.00

Variable/condition 13: Curriculum relevance

	1	2	3	4	5	All
7	26	83	73	43	28	253
	10.28	32.81	28.85	17.00	11.07	100.00
	6.28	20.05	17.63	10.39	6.76	61.11
8	21	54	36	28	22	161
	13.04	33.54	22.36	17.39	13.66	100.00
	5.07	13.04	8.70	6.76	5.31	38.89
All	47	137	109	71	50	414
	11.35	33.09	26.33	17.15	12.08	100.00
	11.35	33.09	26.33	17.15	12.08	100.00

Variable/condition 14: Students' "game playing" behaviour

	1	2	3	4	5	All
7	30	85	60	51	27	253
	11.86	33.60	23.72	20.16	10.67	100.00
	7.25	20.53	14.49	12.32	6.52	61.11
8	21	53	34	31	22	161
	13.04	32.92	21.12	19.25	13.66	100.00
	5.07	12.80	8.21	7.49	5.31	38.89
All	51	138	94	82	49	414
	12.32	33.33	22.71	19.81	11.84	100.00
	12.32	33.33	22.71	19.81	11.84	100.00

Variable/condition 15.Teacher:Students Ratio

	1	2	3	4	5	All
7	27	71	56	58	41	253
	10.67	28.06	22.13	22.92	16.21	100.00
	6.52	17.15	13.53	14.01	9.90	61.11
8	25	46	34	37	19	161
	15.53	28.57	21.12	22.98	11.80	100.00
	6.04	11.11	8.21	8.94	4.59	38.89
All	52	117	90	95	60	414
	12.56	28.26	21.74	22.95	14.49	100.00
	12.56	28.26	21.74	22.95	14.49	100.00

Cell Contents

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Appendix C - 4

QUOTES FROM TEACHERS' DISCUSSIONS

Instructional Resource Materials as a Factor in Educational Performance: A Case Study in Tanzania

The following points are teachers expressions as recorded during their discussions and transcribed by the researcher. The figures in brackets indicate frequency of occurrence.

1 Teachers are frustrated – pay not enough to cover for the whole month (7)
2 May be education has rather gone up than declined (2)
3 Examinations are not in themselves a good measure of educational standards (8)
4 It is hard to conclude whether education was declining (4)
5 We have only attempted to set objectives but not quality of education (3)
6 The quality of education bases on whether or not objectives are accomplished
7 To determine any decline or gain in education we should have had moments in a historical time line where a similar problem was tested to students at the same level of education and their performance compared over the period of time.(3)
8 We are trying to measure a standard that we have not set (3)
9 Our education is no longer delivering what students should know
10 We are using a single exam to measure achievement as well as to determine entry qualification to the next education cycle. One is likely to overrule the other
11 School buildings are not well maintained - take for granted everything is fine, but we are losing millions worth assets (3)
12 Our education has certainly expanded quantitatively and covers a broader spectrum of knowledge than it did in the past (3)
13 Education does not operate in isolation. Constraints such as economic crisis, war and political conflicts influence education
14 Textbook sharing up to 5 students cannot facilitate effective learning (3)
15 When considering educational performance, (not examination results) we should evaluate how we have grown educationally in terms of accessibility, equity, diversity and affordability.

16 We cannot quantify education, rather we assess it in the way its recipients use it in life situations (3)

17 We can only begin assessing the quality of education by examining our national goals of education and the extent to which those goals have been achieved. Have we accomplished our philosophy of education for self reliance?

18 Some topics recommended in science syllabi are too advanced for targeted forms (grade level) (2)

19 May be it's the quality of our schooling environment that has declined and now causing children to stay at home where they feel more comfortable (2)

20 If by declining we are comparing what our children can do in academics, our children have performed just as well when they enrolled in institutions of higher learning outside Tanzania let alone the fact that many students who return to continue with their schooling in Tanzania have not performed any better. (2)

21 We can rather talk of examination results dropping but not education in general. Education means a lot more that performance in examinations.

22 Have our school graduates' ability to manipulate their environment to earn their living improved as a result of having attended school?

23 Worn out or perishable materials are not replenished (3)

24 Administration has often cared more of what it got and not what it gave to teachers

25 We certainly have encountered problems in education, management by crisis without potential training, decisions overruled from above, economic crisis, hunger, and many others, but managed to maintain a formal schooling system (2)

26 Many changes in education are initiated by individuals sometimes without consulting right experts (3)

27 Fluctuations in examination results is not abnormal when we know that we are dealing with different people at every enrolment year. The same is true when, in the process of trying to correct our mistakes, we lack consistency .

28 If education has declined (changed) then our societal standards have also declined(changed) We seem to be preparing our children for life in the past

29 Too many hierarchical procedures before things get done (4)

30 Increasing volume in enrolment does not necessarily reflect growth in standards of education

31 What standards have we set that guide as terms of reference to education providers and administrators? (3)

32 Students graduate prematurely in basic skills (3Rs)

33 There is a mismatch of our objects and what the recipients of education are expected of after they graduate (2)

34 Examination scores have often been used as a measure for quality education – if students cannot prove capable in exams miss credits for a learned person

35 Circumstances such as lacking right lab chemicals force us (teachers) skip topics in science syllabus

36 We now see all these flaws because we know (2)

37 An overlap that is confusing two generations where parents had one type of education for instance using imperial units and now their children talk of metric. Who knows better?

38 Teachers are among the list paid

39 What are our (teachers) rights and benefits?

40 To some extent our children now learn to cope with the technologically changing world that may probably be irrelevant at the time of their parents schooling. Apparently current children no longer need to learn some obsolete skills inapplicable in the present world.

41 Lab practices are now less practicable (4)

42 Practical examinations are now replaced with transcribing pictures and diagrams! (3)

43 Our education system has suffered declining financial inputs, ineffective curricula, shortage of qualified teachers, unfavorable working conditions particularly in rural schools, availability of teaching materials, inefficient management and many others. But how can these translated to standards of education?