ACCELERATED STUDENT ENROLLMENTS IN KENYAN PUBLIC UNIVERSITIES: IMPLICATIONS FOR QUALITY INSTRUCTION

BY

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A thesis submitted in partial fulfilment of the requirements for the degree of Master of Education of Kenyatta University.

Mwangi, Waituru
Accelerated student enrollments in Kenyan
DECLARATION

This thesis is my original work and has not been presented as a degree in any other university.

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This thesis has been submitted with our approval as university Supervisors

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DEDICATION

This thesis is dedicated to my beloved parents Waituru Kiboi and Mary Wangari for all they sacrificed for my continuing education.
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ABSTRACT

The purpose of this study was to investigate implications of student enrolments in Kenyan public universities on factors of quality instruction. Focus was put on selected departments in the Faculties of Medicine and Engineering in the University of Nairobi and the Faculties of Education and Science at Kenyatta University.

The specific objectives of the study were three, namely:

1(a) To investigate the implications of increased student numbers on:

(i) Physical facilities and learning related resources

(ii) Abilities of university academic staff to present and evaluate lessons, do research and publish.

(b) To find out merits and demerits of the staggered semester system.

2. To investigate the effects of expanded enrolments on the quality of university out-put as measured by the lecturers’ opinions on quality of graduates produced and graduates’ satisfaction with skills gained.

3. To investigate ways of improving the quality of instruction in the universities.

To answer the questions that guided the study, data was collected through administration of questionnaires and interviews to sampled graduates, lecturers and administrators from the selected faculties. In total, 35 engineering, 33 medical and 65 education graduates and 39 lecturers provided data through questionnaires. Those interviewed included 18 lecturers and 12 administrators. Supplementary information was obtained through analysis of available documents.
The analysis of data revealed that in virtually all the studied departments, expanded enrolments strained the use of available facilities and resources and increased lecturers’ workload.

The staggered semester system introduced to handle large student numbers, was found unpopular among the respondents because it put pressure on lecturers and resulted in reduced contact hours with students.

Lecturers rated the post-expansion graduates as inferior to their pre-expansion colleagues. Most post-expansion graduates indicated that they were dissatisfied with levels of skills gained in their university experience while most of their pre-expansion counterparts indicated satisfaction with skills gained.

Overall, rapid expansion of students negatively affected the quality of instruction and, as a result the quality of graduates produced.

In line with these findings it was recommended that effort be made to marshal resources to cater for the increased student numbers. The study also recommended improved management of the public universities especially depoliticisation of university administration, motivation of academic staff and more prudent expenditure of funds.

Review of the university curriculum was found necessary. In this connection universities should co-operate with industries and middle level training institutions in matters of curriculum development, training and research.
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The main purpose of this chapter is to present a statement of the problem investigated by the study. In so doing, it was imperative that the purpose of the study be clearly stipulated followed by the research questions that guided the study. The problem investigated would not be adequately stated without giving the significance of studying the problem. For readers to have a proper understanding of the study, the chapter also presents a definition of key terms used in the study. The chapter opens with a brief historical background of the problem under investigation.

**Background of the Problem**

In virtually all countries, university education has undergone an extremely rapid expansion in the last half of the twentieth century. Statistics from UNESCO, for example, indicate that students in higher education were 28.2 million in 1970, 47.5 million in 1980, 58.4 million in 1988 and 61 million in 1990. In twenty years, the number worldwide has more than doubled (Dias, 1993).

It is, however, notable that this expansion was greatest in the less industrialised countries especially in sub-Saharan Africa. As Dias (1993) notes,
Between 1970 and 1988, the number of university students increased eight-fold in sub-Saharan Africa, six-fold in Eastern Asia and the Pacific and also in the Arab states, four and a half in Latin America and the Caribbean and also two-fold in Southern Asia. In the industrialised world, the level was modest, averaging 50% ... (Dias, 1993).

Nigeria, which is the most populous country in sub-Saharan Africa represents the extreme example of this expansion of the university system. Though the first recommendation to establish university education was made only 58 years ago, Nigeria now boasts of 24 universities. Like Nigeria, Kenya - though a less populated country - has also experienced a very rapid growth in its university system (K.I.E, 1986; Mwiria, 1990).

Rapid growth in the number of university students in Africa, and Kenya in particular has taken place despite the fact that the system of university education in the region is a relatively new one. Under colonial rule, university expansion in Africa was restricted and a regional orientation adopted (Lugumba, 1973). As a consequence of this regional orientation, it is only as recently as in 1970 that the first fully-fledged university, University of Nairobi, was established in Kenya. This followed the break-up of the University of East Africa (Bogonko, 1984).

Today, the University of Nairobi is made up of six colleges housed in seven campuses located in and around the city of Nairobi. While the main campus is located in the city centre, all the other campuses are located less than 13Km from the city centre except Kikuyu Campus which is located about 21Km west of Nairobi.
Though Kenyatta University attained full university status in 1985 - one year after Moi University - its history dates back to 1970 when it became a constituent college of the University of Nairobi. Situated about 25Km North of Nairobi, it has offered degree courses in the area of education since 1972.

Moi University - the only university fully planned and constructed as a university in Kenya - was opened in September 1983 with a transfer of the Department of Forestry from the University of Nairobi to the newly built Moi University campus at Eldoret, about 400Km North West of Nairobi.

Named after Lord Egerton, Egerton college of Agriculture attained a university college status in 1986. One year later, Egerton University College was granted a full university status by an act of parliament. The university is situated at Njoro, about 200Km West of Nairobi.

Jomo Kenyatta University of Agriculture and Technology attained a full university status in 1995 having been a constituent college of Kenyatta University since 1987. It is situated about 30Km North of Nairobi.

The expansion of the newly established University of Nairobi and its constituent college at Kenyatta was moderate between 1974/75 and 1986/87 academic years. Student enrolment during this period rose by a mere 17% (see appendix 1). During this period, expansion of university education was mainly for the supply of skilled labour force in order to promote economic and social development (Hughes, 1987). However, between 1981/82 and 1990/91
academic years, there was a very rapid expansion of university education in Kenya. During this period, the number of universities rose from one to five with several constituent colleges. These universities are the University of Nairobi, established in 1970, Moi University (1984), Kenyatta University (1985) and Egerton University (1989). Students intake increased unprecedently from 2,668 to 21,110, an increase of about 628% in only four years between 1986/87 and 1990/91. The most extreme cases of this expansion are represented by the double intakes of the 1987/88 and 1990/91 academic years when two different groups of graduating secondary school leavers were admitted into the universities at the same time (Appendix 1; Egerton University, 1988; Kenyatta University, 1995; and University of Nairobi, 1993).

Although the need for human resource development was echoed by the Presidential Working Party on the establishment of a second university in Kenya in 1981 as a factor of university expansion (Kenya, Republic of, 1981), other factors have influenced university expansion in Kenya since the early 1980s. The most important factor has been an insatiable public demand for university education. This demand has risen from the high population growth rate which has averaged 3.9% per year since the early 1980s (Kenya, Republic of, 1994). Such a growth rate in population has in turn led to a soaring of the school age population at all levels of the system. At the secondary school level, the students' population growth rate during the last two decades has averaged 4.3% per year (University of Nairobi, 1993). This growth of Kenya's secondary school population has in turn created a tremendous pressure for places in the public universities that was already being felt in the early 1980s.
For instance, for the 1981/82 academic year, the University of Nairobi received some 9,298 applications. Of these, 4,416 met university entrance requirements representing 47% of the total applications. The university was able to offer places to only 2,598, representing 59% of those meeting entrance requirements and only 28% of the total applications received (Appendix 1).

Pressure for places in the universities has become particularly acute since the mid eighties. For example, in the 1987/88 academic year, public universities admitted 8,579 students. This represented only 49% percent of those meeting university entrance requirements and only 26% of the total applications received. For 1990/91 academic year, the universities admitted an unprecedented 20,544 students and even then, this represented only 6.6% and 28% of those who sat for Kenya Certificate of Secondary Education and Kenya Advanced Certificate Education respectively. The two groups were admitted together in the 1990/91 double intake (Appendix 1, University of Nairobi, 1993).

Mwiria (1990) cited the inability of primary and secondary levels of education to guarantee modern sector employment as the other factor contributing to a high demand for university education. As primary and secondary levels of education fail to guarantee modern sector wage employment, Kenyans are looking for higher and higher levels of education.

Related to this employment factor is Kenya’s reward structure, which according to Mungai (1985) is based on financial rewards according to the
level of academic certificate achieved. Such a reward structure has resulted in a public conception of the role of university education in the society in terms of its potential to equalise economic opportunities at both the regional and individual levels (Mwiria and Nyukuri, 1994).

The twin factors of a high public demand and the public view of the role of university education in the society have led to an increased politicisation of university education in Kehya (Sifuna, 1997). Increased politicisation has resulted in an unplanned increase of student numbers in public universities since the mid 1980s. Higher enrolments have been irrespective of these institutions' incapacity to accommodate increased student numbers. Such unplanned increases have resulted from the tendency of policy makers to succumb to pressures from secondary school leavers and their parents for access to university education. As Mwiria and Nyukuri (1994) have noted:

In 1988, for example, President Moi directed the Ministry for Education and the Vice-Chancellors of the four national universities to work out ways of admitting most of the 13,000 qualified students left out in the recent selection. The president said he had been moved by appeals from affected parents, students and Kenyans in general during the on-going public discussion. (Mwiria & Nyukuri, 1994 p11).

University expansion in Kenya and Africa in general took place at a time when the continent was going through various economic and social hardships. These hardships started with the oil crisis of the 1970s and the resultant increase in oil prices. Increase in oil prices adversely affected the terms of trade for oil importing countries like Kenya. Economic problems resulting from the oil
crisis were further aggravated by the marginalisation of the African continent by the donor countries since the end of the cold war (Olembo et al, 1992).

Investment in social programmes including education was among the areas adversely affected by the economic hardships. Kenya borrowed heavily to meet her budgetary requirements while other countries like Tanzania cut down on their budgetary allocation to education (Olembo et al, 1992; Omari and Mosha, 1987).

A study by the World Bank (1988) warned of the

Falling standards of university education in Africa due to expansion against an economic down-turn; the tragic consequence of which has been a critical decline on the levels of instructional inputs. (The World Bank, 1988 p74).

The study reported that in the countries that had been hardest hit by scarcity of instructional inputs, poorly trained graduates had been produced. Some of these graduates meet the following descriptions:

... secondary school teachers who have never witnessed, let alone themselves conducting the demonstrations central to the curriculum they teach... Engineers who have never disassembled the machinery they are called upon to operate... medical doctors whose only knowledge of laboratory test procedures is from hearing them described in lecture hall... (The World Bank, 1988 p73).
Statement of the Problem

Unlike in many sub-Saharan countries, the budgetary allocation to university education in Kenya has steadily risen since the mid 1980s (Achola, 1990). However, it has not kept pace with the increase in the number of students. Owing to economic hardships, inflationary factors and population pressures, Kenya, like other developing countries, has been faced with dwindling revenues earmarked for social services including education (Achola, 1990). The financial problem was worsened by the depreciation of the Kenya shilling against foreign currencies and a high rate of inflation between the late 1980s and the mid 1990s. The depreciation of the shilling greatly reduced the purchasing power of available funds. Reduced purchasing power meant that funds intended to meet the expansion expenses of the universities were consumed by the hiked prices of educational materials and services (Olembo et al, 1992 and Kenyatta University, 1990).

Faced with the above economic realities, the government undertook two affirmative actions. First, it resorted to taking over junior staff colleges and converting them into university campuses or colleges (Mwiria, 1992). Second, the universities were forced to introduce the staggered semester system, as the available facilities could not cater for the massive student numbers. This staggered semester system allowed groups of students to study while others were on holiday (Mwiria and Nyukuri, 1994). While converting junior colleges to university campuses or colleges meant more facilities to the universities, staggering the semesters was meant to help the universities make more
economic use of available resources. Further, the universities cut down on their expenditure and put in place more stringent budgetary control measures (Hughes, 1990).

The measures discussed above are highly commendable on economic terms. However, university expansion that is not adequately funded can lead to a compromise on the quality of instruction. This has been reported to be the case in those African countries where universities have been forced to make do with meagre resources (The World Bank, 1988).

Compromised quality of instruction could have the grave consequences of producing ill-prepared graduates. Poorly trained graduates would hardly be able to cope with the challenges of national development. Inability of university graduates to cope with challenges of national development increases the probability of Kenya becoming a victim of under development despite a large number of graduates (see also The World Bank, 1988). Production of poorly trained graduates who are unable to cope with challenges of national development could also erode the rationale of high public investment in university education. It should be noted in this regard that though it has the highest unit cost, university education has the lowest rate of social return in comparison to secondary and primary levels of education (Psacharopoulos and Woodhall, 1985). Heavy public investment in such a venture would, therefore, only be justified if it resulted in highly skilled work force to steer the economy (Nyerere, 1967).
In view of the above problems, this study sought to find out the implications of increased student enrolments on quality instruction in Kenyan public universities.

The Purpose of the Study

This study investigated the following:

1 a) The effects of increased student numbers in Kenyan public universities on the adequacy of:
   i) library, laboratory, workshop, lecture and hostel facilities, and teaching/learning materials; and
   ii) the academic staff and their ability to deliver and evaluate lessons, do research and publish; and

b) The instructional and other implications of the staggered semester system.

2. Implications of university expansion on instructional out-put as measured by lecturers' opinions on students' performance and graduates' opinions of skills gained.

3. The study further sought to solicit recommendations offered by those studied on how to improve the quality of instruction in the public universities.
Research Questions

Following the above objectives, answers to the following research questions were sought:

1. (a) (i) How has accelerated student enrolments in Kenyan public universities affected the adequacy of library, laboratory, workshop, lecture and hostel facilities, and teaching/learning materials?

(ii) How has expanded enrolments affected the academic staffs' ability to deliver and evaluate lessons, do research and publish?

(b) What are the advantages and the disadvantages of the staggered semester system?

2. What are the implications of accelerated student enrolments in Kenyan public universities on the instructional out-put as measured by lecturers' opinions about students' performance and graduates' opinions about skills gained?

3. In what ways can quality of instruction in Kenyan public universities be improved in the face of increased student numbers?

Significance of the Study

The government of Kenya is under pressure from the World Bank and other donors to reduce university intake. The donors base their campaign for reduced intake on the premise that increased student numbers has caused a
decline in the quality of education offered by the institutions (Daily Nation, 1993). It is, however, important to empirically investigate if university expansion is adversely affecting quality of instruction in the universities before closing doors to thousands of deserving citizens. This study served the purpose of attempting such an investigation. It should be noted here that in policy, the government of Kenya is committed to continued university expansion due to the economic and equity benefits accruing from such an expansion; especially equity and other economic and social benefits accruing from an elite populace (Kenya, Republic of, 1988).

Secondly, the study should shed some light on some of the problems the universities may be facing due to increased student numbers in the face of budgetary constraints. Some solutions to these problems will also be identified. It is hoped that such solutions might help the universities continue to effectively achieve their objectives.

Thirdly, since the study attempts to evaluate the effects of expansion, its findings would be a useful reference document to researchers, planners, administrators and institutions dealing with university education.

Finally, it is believed this study was a useful forum through which the university lecturers and graduates gave their views on how quality of instruction could be improved.
Scope and Limitations of the Study

This study was carried out in two universities namely the University of Nairobi and Kenyatta University. These two are the largest and have the longest experience of offering university education in Kenya.

Beside their small sizes, and young ages, Moi and Egerton Universities and Jomo Kenyatta University of Agriculture and Technology were not studied because of one reason - the researcher looked at the effect of increased student numbers in existing departments since 1979. The three universities started offering university education long after this year (see the definition of terms).

The study covered the Faculties of Medicine and Engineering at the University of Nairobi and the Faculties of Education and Science at Kenyatta University. Several reasons led to the researcher's interest in these faculties. First, the researcher was interested in faculties, which train professionals and whose teaching methods require heavy input of teaching/learning resources. It was assumed that inadequately funded expansion could critically affect quality of instruction in such areas. Secondly, the researcher wanted to study well-established faculties as he looked at expansion as increase in student numbers rather than establishment of new faculties/departments. In this respect, the Faculty of Engineering was selected as it was established in 1961 alongside the Faculties of Arts and Science at the then Royal College, which is today the University of Nairobi. Royal College prepared students for degrees of the University of London. Besides the factors discussed earlier, the researcher's
interest in the Faculty of Medicine is also based on its history. When the University of East Africa was established in 1962, it was decided that its constituent colleges were not to duplicate professional faculties. Hence viable common faculties were identified for all colleges and professional faculties set-aside for each college. Consequently, when Royal College became a constituent college of the University of East Africa and was renamed University College Nairobi, in 1963, it was allocated the Faculties of Engineering, Veterinary Science and Architecture. Makerere offered Medicine and Agriculture, and Dar es Salaam was given Law. Under this arrangement, student admission into these faculties was based on quotas allocated to each country. To supplement the number of doctors received from Makerere College under this arrangement, Kenya started its own Faculty of Medicine in 1967 which was not funded from the University of East Africa finances (Bogonko, 1992). The faculty is thus the oldest faculty to be established under full funding by independent Kenyan Government.

The Faculty of Education was selected for this study because it is the biggest faculty at Kenyatta University. It is also the oldest faculty at the university having been transferred from the University of Nairobi in July 1978 (University of Nairobi, 1993). Faculty of Science was studied as it offers service courses to the Faculty of education's Physical Science students.

At the University of Nairobi's faculties, the Departments of Medicine and Civil Engineering were selected for in-depth study because they are the largest and oldest departments in their respective faculties (University of Nairobi, 1993).
At Kenyatta University's Faculty of Education, the Department of Educational Administration, Planning and Curriculum development and the department of Communication and Technology were studied in depth. The Department of Educational Communications and Technology was considered the technical department of the faculty as it is the one that deals with practical teaching skills. The department of Educational Administration, Planning and Curriculum Development was the researcher's department and hence the interest. It should also be mentioned that the department introduces the student teachers to the curriculum they will be called upon to implement. The Departments of Chemistry and Physics were selected from the Faculty of Science as they offer service courses to the largest number of physical science students of the Faculty of Education (Kenyatta University, 1994)

The study covered the period between 1979/80 and 1993/94 academic years. The period includes eight years of pre-expansion (1979/80 - 1986/87) and eight years of post-expansion (1987/88 - 1993/94) periods. This enabled the researcher to compare and contrast conditions at the universities between the pre and post expansion periods.

Since the study covered only two universities, its findings may not wholly apply to other universities. The other three public universities may be facing other peculiar problems for several reasons. First, because they were established during the post-expansion period, which denies them the old university tradition, enjoyed by the older universities. Secondly, Moi and Egerton Universities are located far from the city of Nairobi. Jomo Kenyatta
University of Agriculture and Technology is on the other hand the only university founded as a joint venture between the Kenyan government and an external donor - Japan Agency of International Co-operation (JICA).

Definition of Terms

The Universities - Unless otherwise stated in the study, this term will stand only for the University of Nairobi and Kenyatta University.

Public Universities - Also used as “the universities” defined above.

University Expansion - This is used to refer to increase in student numbers in existing departments. It does not include establishment of new departments, colleges or universities.

Academic Area Per Student - This is the total built-up area in square metres used for academic functions divided by the total number of students enrolled. It includes areas used for tuition, administrative and staff offices.

Hostel Area Per Student - This is the total built-up area per square feet used for student accommodation divided by 95% of the total number of students enrolled; 5% of the students are assumed to be non-residents (Kenyatta University, 1987).

Lecturers – Any person involved in teaching at the universities and includes those at the ranks of professors, associate professors, senior
lecturers, assistant lecturers, tutorial fellows and graduate assistants.

**Abbreviation Used**

The following abbreviations are used in the tables:

**Adm** - Department of Educational Administration, Planning and Curriculum Development.

**Com-Tec** - Department of Educational Communication and Technology.

**Med** - Department of Medicine.

**C/Eng.** - Department of civil Engineering
CHAPTER TWO

LITERATURE REVIEW

Introduction

In this Chapter, two categories of literature were reviewed. First was the literature concerning the factors of quality instruction. The second category of literature was on the implications of increased student numbers in Kenyan universities on factors of quality instruction.

Literature on Quality of Instruction

According to the Longman dictionary of Contemporary English, the word instruction is used synonymously with teaching. Teaching has been defined as an attempt to help someone acquire, or change, some skill, attitude, knowledge, ideal or appreciation (Brown et al, 1982). This implies that where there is teaching, learning also occurs.

According to Farrant (1992 p187),

Teaching and learning are opposite sides of the same coin, for a lesson is not taught until it has been learned.

Brown et al (1982) supported this view when they quoted John Dewey as having maintained that in order to say one has taught, some changes in student behaviour should have taken place

..., he (Dewey) says. A person might as well say he has sold when no one has bought as say he taught and no one has learned... (Brown, 1988 p2).
From these definitions, it is clear that teaching is a goal-oriented process. Teaching aims at achieving learning in a student. This led Brown et al (1982 p2) to conclude that

the only valid criterion of instruction (sic) is the degree to which the teacher has been able to achieve learning in his students.

The above view was supported by a World Bank paper (1987) which defined quality of instruction by the performance of students, the so-called output. In supporting this view, Achola (1990 p111) added that for university education,

output also refers to the students' behaviour in which they display confident mastery of subject matter, positive attitudes and proficiency of application in respect to the disciplines of their university specialisation.

In practice, however, because inputs into the teaching process (e.g. facilities, time and human resources) are generally easier to measure than some outputs like attitudes and motivation, quality of instruction is often gauged by its inputs (The World Bank, 1988 and Achola, 1990)

The approach of using inputs as a proxy of instruction is made on assumption that the quality and quantity of human and non-human resources that are made available to learners by the school will facilitate the realisation of desired outcomes/output (Averch et al 1972)

There have been numerous attempts to investigate the validity of the above assumption through educational production function studies (Psachalopoulos and Woodhall, 1985). Such studies have been concerned with the question whether
measurable differences in the characteristics of school instructional factors correlate with measurable differences in students' outcome (Omari and Mosha, 1987).

Many factors have been studied but this research restricted itself to lecturers, and teaching/learning facilities and materials. These factors are the ones considered by the researcher as being contingent upon rapid increase in student enrolments (see also Achola, 1990).

It should be noted here that most of the studies reviewed were carried out in primary and secondary levels of education. This is because there are few education production function studies conducted at the university level known to this researcher. The researcher was however cautious not to present literature that has no bearing on university education.

The study now turns to the factors addressed by the studies reviewed. The first factor looked at is lecturers.

Lecturers

Saha (1983) found that several teacher variables exert positive effects on student achievement. The variables that Saha (1983) found to correlate positively with student outcome, which are relevant to this study, were teacher educational attainment (teacher credentials and certification), teacher experience, teaching methods applied and evaluation. Avalos (1980) reported similar findings. In his study, Avalos measured teacher qualifications in terms of years of schooling and their professional credentials.
Some studies have suggested that teacher experience is more important in primary and lower secondary education, but the skill and knowledge of teachers as reflected in their qualifications are more important at advanced levels (Psacharopoulos and Woodhall, 1985; Hastings and Croll, 1996). In this line Saha (1983) observed that while there may be evidence to suggest that untrained teachers can effectively teach children literacy and numeracy, the cumulative findings strongly support the notion that trained teachers do make a difference for more advanced grades and especially for more difficult subjects (Saha, 1983 p79).

Related to teacher qualification, the World Bank (1988) added the aspect of staff development programmes like seminars, sabbatical leave and research. Staff development aims at updating lecturers with new developments in their areas especially on content and methodology (Farrant, 1992).

While teacher characteristics such as qualifications are important determinants of pupils' performance, Bloom (1976) maintains that what teachers actually do is more important than their personal and cognitive characteristics. The kinds of teacher behaviour identified with quality of teaching are clarity of teachers' presentation, including making points clearly, explaining concepts clearly, using a variety of teaching procedures and materials, enthusiasm in presentation as indicated by gestures and voice inflections, and the task orientation of the teacher such as focusing on the accomplishment of a definite task (Omari and Mosha, 1987).

Classroom observation by Brookover et al (1978) showed that teachers in higher achieving schools tended to use more instructional activities in which groups of students competed as teams rather than individually. Secondly, there were differences in teacher student reinforcement practices in higher achieving and low achieving
schools. In higher achieving schools, teachers made immediate corrections and provided academic back-up when students failed to give correct responses. Also, positive reinforcement was generally given immediately to students who gave correct answers.

The above findings seem to suggest that the instructional methods that encourage greater teacher-student interactions are superior. However, in his study in Kenya, Maritim (1984) provided contrasting findings. His study indicated that while the frequencies of teacher-pupil interactions and the teacher’s feedback showed statistically significant correlations with the pupils’ performance in English, Science and History in standard three and five, the correlations failed to attain statistical significance in standard seven. In addition to these, performance in Mathematics did not correlate highly with the frequencies of teacher-pupil interactions in standard three, five and seven. Maritim (1984) however, did not under emphasise the importance of teacher/pupil interaction. He explained these findings on organisation of classes.

... the non-significant relationship between teacher-pupil interactions and performance may simply be due to the organisation of classes. In grades three and five, the pupils interact with the same teacher for relatively more periods of time each day. In most instances, the same teacher teaches all the subjects. In the upper grades, the pupils interact with several teachers teaching different subjects. ... This pattern of interactions brings less familiarity with the teacher (Maritim, 1984 p16).

Related to teaching methods is teachers’ evaluation of learners’ performance (Kiragu, 1987). More frequent feedback to learners on achievement levels has been shown to encourage higher performance. In Kenya, studies that have examined factors that boost achievement have reported that lack of frequency in marking pupils’ work by
teachers and little time spent on homework have contributed to poor levels of achievement (Kathuri, 1982; Eshwani, 1983 and Kiragu, 1987).

Class size reflects the quantitative adequacy of teachers, otherwise measured by teacher-student ratio. This is an area that has recently attracted a good deal of research. A state-funded STAR project in Tennessee State in America involved nearly 7,000 kindergarten children taught in small and regular classes for grades Kindergarten 1 and 2 (Finn and Achilles, 1992). End of year assessment results revealed consistently better results for the children taught in small classes irrespective of ethnicity, gender and school location.

Although this study was conducted in kindergarten from an industrialised country, these findings have a bearing to university education. This is in view of the fact that class size affects can not be just a matter of the number of children in a class. The number of children must have an effect on other classroom processes and activities which themselves bear more directly on learning.

The most frequently offered suggestion is that the reduced number results in each child getting more teacher time. It is also likely that teaching methods change (Hastings, N., 1996 p17).

In conclusion, we can say that there is evidence to suggest that teachers form a major determining factor of quality of instruction. Teacher variables with a bearing to attainment of required instructional objectives include quantitative adequacy of teachers, which affects the class sizes. Other variables are teachers’ qualifications (academic credentials), teaching methods (interaction with pupils) and instructional evaluation. Following now is a review of literature related to the effects of accelerated student enrolments on these teacher variables in Kenyan public universities.
Effects of increased Student Numbers in Kenyan Public Universities on Lecturers

In regard to lecturers, university expansion can only affect quality of instruction in as far as it affects the teacher variables earlier discussed. This is, if it affects the adequacy of lecturers; resulting in recruitment of less qualified lecturers and large class sizes which would in turn affect teaching methods and instructional evaluation. Quality of instruction could also be said to be compromised if the expansion result in a heavy workload that will inhibit staff development programmes like seminars, sabbatical leaves and research.

i. Adequacy of Qualified Lecturers

Studies by Mwiria (1990, 1992), Achola (1990), and Mwiria and Nyukuri (1994) indicated that although staff shortages have always been a characteristic feature of public universities in Kenya, increased student numbers between the mid 1980s and early 1990s effectively served to intensify the crisis as student numbers failed to be matched by the increase in teaching staff.

Achola (1990) indicated that due to demand that has outstripped the supply, Kenyan public universities have tended to recruit people who have not acquired enough qualifications to teach at the universities. For example, Achola (1990) pointed out that at Kenyatta University, former primary teacher training colleges' tutors and Secondary School Teachers were recruited to join the teaching ranks on attainment of masters' degrees.
On the other hand, Mwiria and Nyukuri (1994) have indicated that with increased student numbers the public universities have also tended to relax the criteria for promotion of staff to enhance staff retention. Where under normal circumstances holders of masters degrees who serve as tutorial fellows would not have the opportunity to give lectures to students, many of them got this opportunity in the late 1980s. Likewise, tutorial fellows and assistant lecturers were hurriedly promoted to the rank of lecturers thus waiving the doctorate degree as the minimum requirement for a permanent teaching position (Mwiria and Nyukuri, 1994).

Besides the staff policies discussed above, researchers have reported several changes in teaching approaches in order to deal with increased student numbers.

ii. Teaching Methods

Prior to expansion, teaching in Kenyan public universities was conducted through an integrated approach comprising of lectures, tutorials, practicals and field attachments. While lectures are meant to expose the students to fundamental aspects of the subject in question, in tutorials, students are expected to acquire a deeper understanding of the subject through group discussions and extended inquiry under the direction of a tutor. Practicals on the other hand offer the students an opportunity to test the concepts learnt through experimentation. Field attachments are meant to expose the student to the actual world of work. Through field attachments, students are assisted to link theory with practice (University of Nairobi, 1994).

Although the universities are said to have a system that incorporates the above modes of instruction, Mwiria and Nyukuri (1994) reported that the universities have
slackened on tutorials, practicals and field attachments as the number of students the universities have to cope with has gone up considerably. Mwiria (1990) and Achola (1990) further indicated that in certain programmes, the number of students is so large that lecture classes do not permit sensible contact between the lecturer and the students. In other circumstances, practical skills are only described by lecturers and never tried out.

Moreover, Mwiria (1990), Mwiria and Nyukuri (1994) and Achola (1990) reported that increased student numbers has negatively affected student evaluation.

### iii. Student Evaluation

Mwiria and Nyukuri (1994) reported that increased student numbers have posed problems related to the administration and grading of university examinations. With regard to administration of examinations, the main problems have resulted from inadequacy of supervisors (Mwiria, 1990). Examination irregularities characterised by the tendency of candidates to glance at other candidates’ answers, copy from unauthorised materials and pass verbal or written communication to other candidates in the examination room have increased (Muya, 1991). Due to too many scripts to be marked by few lecturers, Mwiria and Nyukuri (1994) reported delays in grading examinations, reduced frequency of assessment and superficial marking.

The studies reviewed so far have indicated that increased student numbers in public universities between the mid 1980s and early 1990s were not matched with a commensurate increase in lecturers. This lack of proportional increase in staff in turn affected teacher variables that have been associated with quality instruction namely:
The adequacy of qualified lecturers, teaching methods and evaluation. This study investigated this issue further.

It will be remembered from previous discussion that besides lectures, quality of instruction is also affected by learning facilities and materials.

**Learning Facilities and Materials**

Omari and Mesha (1987) in reviewing literature concerning school characteristics that boost achievement observed that when students’ socio-economic background is controlled, certain school elements consistently related to student achievement. These school elements included tuition blocks, school libraries and other teaching/learning materials.

While recurrent expenditure per student is the highly aggravated proxy for instructional materials, available space per student is the commonly used proxy for adequacy of physical facilities (The World Bank, 1988; Republic of Kenya, 1981 and Republic of Kenya, 1989).

1) **Physical Facilities**

As was noted above, available space per student is the commonly used proxy for adequacy of physical facilities. Hastings and Croll (1996) reported that the experience of 35 children and their teacher working in a classroom designed to accommodate 28 students changed if they were moved to a larger classroom. They recorded more distraction in the first context than in the second. Doyle (1986) and Weinstein (1979) note that the few studies undertaken on pupils’ density in a class, mainly in nursery
and college contexts, show that greater density appears to increase dissatisfaction and aggression and decrease attentiveness. Doyle (1986) also reports a study by Silverstein (1979) in which primary school children were more distracted as density increased and that many wanted to be away from those who talked. Similarly, Krantz and Risley (1977) found that the attention kindergarten children paid to their teacher during story time increased substantially when they did not sit too tightly packed together.

Available literature indicates that in many countries throughout the sub-Saharan Africa region, lack of funds has left construction work on classrooms, laboratories, libraries and halls of residence unfinished. This has led to serious pressure on available facilities. For example, a 1981 report from the Nigerian Commission on Salary and Conditions of Service for University Staff cited in the World Bank (1988) said,

The commission was horrified to witness the disgraceful spectacle of students in the corridors struggling to comprehend the proceedings inside (World Bank, 1988 p73).

In Kenya, the government has undertaken a crash building programme to provide physical facilities in the new and old universities since the mid 1980s. It is instructive in this regard to note that the government’s share of capital expenditure on university education increased markedly between 1984/85 and 1988/89 academic years (Achola, 1988). For these years, capital expenditure for university education increased from 4.6 million to 13 million. This is a three fold increase in a mere four years (Achola, 1988).
However, Achola (1990), Mwiria (1990), and Mwiria and Nyukuri (1994) observed that the commendable government effort to provide facilities to the universities did not go far enough; enrolment expansion was too rapid to cope with in so short a time. Moreover, the need to provide many physical facilities placed a heavy financial burden on the government especially in the face of an increasing external debt burden and rising costs of inputs. Therefore, as the universities continued to expand, it became increasingly difficult to obtain funds required for providing learning facilities (Achola, 1990).

In a nutshell, although attempts were made to expand university physical facilities, they fell short of the demand. Consequently, the universities faced a crisis of a phenomenal expansion in student numbers without a concomitant expansion in the physical facilities. This led to the introduction of the staggered semester system. Owing to its instructional significance, the staggered semester system will be discussed in more details.

**The Staggered Semester System**

Prior to the double intake of 1987/88 academic year, academic programmes at the universities were normally organised on the basis of a nine-month academic year. The length of the programmes was specified in terms of academic years. Up to 1987 an academic year was divided into three terms with a three-month long vacation. In certain programmes, the vacation was considered as an extra (fourth) term used for extended practical assignments. From the 1987/88 academic year, the universities have operated an academic year officially divided into two semesters of sixteen weeks each (University of Nairobi, 1994).
The semester system in the universities was introduced at the height of student admission crisis, two groups of students were waiting to be admitted into the universities and the space in the institutions could not accommodate both groups at the same time. The solution was found in creating a third semester. To accommodate a third semester in a calendar year, the long university vacation was eliminated and the duration of the semester reduced from 16 to 14 weeks. Academic programmes, however, continued to be defined in academic years comprising of two semesters. Consequently, the semester schedule was organised (staggered) in such a way that at least one group of students (first, second or third years) would be on long vacation during each of the three semesters (University of Nairobi, 1994, and Mwiria and Nyukuri, 1994).

Staggering the semester did not however, create enough room for the soaring number of students. Therefore, in accordance with recommendations of Kamunge Report (Kenya, Republic of, 1988), the universities annexed junior staff colleges and converted them into university campuses and colleges (Mwiria, 1990).

One could argue here that staggering the semesters provided for better utilisation of resources and annexing other colleges provided more facilities. However, the issue of adequacy of space at the universities requires more attention in view of the fact that Mwiria and Nyukuri (1994) reported overcrowding.

Of the researches reviewed here, only Mwiria and Nyukuri (1994) addressed the issue of staggered semester system. They reported that staggering the semester had not worked very well for the universities as it had created fatigue on the part of lecturers and lowered their morale. On the issue of space, Achola (1990), Mwiria (1990) and
Mwiria and Nvakuru (1994) indicated that, despite a commendable effort by the government to provide physical facilities, there is severe overstretching of facilities, at the universities. This study carried out further investigations into this area of availability of space and its implications on quality of instruction.

ii. Teaching/Learning Materials

The positive impact of instructional materials especially those directly related to reading and writing on student outcome is consistent across several studies (Kiragu, 1988). The evidence of a positive relationship between the provision of textbooks and achievement is most clear and consistent. For example, in a study by Omari and Mosha (1987) low performing schools were reported as having no teachers' guides and textbooks. Heyneman et al (1978 pp1-2) contend that

... compared to other commonly measured characteristics such as teacher training, class size, teacher salaries etc., the availability of textbooks appears consistently associated with higher achievement levels that as an instrument for affecting learning they represent a reasonable choice.

In Tanzania, Omari and Mosha (1987 p101) pointed out that,

In school systems all over the world, textbooks are vital tools of teaching and learning. They are even more critically important in developing countries such as Tanzania where teachers and pupils often have limited or no access to other written materials at home.

Among the studies undertaken in Kenya regarding factors affecting academic performance are those carried out by Kathuri (1982), Eshwani (1983), Mwangi (1983), and Maundu (1988). All these studies found that the availability of textbooks had a positive relationships with students' performance.
On other instructional materials, Omari and Mosha (1987) indicated that teachers and pupils in high-performing schools had an edge in accessibility to key instructional resources like chemicals. Performance in practical subjects such as agriculture, handcraft and health science were found to suffer most where there was deprivation of learning resources.

Another study by the World Bank (1988) used expenditure per student as an index of availability of instructional resources. The study warned that the scarcity of funding for non-salary operating expenses is seriously hindering the provision of quality education in African universities. The study used the situation at the Nigerian University of Ibadan to illustrate the problem.

For several months now, we have been expected to run a Physics Laboratory without electricity, perform Biology and Zoology experiments without water ... (Osundare, Quoted in the World Bank, 1988 p74).

Achola (1990) studied the effects of increased student numbers on availability of library books in Kenyan public universities. He reported that in the area of library books, the university of Nairobi had a strong advantage. Without explaining how, he reported that

Decentralisation of the campuses and colleges of the university should facilitate better acquisition of quality reading materials (Achola, 1990 p117).

Achola was however contradicted by Mwiria (1990) who reported that like Kenyatta University the University of Nairobi had failed to attract adequate reading materials to stock its library. In the face of dwindling foreign exchange reserves, the universities
Not only are such sources of support unpredictable but often the quality of the donated materials is unsatisfactory. Donors have a tendency to dump outdated or irrelevant material on developing countries.

He further added that

... the consequence of lack of books has been that students have access to a very few good reading – cum – study materials and many have opted to confine their intellectual energy to memorising lecture notes (Ibid p118).

After a thorough search, this scholar did not find any researcher who had addressed the issue of other instructional materials like laboratory equipment. However, even the issue of books also requires more attention, in order to clarify on the contradiction cited earlier between studies by Achola (1990) and Mwiria and Nyukuri (1994).

Conclusion

From the literature reviewed in the preceding pages it is clear that both lecturers (human resources) and non-human school factors (physical facilities and teaching/learning materials) affect quality of instruction.

As data presented in Appendix I show, there was an increased student enrolment in Kenyan public universities between the mid 1980s and early 1990s. As student numbers failed to be matched with provision of funds, negative effects were reported on the above school factors which have a bearing on quality of instruction. This seems
to suggest that increased student numbers negatively affected quality of instruction at the public universities.

This issue of quality of instruction in the face of increased enrolments was given further attention by this study for various reasons. First, due to various contradictions in the body of available research already indicated in the various sections of this chapter. For example, the contradiction between Achola (1990) and Mwiria (1990) in regard to adequacy of library books at the University of Nairobi. Secondly, there are areas that we have already indicated that have not been adequately researched into. For example, the issue of laboratory equipment and staggered semester system.

Third, this researcher considers provision of more data to support or refute the available studies a worthy academic venture.

Chapter Three which follows details how this study attempted to accomplish this onerous task.
Sampling Design

Purposive sampling technique was employed in drawing samples with regard to the universities to be covered, faculties and departments to be studied. The same sampling design applied in the choice of university administrators, lecturers, and graduates who participated in the study.

Purposeful sampling was preferred because some of the information required was very particular and could only be obtained from specific subjects. The sample consisted of the following:

Universities, Faculties and Departments

It will be remembered from Chapter One (Scope and Limitations) that the study covered the University of Nairobi and Kenyatta University. At the University of Nairobi, the faculties of Medicine and Engineering were studied while the faculties of Education and science were studied at Kenyatta University. The rationale of this selection is discussed in Chapter One. It will also be remembered from Chapter One, the Section on Scope and Limitations, that a total of five departments were studied. The departments of Medicine and Civil Engineering were selected for in-depth study at the University of Nairobi. At Kenyatta University, the selected departments were Department of Educational Administration, Planning and Curriculum Development, Physics and Chemistry departments and Department of communication and Technology. A detailed rationale for this sample is given in Chapter One (see section on Scope and Limitations).
CHAPTER THREE

METHODOLOGY

Introduction

This chapter details how this study investigated the problem at hand. It looks at the research method, sample of the population that provided the data, instruments used to collect the needed information, and the mode of data presentation and analysis.

Research Method

The main purpose of this study was to investigate the implications of accelerated student enrolments in Kenyan public universities on factors related to quality of instruction. Descriptive survey research method which is used to investigate educational problem and to determine and report the way things are or were (Gay, 1976) was found appropriate and adopted. The method relies on administration of questionnaires, interviews and documentary analysis as the principal data collection procedures (Wamahiu and Karugu, 1995). These three procedures were employed to gather information deemed necessary to answer the research questions articulated in Chapter One.
Population

The population of the study consisted of administrators, lecturers and graduates from the selected universities, faculties and departments.

i. Administrators

The researcher targeted seventeen administrators whom he deemed to be in a position to provide the needed information. These were the six heads (chairpersons) of the six selected departments, and the three deans of the selected faculties. Also targeted were the registrars concerned with academics and planning in the two universities. It was also found appropriate to solicit data from chief librarians and chief hostel officers.

The researcher considered a population of seventeen as relatively small and therefore interviewed all of them. Table 1 shows the distribution of this sample by specific administrative positions held.

Table 1: Distribution of the Administrators’ Sample from the Two Public Universities by Position

<table>
<thead>
<tr>
<th>Position</th>
<th>Sample targeted</th>
<th>Total interviewed</th>
<th>% of Sample Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heads (Chairpersons) of departments</td>
<td>6</td>
<td>4</td>
<td>66.7</td>
</tr>
<tr>
<td>Deans of Faculties</td>
<td>3</td>
<td>2</td>
<td>66.7</td>
</tr>
<tr>
<td>Registrars</td>
<td>4</td>
<td>2</td>
<td>50.0</td>
</tr>
<tr>
<td>Chief Librarians</td>
<td>2</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>Chief Hostel Officers</td>
<td>2</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>TOTALS</td>
<td>17</td>
<td>12</td>
<td>70.6</td>
</tr>
</tbody>
</table>
As Table 1 shows, out of the seventeen administrators targeted, the researcher managed to interview twelve. This represented a very good response rate of 70.6% according to Ngatia (1985).

ii. Lecturers

There were one hundred and sixty seven (167) lecturers teaching in the six selected departments. The researcher aimed at soliciting information from 50% of these (about 84) through interviews and questionnaires.

Out of the eighty-four targeted lecturers, the researcher planned to interview eighteen; three from each department. The researcher managed to interview the eighteen targeted lecturers.

The researcher also administered sixty-six questionnaires to the lecturers working in the selected departments. Out of the sixty-six questionnaires, thirty-nine were returned. This represented a response rate of about 56% which was considered acceptable (Guy, 1976). In total, the lecturers who provided information for the study (through interviews and questionnaires) were fifty seven out of an intended sample of eighty four (50% of the population) representing a response rate of 67% which is good according to Ngatia (1985).

iii. Graduates

The researcher administered questionnaires to 200 graduates of selected departments. This sample was considered adequate and financially manageable. The sample was to
comprise of pre-expansion and post-expansion groups. Those who registered in their departments between 1978/79 and 1986/87 and between 1987/88 and 1993/94 academic years formed the pre- and post- expansion groups respectively.

To ease on the time consuming process of a tracer study, the researcher visited several institutions where he thought he could find the targeted graduates either in employment or undertaking post-graduate studies. All graduates found in the visited institutions were given questionnaires to fill in. This way, the researcher moved from institution to institution until he had attained the targeted sample of 200. The sample thus reached was considered random in that in recruiting the graduates in their respective institutions, no serialisation was employed. Table 2 below shows the distribution of graduates’ sample by institutions through which they were reached.

Table 2: Distribution of Graduates’ Sample

<table>
<thead>
<tr>
<th>Graduates’ Institution of Study</th>
<th>Institution Employed or undertaking Post-graduate Studies</th>
<th>Questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Nairobi (Engineers)</td>
<td>1. Ministry of Public Works headquarters</td>
<td>33 19</td>
</tr>
<tr>
<td></td>
<td>2. Nairobi City Council (City hall)</td>
<td>35 16</td>
</tr>
<tr>
<td>University of Nairobi (Doctors)</td>
<td>1. Kenyatta National Hospital</td>
<td>31 23</td>
</tr>
<tr>
<td></td>
<td>2. Nyeri Provincial General Hospital</td>
<td>25 10</td>
</tr>
<tr>
<td>Kenyatta University (Physics &amp; Chemistry Teachers)</td>
<td>1. Kenyatta University</td>
<td>20 16</td>
</tr>
<tr>
<td></td>
<td>2. Kenya Science Teachers’ College</td>
<td>24 19</td>
</tr>
<tr>
<td></td>
<td>3. Kagumo Teachers’ College</td>
<td>20 18</td>
</tr>
<tr>
<td></td>
<td>4. Thogoto Teachers’ College</td>
<td>6 6</td>
</tr>
<tr>
<td></td>
<td>5. Kagumo High School</td>
<td>6 6</td>
</tr>
<tr>
<td>Totals</td>
<td>9. Institutions</td>
<td>200 128</td>
</tr>
</tbody>
</table>
As Table 2 shows, two hundred questionnaires were administered to graduates in nine institutions. Out of these two hundred questionnaires, one hundred and thirty three were returned representing a response rate of about 67%. This response rate was considered good (Ngatia, 1985).

**Data Collection**

Data for this study was collected as follows:

i) **Primary Data**: Primary data was collected through questionnaires as well as in-depth interviews conducted with the university administrators and academic staff on what they perceived to be the effects of increased student numbers on the following:

- Adequacy of human and non-human resources.
- Their work especially teaching, research and publication.
- Quality of graduates produced

The interviews also focused on the staggered semester system. Interviewees were also requested to suggest ways of improving the quality of university education in the light of increased student numbers.

To broaden on the sources of information, similar data was gathered through questionnaires administered to thirty-nine members of the academic staff.

Graduates provided information regarding the nature of the training they went through. Their opinions regarding the extent to which they were satisfied with skills gained through their university training was also sought.
ii) **Secondary Data:** Published and unpublished documents available at the universities and the Central Bureau of Statistics as well as relevant articles in Journals, Newspapers and research papers were reviewed to provide statistical data and to supplement data from the primary sources. Most of the data extracted from the documents related to the trends in the provision of facilities, staff establishment, student enrolment, budgetary expenditure and problems created by increased student numbers.

**Research Instruments**

Two data gathering instruments were used: namely a questionnaire and an interview guide.

Questionnaires were selected as instruments of data collection for this study mainly due to one reason; use of questionnaires enabled the researcher to collect a relatively wide range of information from a relatively large sample in a short period of time and at a reasonably low cost.

Two questionnaires, each containing both closed and open-ended questions were specifically designed for this study. One questionnaire was designed for the lecturers (Appendix 2) and the other for the graduates (Appendix 3). It was found necessary to have the two questionnaires, as information needed from the lecturers was different from information sought from graduates.

In order to solicit detailed information, an interview guide was used for the administrative and academic staff. The interview guide gave the researcher an
opportunity to meet some of the stakeholders and probe for clarification of issues raised in the course of the interview. Since information needed from lecturers and administrators was similar one comprehensive interview guide was specifically designed for this study and used to solicit information from both groups of respondents (see Appendix 4).

The questionnaires and the interview guide were scrutinised by a panel of five experts drawn from the academic staff in the Faculty of Education in Kenyatta University. The experts gave their opinions regarding the validity and reliability of the items in the instruments. Their responses were helpful in the revision of the original instruments to shorter ones with more focused items.

The interview guide was also piloted amongst the researcher’s fellow postgraduate students and some members of the academic staff in the department of Botany, Kenyatta University. This piloting did not only help in refining the interview guide, but it was also beneficial in that it offered the researcher an opportunity to train in the art of conducting interviews.

Data Analysis

Both quantitative and qualitative data was gathered.

Statistical data was coded and computer processed. In the presentation of findings, the data was presented quantitatively in the form of simple tables, as absolute numbers, frequencies, percentages and ratios. This mode of presentation gives a quick visual
impression of the trends of student enrolments and provision of facilities. It also enables easy comparison of responses by different groups of respondents.

Responses received through interviews and the open-ended items in the questionnaires, data was analysed qualitatively. Such data was organised into themes pertinent to the study and presented qualitatively using descriptions and quotations. This mode of presentation was preferred so as to capture as vividly as possible the feelings and sentiments of the respondents.

Presentation of the findings of this study is the focus of Chapter Four, which follows.
CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

Introduction

The purpose of this study was to investigate the implications of increased student numbers in Kenyan public universities on factors of quality instruction. To realise this objective, the study was guided by the following questions:

1. (a) (i) How has accelerated student enrolments in Kenyan public universities affected the adequacy of library, laboratory, workshop, lecture and hostel facilities, and teaching/learning materials?

(ii) How has expanded enrolments affected the academic staff and their ability to deliver and evaluate lessons, do research and publish?

(b) What are the advantages and the disadvantages of the staggered semester system?

2. What are the implications of accelerated student enrolments in Kenyan public universities on the instructional out-put as measured by lecturers' opinions on students' performance and graduates' opinion on satisfaction with skills gained?

3. In what ways can quality of instruction in Kenyan public universities be improved in the face of increased student numbers?
In response to the above research questions, information was gathered by administering questionnaires and interviews to administrators, lecturers and graduates of selected departments at the University of Nairobi and Kenyatta University. Available documents were also analysed.

In this chapter, data gathered from the above sources are presented under the following headings.

1. Demographic information about respondents.

2 (a) (i) Implications of accelerated student enrolments on the adequacy of learning facilities and materials.

(ii) Effects of increased student numbers on the academic staff and their ability to present and evaluate lessons, do research and publish.

(b) Perceived advantages and disadvantages of the staggered semester system.

3. Effects of increased student numbers on the universities instructional output.

4. Ways of improving quality of education at the universities.

The findings are presented in the form of statistical tables as percentages and frequencies, and thematic quotations whenever appropriate.

1. Respondents' Demographic information

The information presented in this chapter was obtained from administrators, lecturers and graduates of selected faculties and departments at the university of Nairobi and Kenyatta University. The respondents' background information was used to
categorize them. Classification of respondents helped the researcher to classify responses received from different departments, faculties and universities, and also from pre- and post-expansion graduates. Demographic information also enabled the researcher establish the characteristics of staff in the study.

(i) Administrators

Included in the administrators’ personal data were respondents’ administrative positions, gender, academic qualifications, professional designation and administrative experience in Kenyan universities.

Table 3: Distribution of Interviewed Administrators by Position, Gender, Professional Designation, Academic Qualification, and Years of Administration in their Departments.

<table>
<thead>
<tr>
<th>Administrative position</th>
<th>Gender</th>
<th>Academic qualification</th>
<th>Years of Administrative Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ph D</td>
<td>Masters</td>
</tr>
<tr>
<td>Chairman of Departments</td>
<td>M</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Deans of Faculties</td>
<td>M</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Registrars</td>
<td>M</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chief Librarian</td>
<td>M</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Chief Hostel Officers</td>
<td>M</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Sub Totals</td>
<td>M</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Grand Totals</td>
<td>12</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

Key
Ph D – Doctorate degree
Bd – Bachelors degree
M – Male
F – Female
As the data in Table 3 shows, most (3/4) of the administrators interviewed were men. Gender disparities in the participation of women in these departments cited by Hughes (1990), could be used to explain the absence of women in the administrators' sample. The data also indicates that all the administrators who provided data for this study are of high academic qualifications with only two holding a first degree. It is however notable that five of them were employed after 1986 (had less than nine years experience). Hence, it could be assumed that they could only provide information regarding the state of affairs in the universities during the post expansion period. It was, however, established during interviews that they had information on the pre-expansion period. Though they were not administrators during the pre-expansion period, all of them were working in their departments as lecturers or junior staff for non-academic administrators.

(ii) Teaching Staff

It will be remembered from Chapter 3 that 39 lecturers provided information through questionnaires while 18 others were interviewed. In total, 57 lecturers provided information for this study. Table 4 presents the background data of these academic teaching staff members, inclusive of respondents' departments, gender, academic qualifications, and teaching experience.
Table 4 Distribution of Lecturers sample by a Number of Selected Criteria

<table>
<thead>
<tr>
<th>Department</th>
<th>Gender</th>
<th>Academic Qualifications</th>
<th>Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PhD</td>
<td>Masters</td>
</tr>
<tr>
<td>E/Adm.</td>
<td>M</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Com-Tech</td>
<td>M</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Med.</td>
<td>M</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>C/Eng.</td>
<td>M</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Phy.</td>
<td>M</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Chem.</td>
<td>M</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Sub Totals</td>
<td>M</td>
<td>47</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>G/Total</td>
<td>57</td>
<td>37</td>
</tr>
</tbody>
</table>

Key
G/Total. = Grand Total
E/Adm. = Department of Education Administration, Planning and Curriculum Development
Com-Tech = Department of Communication and Technology
Med. = Department of Medicine
Phy. = Physics Department
C/Eng = Civil Engineering Department
Chem. = Chemistry Department

As the data in Table 4 shows, out of the 57 lecturers, only 14 had worked for less than nine years. One may argue here that these 14 lecturers with less than nine years' experience may not be in a position to give the information required since they were employed during the post expansion period i.e. after 1986. However, data gathered
from these lecturers was found very useful in describing the situation in the universities during the post expansion period. All of the fourteen were also found to be former students of their departments. Only 20 lecturers held masters’ degrees while the bulk of the lecturers (37 or 65%) held doctorate degrees.

Few women in the sample, that is only 10 out of 57 lecturers, is an indication of low women participation in these (mainly science oriented) departments (Eshiwani, 1983 and Hughes, 1990).

(iii) **The graduates sample**

The study solicited data from graduates who took courses offered by the six selected departments as indicated in Chapter One (page 14). For graduates of the Faculty of Education, the study gathered data from those who studied either chemistry or physics as a teaching subject. These graduates took courses in the other two selected departments of the Faculty of Education at Kenyatta University. While the students in the Faculty of Medicine take courses offered in several departments, the main focus was on the Department of Medicine. Graduates of the Department of Civil Engineering represented the Faculty of Engineering.

It will also be remembered from Chapter 3 that the graduates’ sample was categorized into two. Those who registered in their departments before the 1986/87 academic years were grouped as the pre-expansion cohort. The post-expansion cohort consisted of those who registered after 1986/87 academic year.

Table 5 shows the distribution of graduates’ population by area of study and cohort.
Table 5  Distribution of Graduates’ Sample by Area of Study and Cohort

<table>
<thead>
<tr>
<th>Area of Study</th>
<th>Pre-Expansion Group</th>
<th>Post-Expansion Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>19</td>
<td>14</td>
<td>33</td>
</tr>
<tr>
<td>Engineering</td>
<td>17</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>Science Education</td>
<td>32</td>
<td>33</td>
<td>65</td>
</tr>
<tr>
<td>Totals</td>
<td>68</td>
<td>65</td>
<td>133</td>
</tr>
</tbody>
</table>

As data in Table 5 indicates an attempt was made to ensure that graduates drawn from each area of study had relatively equal numbers of pre- and post-expansion groups. The relatively large number of science education graduates (almost 50%) in the sample can be attributed to the relatively high output of graduates by the Faculty of Education in comparison with the faculties of medicine and engineering.

The classification of graduates’ sample presented above was used to compare and contrast responses received from graduates of one cohort with their counterparts in the other cohort.

2a(i) Implications of accelerated student enrolments on the adequacy of learning facilities and materials.

The first research question that guided this study sought to establish the effects of accelerated student enrolments on the adequacy of physical facilities especially library, laboratory, workshop, lecture and hostel facilities. Effort was also made to establish the effects of increased student numbers on items such as textbooks and laboratory materials.
Physical Facilities

This study found that the government of Kenya has undertaken a crush building programme to provide physical facilities in the new and old universities since the mid 1980s. For example, Achola (1990 p116) indicated that,

It is notable that the government's capital expenditure on university education increased markedly between 1984/85 and 1988/89 academic years. For these years, capital expenditure for university education increased from Ksh 4.6 million to Ksh. 13 million in 1987/88. This is a three-fold increase in a mere four years.

It was however observed that the commendable government's effort to provide facilities to the universities did not go far enough. Table 6 demonstrates the extent of expansion of academic and hostel area per student in Kenyatta University and at the University of Nairobi.

Table 6: Available Academic and Hostel Areas per Student in Square metres at the University of Nairobi and Kenyatta University.

<table>
<thead>
<tr>
<th>University</th>
<th>Available academic area per student*</th>
<th>81/82</th>
<th>83/84</th>
<th>85/86</th>
<th>87/88</th>
<th>90/91</th>
<th>92/93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenyatta</td>
<td></td>
<td>8.8</td>
<td>9.1</td>
<td>8.4</td>
<td>2.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Available hostel area per student</td>
<td>11.7</td>
<td>17.0</td>
<td>15.9</td>
<td>4.9</td>
<td>7.3</td>
<td>7.3</td>
</tr>
<tr>
<td>Nairobi</td>
<td>Available academic area per student at the department of Civil engineering</td>
<td>9.1</td>
<td>9.2</td>
<td>9.0</td>
<td>6.1</td>
<td>4.8</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>Available hostel area per student at Kenyatta Hospital (Faculty of Medicine)</td>
<td>9.5</td>
<td>10.0</td>
<td>10.2</td>
<td>9.1</td>
<td>8.2</td>
<td>8.7</td>
</tr>
</tbody>
</table>


*Estimates
It should be noted that although at Kenyatta University this study targeted the Faculty of Education, and specifically the area of Science Education, focus on available space could not have been narrowed to this specific area. This is because, facilities such as lecture halls, library and even hostels tend to be shared by different faculties. The same applies to the Department of Civil Engineering, which shares hostel facilities with other faculties accommodated at the main campus of the University of Nairobi. It should also be noted that data related to academic areas at Kenyatta National Hospital Campus, which houses the Faculty of Medicine, was not available. The academic faculties at this campus were planned and put up along Kenyatta National Hospital (University of Nairobi, 1994).

What is striking about data presented in Table 6 above is that although the government undertook a crash building programme to provide physical facilities in the universities, the effort did not go far enough; expansion was too rapid to cope with in such a short period of time. What data in Table 6 reveals is that there was a marked decline in the available academic and hostel areas per student. For example, the available academic areas per student fell from 8.4m²/student to 3.3m²/student between 1985/86 and 1992/93 academic years at Kenyatta University. At the department of Civil Engineering, available area fell from 9.0m² to 4.8m² over the same period. Asked to rate the adequacy of physical facilities at their universities during their time of study, the graduates provided the data presented in Table 7.
### Table 7: Rating of the Adequacy Levels of Learning Facilities by Graduates

<table>
<thead>
<tr>
<th>Adequacy Rating per Facility</th>
<th>Percentage Frequencies by Department</th>
<th>Faculty of Educ. graduates</th>
<th>Civil Engineering Graduates</th>
<th>Medical School Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Library reading space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) More than Adequate</td>
<td>18.8</td>
<td>6.1</td>
<td>5.9</td>
<td>5.6</td>
</tr>
<tr>
<td>b) Adequate</td>
<td>65.6</td>
<td>18.2</td>
<td>47.1</td>
<td>27.8</td>
</tr>
<tr>
<td>c) Inadequate</td>
<td>15.6</td>
<td>75.8</td>
<td>47.1</td>
<td>66.7</td>
</tr>
<tr>
<td>2. Laboratory/workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>working space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) More than Adequate</td>
<td>21.9</td>
<td>0.0</td>
<td>5.9</td>
<td>5.6</td>
</tr>
<tr>
<td>b) Adequate</td>
<td>78.1</td>
<td>48.5</td>
<td>82.4</td>
<td>61.1</td>
</tr>
<tr>
<td>c) Inadequate</td>
<td>0.0</td>
<td>51.5</td>
<td>11.8</td>
<td>33.3</td>
</tr>
<tr>
<td>3. Lecture halls/rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) More than Adequate</td>
<td>12.5</td>
<td>15.2</td>
<td>11.8</td>
<td>0</td>
</tr>
<tr>
<td>b) Adequate</td>
<td>75.0</td>
<td>15.2</td>
<td>82.4</td>
<td>72.2</td>
</tr>
<tr>
<td>c) Inadequate</td>
<td>12.5</td>
<td>69.9</td>
<td>5.9</td>
<td>27.8</td>
</tr>
<tr>
<td>4. Hostel accommodation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Too many students per</td>
<td>6.3</td>
<td>78.8</td>
<td>5.6</td>
<td>11.8</td>
</tr>
<tr>
<td>room</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) No problem in regard to</td>
<td>93.8</td>
<td>21.2</td>
<td>94.4</td>
<td>88.2</td>
</tr>
<tr>
<td>number of students per room</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Percentages may not add up to 100% due to rounding up.

**Key**

- Pre-Ex. Pre-expansion graduates
- Post-Ex. Post-expansion graduates

Data in Table 7 indicates that overall, a high percentage of post-expansion graduates (about 45% compared to only 11% of all post graduates) rated the level of provision of facilities as inadequate. However, medical school post-expansion graduates were less dissatisfied with levels of facilities provided than their Faculty of Education counterparts. For example, the number of post-expansion medical graduates who rated library reading space as inadequate was double their pre-expansion counterparts with a similar rating. However, the number of post-expansion education graduates who
rated library space as inadequate was five times their pre-expansion counter-parts who felt the same. This could be explained by the fact that owing to the centralized location of the faculties in Kenyatta University, the Faculty of Education graduates shared facilities with graduates of other faculties. However, due to the decentralized nature of colleges at the University of Nairobi, medical students have Kenyatta Hospital campus to themselves. This could also be used to explain the discrepancy in rating of adequacy of facilities between medical graduates and engineering graduates who tended to be more dissatisfied with levels of facilities provided. The latter share several facilities at the main campus with students in other faculties.

A spot check by this researcher found that at Kenyatta University, construction work on classrooms, laboratories, library and halls of residence was left uncompleted. The result was that available facilities at the university were severely over stretched. Cases of over stretched facilities were also reported at the University of Nairobi.

This study found that at the University of Nairobi, available spaces had declined. A good example of this decline on the level of facilities was found at the University of Nairobi’s main campus. Originally designed (in the 1950s) for a student population of less than a thousand, the campus catered for over ten times that population during the double-intake period. In the pre-expansion days, the University of Nairobi administration block used to house the administration, the finance division, the faculty of Arts and the library administration. Many of the current offices in the building also used to be lecture and tutorial rooms. Today, the building can only house part of the administration – and even that only after annexing a whole floor of what used to be Gandhi Memorial Library (University of Nairobi, 1994)
At Kenyatta University, interviewed administrators indicated that although the number of lecture rooms increased remarkably, especially following the 1990/91 double intake, the increase was not commensurate with increased student enrolments. More importantly, the type of lecture rooms for which there was the most demand (namely rooms which could accommodate more than 500 students) increased by only two (namely SZ39 and AZ39) whereas the number of classes enrolling more than 500 students during any given semester increased three-fold between 1986/87 and 1990/91 academic years. The result was severe strain on available resources. As one lecturer pointed out,

We have come to a stage where lecturers are given upwards of 600 students crammed into a lecture theatre meant to sit 200 students.

Due to lack of lecture rooms of an adequate size, lecturers indicated that large numbers of students in certain programmes were divided into several groups necessitating lecturers to repeat the same lectures several times. Owing to few lecturers, this consequently increased the lecturers' workload.

Lecturers complained that in certain programmes, the number of students was so large that lecture classes did not permit sensible contact between the lecturer and the students.

Kenyatta University post - expansion graduates indicated that overcrowding in lecture halls was so much that students seated at the back could hardly hear or see the lecturer. Lectures were hard to follow due to noise and movements by the poorly controlled students. In other instances, students sat outside and listened to the proceedings in the lecture room through the windows or doors. A quarter of the
Education graduates indicated that they, however, found this to be too frustrating and they walked away when they missed places to sit. As one of the graduates put it,

We had to run and even jump through the windows to scramble for a sitting place in the squeezed lecture theatres. Seats in the theatres were so closely parked that it made it uncomfortable to sit for an hour, when walking out, we had to step on seats, as the space was small.

One interviewed lecturer also pointed out that one problem with existing facilities at Kenyatta University is that they were not designed for educational purposes. However, even those halls, which were constructed by the university, were flat halls rather than slanting lecture theatres. Very large flat halls were said to hinder contact between lecturers and students at the back of the hall.

In the area of library facilities, the University of Nairobi was found to have a strong advantage. All the lecturers and administrators indicated that for years to come, the decentralized nature of the campuses at the university will ensure lack of serious crowding in the use of the main library. In fact, administrators revealed that Jomo Kenyatta Memorial Library which is located at the main campus is sufficiently spacious to cope with triple the number of students it is serving. The unexpected rating of library space as inadequate by graduates from the University of Nairobi (Table 7) could be explained in terms of departmental libraries, which the graduates could have referred to as inadequate.

Interestingly, close two thirds of Civil Engineering students at the University of Nairobi were found to prefer reading from their rooms. This may be explained, probably, by the long distance between the library, situated at the main campus and the halls of residence situated at Hospital Hill. Therefore students may be finding it
better to borrow books and study in their rooms rather than walk about 500 metres across Uhuru Highway and State House Road, which separate their halls of residence from the library.

As for Kenyatta University, a memo from the university librarian to the Double Intake Facilities Committee itemised the needs of the library to be: additional reading space, more book stacks, and more tables and chairs. However, due to lack of funds, only the first phase of the library construction was completed by 1994. The same problems which characterise the lecture theatres held true for the library system which was found to provide one seating space for every fifteen students as compared to one seating place for every ten students recommended by Kenyatta University Master Plan (Triad Architects, 1990).

The main consequence of limited capacity of Kenyatta University’s Moi Library was found to be serious congestion characterised by the use of every available space by students during examination time. At the same time, such a limited capacity was found to result in heavy competition by students for available space. Graduates indicated that competition for space took the form of leaving books on desks in the evening to book space, long queues that formed hours before the opening time and pushing as some unruly and impatient students scrambled to push through the doors. Cases of fighting were also reported.

A library administrator at Kenyatta University indicated that such competition had resulted in breakage of library doors, tables and the door security system as students pushed into the library to scramble for space. On the other hand, about three quarters
of post expansion graduates indicated that they had given up using this facility altogether during the course of their study.

In the area of laboratory and workshop space more than 80% of the lecturers, 89% of the graduates and all the administrators at the University of Nairobi registered no problem. Increase in student numbers had been made tolerable by creation of more campuses. As for Kenyatta University, the senate set up a Double Intake Facility Committee in 1989 in anticipation of the second double intake in 1990/91. The committee recommended construction of ten more science laboratories to cater for all the departments. In addition to these ten laboratories, the Faculty of Education was to have two laboratories for their physical and biological science students. Due to lack of funds, the laboratory facilities were never put up (Mwiria and Nyukuri, 1994). Thus due to increased student numbers, lecturers and graduates reported congestion in the existing facilities. In other cases practical sessions were said to have been reduced. Congestion in the laboratories was also said to cause breakage. In other cases, practical classes were conducted in lecture halls.

At both the University of Nairobi and Kenyatta University, interviewed administrators indicated that hostels accommodated double their intended capacities. Faced with the need to expand bed space, university authorities opted to introduce double decker beds in those rooms, which were capable of containing such beds. Some entertainment rooms were also converted into students’ bedrooms.

During the 1987/88 double intake crisis, the universities put up semi-permanent structures popularly known as Prefabs within the university circles. At Kenyatta University, one lecturer reported that students were accommodated at the nearby Moi
International Sports Centre, Kasarani. Others were put up at rented rooms at the nearby Githurai Shopping Centre and at Kahawa Sukari in the present Kahawa Secondary School. All these areas were said to be highly insecure.

Most post-expansion graduates (78.8%) from Kenyatta University indicated that overcrowding inconvenienced them in several ways. First, it was reported that they were inconvenienced by noise coming from blaring speakers of other students’ music systems. Second, they reported cases of disorderly drunkards in the halls of residence that disturbed them the night through. Post-expansion graduates at the University of Nairobi, indicated that like their colleagues at Kenyatta University, they were deprived of privacy. The graduates complained that roommates who were not of ones’ choice caused social problems. One of those commonly cited problems was of cases where roommates could bring in members of the opposite sex to the room for a night. Engineering graduates complained that roommates from other areas of study interrupted their studies as they (roommates) had a less taxing programme. Cases of vandalism of hostel equipment like bulbs and electrical sockets, and theft of personal equipment were reported by post-expansion graduates of all faculties.

Another problem that was pointed out by the respondents and especially the interviewees in regard to facilities was one of repair and maintenance. Although there exists full-fledged maintenance units at both the University of Nairobi and Kenyatta University, they often found themselves ill equipped for their assigned tasks due to lack of funds. Although their staff were trained in various crafts and trades, complaints about the units’ inefficiency were common.
Very often, equipment, both in offices and in the lecture theatres, was broken down. In some cases, non-functioning equipment or fittings were removed because the units were unable to repair them. A classic example of this disrepair into which some facilities in the institutions had fallen was the door security equipment at Kenyatta’s Moi Library which remained nonfunctional between 1990 and 1997. At the time of collecting data for this study, the library had remained without a functional photocopier for six years. At the University of Nairobi, two toilets in the university’s administration block were reportedly permanently closed due to the university’s maintenance unit’s apparent inability to fix plumbing problems that kept recurring.

Due to the inability of the maintenance units to perform stated duties, it was reported that quite a number of the universities’ facilities were slowly being reduced to ruins. Cracks went unrepaired and roofs leaked extensively. Quoting from a university’s development plan, one administrator pointed out that,

Sun breakers on the education building have been falling off for a long time. Today, only a few are left. Yet, the best the maintenance unit has been able to do about it has been to put up a hardly visible signboard warning car owners not to park at the affected place.

About 70% of the post-expansion graduates complained of poor ventilation in some tuition rooms, seat handles were rarely repaired. They indicated that they had to place books on their laps as they took notes. Such notes were said to be sketchy and illegible. One of the graduates complained of toilet facilities thus:

One of the biggest nightmares I had in the university was in regard to toilet facilities. At the Nyayo hostels, they were usually blocked and almost always overflowing. The stench was sickening. There is nothing I dreaded more than getting the urge to relieve myself. Sometimes I would take a matatu to my aunt’s home in Nairobi to go
and take a bath. Thank God we never had a disease outbreak in those dirty hostels where litter was collected once a month.

Data presented so far indicate that increased student numbers in Kenyan public universities were not accompanied by a commensurate increase in provision of physical facilities. The process of teaching and learning at the universities was thus said to have been affected negatively not only by inadequacy of facilities but also by poor maintenance of available rooms and equipment. Facilities which were in dire need of rehabilitation failed to provide a conducive teaching/learning environment. Like facilities, this study found teaching and learning materials to have been in short supply. We discuss this issue in the next section.

**Instructional Materials**

With regard to materials, this study focused on the issue of library books and laboratory/workshop expendable and consumable materials.

Table 8 compares the rating of the level of adequacy of learning materials by the pre-expansion graduates and their post-expansion counterparts in the studied faculties.

**Table 8: Graduates’ Rating of Adequacy of Instructional Materials**

<table>
<thead>
<tr>
<th>Rating of given Instructional Materials</th>
<th>Percentage Frequency by faculties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Education</td>
</tr>
<tr>
<td>1. Library books were:</td>
<td></td>
</tr>
<tr>
<td>a) More than adequate</td>
<td>12.5</td>
</tr>
<tr>
<td>b) Adequate</td>
<td>84.4</td>
</tr>
<tr>
<td>c) Inadequate</td>
<td>3.1</td>
</tr>
<tr>
<td>2. Laboratory/Workshop Materials</td>
<td></td>
</tr>
<tr>
<td>a) More than adequate</td>
<td>3.1</td>
</tr>
<tr>
<td>b) Adequate</td>
<td>96.9</td>
</tr>
<tr>
<td>c) Inadequate</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Data from Table 8 indicate that a higher proportion of post-expansion graduates rated the level of provision of library books as inadequate in comparison to their pre-expansion counterparts. For example, of all post-expansion graduates all from faculty of education, about one-quarter, from engineering about one-half from medicine felt that the books were inadequate in comparison to one third, zero and less than a quarter of their pre-expansion counterparts respectfully. A similar trend is observed with laboratory and workshop materials. Overall, the evidence confirms that increased student numbers were not accompanied by a commensurate increase in provision of books and laboratory/workshop materials.

Two administrators that were interviewed expressed the opinion that the non-salary recurrent expenditure of the universities per student had actually gone down. They observed further that the universities could ill afford books and other instructional materials at a time when the cost of goods had gone up and inflation greatly reduced the purchasing power of the Kenya shilling. The universities' libraries therefore heavily depended on book donations from foreign friends as subscription went down. As one administrator put it,

We have not published even one university annual report since 1990, leave alone subscribe to a single journal.

Graduates and lecturers alike rated available books as old and irrelevant. The graduates indicated that they were forced to spend highly on buying their own books. However, due to high cost of books, students could not afford to buy all the required reference materials.
The consequence of lack of books was that students had access to very few good reading-cum study materials and many opted to confine their intellectual energy to memorising lecture notes. While three of the post-expansion graduates indicated forming networks to circulate the few library books they could access, the response indicated they could not carry out research and further reading was given by 28 graduates. They also indicated copying term (research) papers from their colleagues or even from those who had left college previously.

With regard to the effects of inadequate laboratory/workshop materials at Kenyatta University, respondents indicated that during the post expansion period, the practicals were greatly reduced. At times, the graduates viewed the few practicals done as being irrelevant to their course. But even then, these practicals were either performed by the lecturer for students to observe or carried out in large groups. Where laboratory reports were written, five of the graduates pointed out that they either took too long to complete or they copied from their colleagues.

At the University of Nairobi, the lecturers and post-expansion graduates indicated that experiments were conducted in groups. A quarter of the post-expansion graduates reported that some of their colleagues became lax during group work. Over 80% of the lecturers from the University of Nairobi and Kenyatta University’s faculty of science expressed concern that group experiments are ineffective in exposing students to required equipment in that they deny students hands on the apparatus.

Interviewed lecturers at both the Department of Medicine and the Department of Civil Engineering reported that they tended to postpone experiments to later dates due to
delays in acquisition of materials. Their views were well summarised by one lecturer who pointed out that,

Lack of materials has forced us to push some practicals ahead to such a time when materials are available. What this means is that our students take longer to graduate. For example, our second years are now doing practicals that they should have done in the first year.

In summary, we can say that inadequacy of instructional materials forced lecturers to use group method, which was blamed for depriving students of experience that comes from practical lessons. At the extreme, practical concepts were discussed theoretically. In other cases, time was reportedly lost waiting for materials. Such actions cannot be said to augur very well for quality instruction.

2a. (ii) Effects of increased student numbers on the work performance of academic staff

It will be recalled that this study also sought to investigate the effects of expanded enrolments on academic staff. The aspects of academic staff studied were: adequacy of staff in terms of numbers, their ability to present and evaluate lessons and their ability to do research and publish books and journal articles.

Growth in Numbers of Teaching Staff

Tables 9 and 10 carry data on the growth in numbers of teaching staff at departments selected for this study in the University of Nairobi against the increase in student numbers. It should however be noted that at Kenyatta University data regarding student registration per department were not made available to the researcher.
Table 9: Growth in Academic Staff and Student Numbers in the Department of Civil Engineering

<table>
<thead>
<tr>
<th>Period</th>
<th>Year</th>
<th>Number of Students</th>
<th>Professor</th>
<th>Associate professor</th>
<th>Senior Lecturer</th>
<th>Lecturer</th>
<th>Tutorial Fellow</th>
<th>Total</th>
<th>Lecturer-Student Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre – Exp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981/82</td>
<td></td>
<td>200</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>2</td>
<td>20</td>
<td>1 : 10</td>
</tr>
<tr>
<td>1983/84</td>
<td></td>
<td>195</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>19</td>
<td>1 : 10</td>
</tr>
<tr>
<td>1984/85</td>
<td></td>
<td>206</td>
<td>-</td>
<td>6</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>14</td>
<td>1 : 15</td>
</tr>
<tr>
<td>1985/86</td>
<td></td>
<td>211</td>
<td>-</td>
<td>1</td>
<td>17</td>
<td>-</td>
<td>2</td>
<td>20</td>
<td>1 : 11</td>
</tr>
<tr>
<td>1986/87</td>
<td></td>
<td>215</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>-</td>
<td>22</td>
<td>1 : 10</td>
</tr>
<tr>
<td>Post – Exp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987/88</td>
<td></td>
<td>264</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>17</td>
<td>-</td>
<td>22</td>
<td>1 : 12</td>
</tr>
<tr>
<td>1988/89</td>
<td></td>
<td>270</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>15</td>
<td>-</td>
<td>21</td>
<td>1 : 13</td>
</tr>
<tr>
<td>1989/90</td>
<td></td>
<td>280</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>19</td>
<td>2</td>
<td>31</td>
<td>1 : 9</td>
</tr>
<tr>
<td>1990/91</td>
<td></td>
<td>307</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>25</td>
<td>-</td>
<td>34</td>
<td>1 : 9</td>
</tr>
</tbody>
</table>

Sources: University of Nairobi Annual Estimates, 1981-1993
University of Nairobi Annual reports, 1981-1990

Table 10: Growth in Academic Staff and Student Numbers in the Department of Medicine

<table>
<thead>
<tr>
<th>Period</th>
<th>Year</th>
<th>Number of Students</th>
<th>Professor</th>
<th>Associate professor</th>
<th>Senior Lecturer</th>
<th>Lecturer</th>
<th>Tutorial Fellow</th>
<th>Total</th>
<th>Lecturer-Student Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre – Exp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981/82</td>
<td></td>
<td>573</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>19</td>
<td>1 : 30</td>
</tr>
<tr>
<td>1983/84</td>
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<td>549</td>
<td>1</td>
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<td>5</td>
<td>24</td>
<td>1 : 23</td>
</tr>
<tr>
<td>1984/85</td>
<td></td>
<td>532</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>7</td>
<td>-</td>
<td>19</td>
<td>1 : 28</td>
</tr>
<tr>
<td>1985/86</td>
<td></td>
<td>545</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td>2</td>
<td>22</td>
<td>1 : 25</td>
</tr>
<tr>
<td>1986/87</td>
<td></td>
<td>576</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>4</td>
<td>28</td>
<td>1 : 21</td>
</tr>
<tr>
<td>Post – Exp.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987/88</td>
<td></td>
<td>657</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>4</td>
<td>28</td>
<td>1 : 23</td>
</tr>
<tr>
<td>1988/89</td>
<td></td>
<td>680</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>4</td>
<td>28</td>
<td>1 : 24</td>
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<tr>
<td>1989/90</td>
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<td>731</td>
<td>3</td>
<td>8</td>
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<td>1</td>
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<td>1 : 28</td>
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<tr>
<td>1990/91</td>
<td></td>
<td>808</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>26</td>
<td>1 : 31</td>
</tr>
</tbody>
</table>

Sources: University of Nairobi Annual Estimates, 1981-1993
University of Nairobi Annual reports, 1981-1990

Data in tables 9 and 10 indicate that in the studied departments in the university of Nairobi, there was a tremendous effort to match increase in enrolments with recruitment of staff. Lecturer–student ratios therefore remained relatively constant.
While we lack data on what the situation was like at selected departments at Kenyatta University, Achola (1990) revealed that at Kenyatta University, lecturers dealt with more students than their colleagues at the University of Nairobi. His finding was supported by Mwiria and Nyukuri (1994) who indicated that while staff at Kenyatta University grew by about 112%, student enrolment grew by over 200% between 1984/85 and 1990/91 academic years.

It was also gathered from the development plans and other research papers that due to demand for staff that far outstripped the supply, Kenyan universities tended to recruit people who had not acquired enough qualifications to teach at university level. For example, where under normal circumstances holders of masters degree who serve as tutorial fellows would not have the opportunity to give lectures to students, many of them got this opportunity. Likewise, while tutorial fellows and assistant lecturers were hurriedly promoted to the rank of lecturers, the doctorate degree was waived as the minimum requirement for a permanent teaching position at the university (Achola, 1990; University of Nairobi, 1994; Kenyatta University, 1994).

**Workload**

Most of the Faculty of Education lecturers' responses to the questionnaires indicated that the lecturers' workload had increased with more student numbers. The lecturers explained that increase in workload was in terms of contact hours as many of them were forced to repeat a lecture severally since students taking the same course were divided into several independent groups. They however pointed out that in their departments, teaching never went on throughout the year as they taught alternating semesters. They also indicated that they handled very large classes and that the number of scripts to be marked had increased tremendously.
Lecturers at the faculty of science in Kenyatta University and from the two departments in the University of Nairobi indicated that they taught throughout the year. They however never indicated facing the problem of increased contact hours per semester. Probed on this, the lecturers pointed out that though the number of students had increased, they came in alternating semesters. Hence, each semester they had almost the same number of students as they had before expansion.

This study therefore found out that in the science oriented department of science, medicine and engineering, lecturers’ workload increased in terms of contact hours per year since they taught throughout the year. They however dealt with fewer students per semester unlike lecturers in the department of the faculty of education who indicated having a higher workload in terms of number of students taught per semester and number of scripts marked but indicated teaching in alternating semesters.

Lesson Presentation and Evaluation

As was indicated in the preceding section, increased student enrolments were not matched with proportionate increase in staff. The teacher-student ratios decreased drastically. The most direct consequence of reduced teacher-student ratios was that the lecturers’ workload went up. At the same time, the universities recruited people with lower qualifications. As shall be shown below, these changes in turn affected classroom processes that have a direct bearing on quality of instruction like teaching methods, evaluation, classroom management and the nature of student–lecturer interaction.
On teaching methods, respondents of Kenyatta University (lecturers and graduates alike) indicated that the university had slackened on tutorials. Even where tutorials were conducted, the respondents indicated that they were superficial in that the number of students per tutorial group increased tremendously. Over four fifth of the lecturers' responses were in line with the following response from one of them.

Our tutorial groups have become as big as 150 students per group. In such a group, the best you can do is to lecture.

At the University of Nairobi, more than 60% of engineering lecturers sampled indicated slackening on field attachments.

On teaching approach, respondents from all departments at Kenyatta University indicated that there had been a move away from individual teaching to group teaching. Some of the responses picked from the lecturers and graduates represent the commonly mentioned problem:

(i) "Practicals have been replaced by lectures and demonstrations"
(ii) "We no longer conduct micro-teaching"
(iii) "We can no longer afford to expose our student to necessary apparatus"

In the Department of Educational Administration, Planning and Curriculum Development and that of Education Communication and Technology, the lecturers indicated that the number of students had become so large that lecture classes did not permit sensible contact between the lecturer and the students. Their feelings were captured by a lecturer whose argument is presented below:

Imagine a situation whereby you are given upwards of 500 students crammed in a lecture theatre meant to sit 300 students. If you divide
the 60 minutes allocated to a lecture by the number of students, you will find that each student has less than 0.1 minutes for active interaction with the lecturer. Remember you have not given the lecturer time to introduce and develop the lesson. The lecturer has no option but to treat students as passive listeners.

Among Kenyatta University post-expansion graduates, some of their common responses, which touched on the nature of student-lecturer interaction are listed below.

(i) "We could not get personal attention"
(ii) "There was limited asking of questions"
(iii) "Syllabuses were never covered as lecturers only taught what they would examine"
(iv) "Some units (options) were not offered due to lack of specialised personnel"
(v) "We were given scanty knowledge (content) in some areas"

Related to student-lecturer interaction was classroom management. Two thirds of the lecturers at Kenyatta University felt that large classes posed serious problems related to classroom control. There were also cases in which post-expansion graduates indicated that they could miss classes without being noticed.

Besides the classroom management problems indicated above, Kenyatta University lecturers indicated facing problems related to evaluation. All the lecturers from all the departments indicated that the number of scripts to be marked had gone up considerably. This had not only led to a reduced frequency of testing but also superficial and compromised evaluation including rampant cheating in examinations.

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Regarding some key problems with evaluation, one lecturer observed that Evaluation has become greatly compromised. We set fewer and sub-standard papers for easy marking and even ‘doctor’ results to avoid massive failures.

Another lecturer pointed out that he knew of colleagues who never graded exams.

What they do is that they write grades on the floor. They avoid grade A and E to ensure no extreme passes or failures. They then randomly distribute the papers to the grades written on the floor. In the exercise, they drop more papers at the middle grades and fewer at the extreme grades to ensure normal distribution. No wonder successful examination appeals by students have increased of late.

At the University of Nairobi, no lecturer or graduate pointed out facing the problems faced by respondents from Kenyatta University. This is probably due to the fact that though the studied departments had doubled the number of students admitted, this was not as much as at Kenyatta University where the number of students had more than quadrupled (see Appendix 1). Interviews with administrators also pointed to the fact that the University of Nairobi enjoyed more donor support than Kenyatta University at the time.

Beside the adequacy of qualified lecturers and teaching materials, the other teacher variable that was found to have a bearing on quality instruction and investigated was teacher development programmes. This study restricted itself to lecturers’ ability to do research and publish. These two university teacher development processes were thought to be the most adversely affected by expansion of enrolments. Besides, through studying them, other programmes like seminars and exchange programmes were also captured.
Concerning staff academic development, about two fifths of lecturers indicated that increased student numbers had affected their ability to conduct research and publish. Those who held this view pointed out that they had too many lectures to deliver and too many scripts to mark to find time for research. However, only a few lecturers held this view while the others expressed different feelings. For example, while less than 40% of the lecturers who filled questionnaires at Kenyatta University indicated that they taught throughout the year, the rest felt that they had time for research as they taught during alternate semesters. Similarly, most of the lecturers interviewed (90%) tended to support this latter opinion. These respondents indicated that there were other factors other than increase in student numbers that affected the quality of their output.

**Other factors that affected the lecturers ability to teach, do research and publish**

Over two thirds of the lecturers interviewed indicated that increase in contact hours due to expansion had not been too much to affect the quality of their output. They suggested that the most pressing staff issues revolved around inadequate funds and staff motivation.

Lack of funds and equipment was the most commonly cited hindrance to effective teaching, research and publishing. One lecturer at the University of Nairobi captured the feeling of most lecturers when he pointed out that:

> With my current workload, I can comfortably research and publish if only I am given funds and the necessary equipment.
Another lecturer pointed out that many lecturers were actually involved in research and consultancy projects for non-governmental organisations and could not therefore be said to be too busy teaching.

On staff motivation, close to 97% of the lecturers were disillusioned by poor remuneration. One interviewee was very emphatic on this when he pointed out:

> The other day, I was visited by my former student nurses. During our discussion I found out that they are earning more than double of what I (even with my doctorate degree) earn. No wonder most of the lecturers are no longer devoted to teaching. They devote most of their effort to their private clinics in town or work in other hospitals on part time basis.

Four of the heads of departments highlighted the issue of absenteeism due to low morale, captured by the above mentioned interviewee. One of them had this to say:

> I have been unable to raise a quorum for a departmental meeting for the last four weeks. These people (staff) are never in their offices ... they are too busy doing consultancies, part time teaching or trading to attend to university affairs. Whenever they come, they just sneak in, deliver a lecture and then leave.

Besides remuneration, another cause of low staff morale was given as inordinate and haphazard promotions. Lecturers pointed out that research was not being rewarded as promotions were based more on ethnicity than on merit. The opinion quoted below was representative of several other similar views recorded in over 90% of the questionnaires and by nine of every ten interviewed lecturers.

> Qualified lecturers have stagnated at the same level for years despite many applications for promotions because of their perceived anti-establishment stance. The corollary is that people get their positions because they have powerful connections in the establishment.
Another lecturer had this to say:

Promotions and appointments are no longer systematic and are mainly based on parochial considerations. Those qualified never get them when the opportunities arise ... Recently I was called for an interview and carried over 30 publications. Would you imagine that the interview lasted for less than 20 minutes and the committee never asked for a single publication? Expectedly, I never got the promotion.

Lack of seminars and other forum to initiate research was also quoted as a hindrance to research and publication. Eight lecturers pointed out that they were not allowed to visit foreign countries to attend seminars or present academic papers. They said that there was a lot of administrative red tape, which made it difficult for scholars to travel on academic missions abroad.

Overall, what data presented in this section points to is that though expansion affected workload and teaching methods, the quality of lecturers' output has been affected more by other factors, especially the personnel practices of the universities' management.

2b. The Advantages and Disadvantages of the Staggered Semester System

Part B of research question one sought to establish the advantages and disadvantages of the staggered semester system.

Staggering the semesters was credited by some (about 15%) lecturers as having helped the universities to accommodate large numbers of students. This in turn ensured that available resources were utilised to the maximum. One administrator
argued that staggering the semesters increased the efficiency of the university system in that there was a higher graduate output each academic year. Most lecturers (over 85%) however, indicated that staggering the semesters had not served the universities very well as far as quality of instruction is concerned.

Asked to give advantages of staggering the semesters, common responses received include the following:

“I don’t think there are any advantages”
“None so far, the only thing is frustration of the academic staff”.
“I don’t even know why it was introduced but I know it is bad for all of us”

“The system has even brought more problems especially associated with exams. Hence no remarkable advantage could be credited to this system”.

“There are no advantages as far as I am concerned. In fact, it was the beginning of the breakdown of the university calendars”

“Not good. University students need to interact with their seniors and juniors”.

It was pointed out that staggering the semesters hinders prior planning. Lecturers pointed out that they were not aware of the times they were free from teaching in advance, hence they were not able to schedule other activities like research.

According to seven of the lecturers interviewed, to accommodate a third semester in a calendar year meant reducing the duration for the semesters from 16 weeks to 14, hence reducing contact hours which led to less coverage of the subject matter. One lecturer complained:

With the delays in starting of the semesters, the time taken by continuous assessment tests and end of semester examinations, very
little is actually covered as we are left with less than nine weeks of actual teaching.

Lecturers reported further that staggering the semesters also disadvantaged the students. Three quarters of them pointed out that students’ time was wasted. A course, which should take four years, ended up taking five or more years. One interviewee had this to say:

The most unfortunate disadvantage of staggering the semesters is obviously that it makes all students unhappy because their degree programmes are stretching far too long as compared to time taken by students in private universities.

Thus, staggering the semesters negatively affected instruction in that it resulted in less contact hours.

Coupled with the problems associated with inadequacy of resources and low staff morale, reduced contact hours necessitated by staggering the semesters casts doubts on the quality of post – expansion graduates.

3. **Effects of increased student numbers on the quality of graduates produced.**

Two indices were used by this study in investigating the effect of expansion on student output from the universities. The first was the lecturers’ opinions on quality of graduates produced and second, the graduates’ level of satisfaction with skills gained from their university experience. We examine these two indices more fully below.
A Lecturers' opinion on quality of graduates produced

The lecturers were asked to compare the quality of pre-expansion graduates and their post-expansion counter parts produced by their departments.

About 30% of the lecturers felt that the quality of graduates produced was about the same for the two time periods. Two thirds of these lecturers felt that every group was unique in its own way and explained that the employers had not complained. Almost half of this group observed that with expansion, also came the change of educational system from the 7-4-2-3 system to 8-4-4 system and in fact credited the "O"-level group as being better than the "A"-level groups. It was pointed out that the 8-4-4 group spent more time studying in the library than students of the former system. One administrator noted:

Congestion in our library can also be attributed to the fact that the 8-4-4 group has better reading habits. They spend more time in the library and read more.

One of the lecturers also revealed that:

The 8-4-4 group has recorded better teaching practice grades in comparison to the other group.

The remaining lecturers (70%) however, expressed dissatisfaction with the quality of post-expansion graduates. The lecturers felt that the post-expansion graduates had received less attention and lower levels of instructional inputs and therefore were qualitatively inferior to their pre-expansion counterparts. One lecturer made the following observation:
How do you expect students who learn for only about eight weeks per semester to compare with those who had twelve weeks? These people lack intensive teaching and the personalised attention given to their pre-expansion counterparts. The experiments, which used to be conducted by individuals, are now conducted in groups. The older groups were definitely superior, as they were better prepared.

B. Graduates' Satisfaction with Skills Gained

Through questionnaires, graduates were asked to indicate how well they were equipped with research skills, professional practical skills, professional knowledge, professional attitudes and subject matter content. The level of satisfaction with skills gained was to be rated on the scale: Very adequately, Adequately, Inadequately and Very Inadequately. Very adequately was interpreted as high satisfaction while very inadequately was considered as high dissatisfaction. Table 11 presents the responses received.

Results presented in Table10 indicate that overall, the pre-expansion graduates were more satisfied with skills gained in comparison to their post-expansion counterparts. For example, only about one third of the pre-expansion graduates in the Faculty of Education were dissatisfied with level of research skills gained in comparison to more than a half of their post expansion counterparts. Similarly more than a half of the pre-expansion medical graduates were highly satisfied with professional knowledge acquired during their course of study in comparison to less than one third of their post-expansion counterparts. Similar trends were observed at the faculty of Engineering and with all the skills listed.
Table 11: A Comparison of Pre – and Post – Expansion Graduates Satisfaction with Skills Gained by Faculty.

<table>
<thead>
<tr>
<th>Skill</th>
<th>% of Responses by Faculties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Education</td>
</tr>
<tr>
<td></td>
<td>Pre</td>
</tr>
<tr>
<td>1. Research Skills</td>
<td></td>
</tr>
<tr>
<td>a) Very Adequately Prepared</td>
<td>3.1</td>
</tr>
<tr>
<td>b) Adequately Prepared</td>
<td>62.5</td>
</tr>
<tr>
<td>c) Inadequately Prepared</td>
<td>28.1</td>
</tr>
<tr>
<td>d) Very Inadequate Prepared</td>
<td>3.2</td>
</tr>
<tr>
<td>2. Professional Practical Skills</td>
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<tr>
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<td>18.8</td>
</tr>
<tr>
<td>b) Adequately Prepared</td>
<td>71.9</td>
</tr>
<tr>
<td>c) Inadequately Prepared</td>
<td>3.2</td>
</tr>
<tr>
<td>d) Very Inadequate Prepared</td>
<td>3.1</td>
</tr>
<tr>
<td>3. Professional Knowledge</td>
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<td>31.3</td>
</tr>
<tr>
<td>b) Adequately Prepared</td>
<td>65.6</td>
</tr>
<tr>
<td>c) Inadequately Prepared</td>
<td>3.1</td>
</tr>
<tr>
<td>d) Very Inadequate Prepared</td>
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</tr>
<tr>
<td>4. Professional Attitudes/ Ethics</td>
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<td>15.6</td>
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<tr>
<td>b) Adequately Prepared</td>
<td>59.4</td>
</tr>
<tr>
<td>c) Inadequately Prepared</td>
<td>15.6</td>
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<td>9.4</td>
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<td>5. Subject Content Matter</td>
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<td>3.1</td>
</tr>
<tr>
<td>d) Very Inadequate Prepared</td>
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</tr>
</tbody>
</table>

The post-expansion education graduates blamed their ill training on lack of essential materials and facilities. They also cited inappropriate teaching methods and reduced academic calendar as hindrances to effective training. In the faculties of University of Nairobi, graduates identified lack of exposure to industry and shortened course programmes as the main obstacles to quality education.
In conclusion, it is correct to state that most lecturers (over 70%) indicated that the quality of post-expansion graduates was inferior to their pre-expansion counterparts. The post-expansion graduates themselves were more dissatisfied with the level of skills gained than their pre-expansion counterparts. We can therefore conclude that the increased student numbers that was not accompanied by proportional increase in provision of required materials negatively affected the quality of instruction, which in turn adversely affected the quality of graduates produced.

Research question three sought to investigate the respondents’ views on ways of improving the quality of instruction in Kenyan public universities. We outline below the range of proposals they offered.

4. **Respondents’ recommendations on ways of improving university education in Kenya**

The proposals given by lecturers and graduates on ways of improving university education revolved around provision of resources, management of the universities, and curriculum review.

On resources, both lecturers and graduates expressed the need to provide adequate facilities and materials. On their part, the lecturers felt that student admissions should be pegged to available resources. Graduates on the other hand felt that student allowances and bursaries should be increased not only to enhance access to university education but also to avoid situations in which students engage in other activities that can jeopardise their studies like hawking or prostitution.
The management issues touched on university administration, staff recruitment and motivation, and student affairs. On the administration of the public universities, lecturers recommended depoliticisation of the universities. It was thus recommended that the vice-chancellors and heads of departments should be elected by their colleagues. They also pointed out that political appointees had mismanaged the public institutions and failed to utilise the available resources for the betterment of education.

On staff management, the most prominent recommendations (recurred 48 times) revolved around motivating lecturers mainly in terms of remuneration. One lecturer emotionally reflected:

There is generally very low staff morale. The remuneration of university staff is to say the least very poor. Survival is the game. Any free time is used by a majority of staff looking for the coin. Most (lecturers) have realised that you can starve, fail to pay fees for the children with a Ph.D. in the pocket. I believe very sincerely that if teaching staff was paid well, they would spend more time in their place of work teaching or carrying out research. As it is now, one would only do this at the risk of going hungry.

On the process of staff remuneration and promotion, 83% of the lecturers felt that the process was subjective and needed to be made objective. They felt that promotion criteria should apply to all and not be based on political or other loyalties or ethnicity.

Other recommendations related to staff management included the following:

♦ Improve academic staff welfare
♦ Improve dialogue and involve lecturers in decision making
♦ Support, encourage and reward research projects work.
♦ Offer scholarships to lecturers to help them advance academically
Register lecturers’ union

On funds management, the university was advised to engage in income generating activities and to be more transparent and prudent in the use of public funds.

Concerning student management, graduates felt (thirty three of them) that students should be admitted to degrees of their own choice. Thirteen graduates felt that the university administration should let the students run their affairs, especially the students’ union and only play an advisory role. It was also recommended that non-resident students should be encouraged to ease congestion in hostels. On student admission, twelve graduates suspected that some students were not being admitted on merit.

On curriculum, both lecturers and graduates (58% and 33% respectively) felt that there was need to review the existing curriculum in order to make it more relevant to the societal needs. In light of this, industries should be involved in reviewing the curriculum, carrying out research and training. This, they felt, could further ensure that workplace knowledge and skill requirements are catered for in the university curriculum.

Some (40% of the lecturers and 43% of the graduates) respondents felt that the educational system needed an overhaul to make it adaptable to local and global changes. Most lecturers and graduates did not favour the 8-4-4 system. The statement below by one lecturer expressed the view held by several respondents:

We need a total re-evaluation of the education system with a view to going back to the old system since it prepared the students better. The 8-4-4 system is a political gimmick out to frustrate most of the people.
in the educational institutions and promote parochial political whims and aims.

While 85% of the lecturers expressed the need to have fixed semester dates, many (89%) post-expansion graduates of the Department of Civil Engineering felt that time allocated to the programme was not enough. They recommended an extra year. Like their counterparts in the Department of Medicine, they further expressed the need to strengthen practical attachment in order to acquaint the students with problems in the labour market and measures for their solution.

Most graduates (91%) and lecturers (96%) deplored what they termed constant closures of the universities. They advised that besides having fixed university calendars, unnecessary closures should be avoided.

One peculiar but interesting recommendation was given by one pre-expansion graduate who argued as follows:

The level and degree of self-reliance seem to be going down. Education must make students know the world and for that matter their parents, friends and relatives do not owe them a living. The world is competitive and they must be equipped for the competition. University authorities must cultivate a high sense of responsibility in the students.

This recommendation was not found related to university expansion. However, it was considered important in view of the fact that the 8-4-4 system was mainly introduced to make graduates self-reliant (Bogonko, 1992). This researcher wondered whether this meant that the 8-4-4 system created problems similar to the ones of the old 7-4-2-3 system namely: unemployment and graduate dependency (see Republic of Kenya, 1981).
The findings of this study have revealed the following: First, accelerated student enrolments that were not adequately funded, negatively affected the adequacy of instructional facilities and materials. Among the instructional problems highlighted were overcrowding and adjustments in teaching methods. Such expanded enrolment also affected staff in that lecturer–student ratios dropped. A decline in teacher–student ratios did not only affect the teachers’ workload but large classes affected meaningful interaction between lecturers and students. Lesson presentation and evaluation were among the instructional aspects affected.

It was further noted that the quality of staff output was affected by other factors besides expansion. Among these factors were remuneration and motivation, lack of funds for research and poor staff management practices by the university management like ethnicity based promotions.

Secondly, data presented in this chapter revealed that the staggered semester system did not serve the universities very well.

Third, it was indicated that the quality of graduates produced by the universities declined with expansion. While lecturers rated the post-expansion graduates as being ill-prepared, the pre-expansion graduates were found to be more satisfied with levels of skills gained than their post expansion counterparts.

Finally, the respondents provided recommendation on ways of improving university education. Their recommendations touched on university administration, curriculum, motivation, and management of student affairs and provision of resources.

In chapter five, which follows, the researcher presents a summary, conclusions and recommendations based on the evidence presented in chapter four.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This study set out to investigate the implications of accelerated student enrolments in Kenyan public universities on quality of instruction. Data used to answer the research questions that guided the study was obtained through questionnaires and interviews administered to graduates, lecturers and administrators of selected faculties. Analysis of available documents provided supplementary information. The data gathered was analyzed and presented in tabular form and thematic quotations as appropriate. The summary of the findings, conclusions and recommendations are discussed in this chapter.

Summary of Findings and Conclusions

The study came up with the following findings and conclusions:

1. The study found that in virtually all the studied faculties, increased student numbers were not matched with provision of library, laboratory and hostel facilities and teaching/learning materials. However, due to the decentralised nature of colleges and campuses in the University of Nairobi, congestion was not as serious there as it was at Kenyatta University. This suggests that decentralisation of colleges and campuses is a good way of accommodating expanded enrolments as it spreads out pressure exerted by large numbers.
Decentralisation also saves the students the problems associated with sharing facilities in the centralised system which often involves timetable collisions. Decentralisation makes the use of facilities such as lecture halls and laboratories flexible and easier to plan unlike the centralised system where the facilities are shared by different faculties.

2. Expanded enrolments were found to have caused a decline in lecturer – student ratios and thus an increase in staff workload. Having too many students to be taught by few lecturers meant over reliance on lecture method at the expense of tutorials, individualised experiments and field attachments. Lecturers were also forced to repeat the same lecture several times as large groups of students were divided into several groups. Too many scripts to be marked meant reduced testing frequencies, compromised scoring and led to delay in giving feedback to students. Examination irregularities like cheating also increased, as the invigilators were not enough.

Reduced or superficial tutorials and compromised evaluation implies that the universities produced ill-prepared graduates with a lot of rote learning and poorly developed critical thinking abilities (see Farrant, 1992 on disadvantages of over-reliance on lecture method). Tutorials are meant to give students deeper understanding of subject matter through critical enquiry in guided debate (University of Nairobi, 1993). This means that slackening on tutorials meant scanty content acquisition by the students. As practicals are meant to test the theories learnt in a lecture, slackening on them means that there was a lot of rote learning. It also means that science oriented students were deprived of the opportunity to acquire necessary practical skills. At the same time, inadequate
fieldwork denied the professional trainees' experience in work-related environment and a chance to link theory to the field of work (University of Nairobi, 1993). Compromised evaluation casts doubts on the credibility of the degree certificates issued by the public universities.

3. The study found that besides increased student numbers, lecturers' ability to research and publish books and journal articles was negatively affected by factors such as inadequacy of funds, poor remuneration and low morale. Inability of lecturers to research and publish means that the universities failed in one of their fundamental functions namely, the production and dissemination of knowledge (see Republic of Kenya 1988). Where research and publication form an important basis for promotion, failure to do research implies that academic staff in the public institutions could be disadvantaged. Finally, failure to research implies that the lecturers did not sharpen their intellectual skills and could have mis-educated the students as they (lecturers) may have relied on out-dated lecture notes.

4. The staggered semester system introduced at the height of increased student enrolments was found to have had more demerits than merits. Though it enabled the universities to handle large numbers of students, it resulted in shortened semester duration and thus less contact hours. It also created apathy in lecturers who worked throughout the calendar year with no holidays or opportunities to attend seminars.

The positive implication of the staggered semester system is that by enabling the universities to hold large student numbers with basically the same resources, it tends to reduce student unit costs.
The negative implications of the staggered semester system are that reduced contact hours meant scanty coverage of course content, while alternatively massed learning (too much content taught in a short period of time) could result in less retention and less transfer of learning while fatigued lecturers could experience loss of morale.

5. The lecturers rated post-expansion graduates as qualitatively inferior to their pre-expansion colleagues. At the same time, it was found that while the highest percentage of pre-expansion graduates tended to be satisfied with levels of skills acquired during their university course of study, most post-expansion graduates recorded dissatisfaction.

We can therefore conclude that expansion of the public institutions brought about a fall in standards of education and training. It also puts into question the calibre of workforce being produced for the labour market by the universities.

6. Recommendations put forward by lecturers and graduates on ways of improving the universities indicated that the respondents were dissatisfied with the level of resources provided, the manner in which the universities were managed and the curriculum offered. They also seemed to know what they wished of the institutions and sought to be involved in making decisions that affect the institutions of higher learning.

In the following section, recommendations based on these conclusions are presented.
Recommendations

As we noted in the previous section, rapid expansion of university education in Kenya has been found to have negative implications on quality of instruction.

There is of course nothing wrong with university expansion. In fact, university expansion is highly commendable on grounds of possible economic and social benefits accrued some of which include educated populace, better living standards, better health, reduced birth rate and higher production (see also Kenya, Republic of, 1988). The main reservation is that such expansion should not be done at the expense of quality education. To this end, the following recommendations were made:

First, there is need to sustain the expansion of university education to meet the increasing demand. This should however be accompanied by efforts to marshal resources to cater for increased student numbers and ensure proper remuneration of university staff. At the same time, university administrators should ensure a more prudent way of spending available funds.

Ways in which universities could raise more funds are already well documented (Achola, 1988). It is enough, therefore, to mention here that universities should seek to establish training linkages with accredited middle-level colleges that offer diplomas as a way of cutting down on the cost of university education. This can be done by admitting diploma holders into the university and giving them credit hours for courses already taken at diploma level. Consequently, the students would take shorter time to graduate. In this regard, there is also a need of reviewing the entire education system.
with a view to relocating the extra year that was added to the previous minimum three years at the university level with the introduction of the 8-4-4 system of education.

Secondly, there is need to strengthen private sector involvement in curriculum matters of the universities and to facilitate field attachments for students. This will not only ensure that the curriculum offered is relevant to labour market requirements, but it will also ensure that students get exposed to facilities in the industries through field attachments.

Thirdly, in regard to staff, this study revealed that the most pressing issues revolve around morale. Staff should be motivated through fair recognition of research and teaching during promotions. Staff members expressed concern over politicisation of university education. There is need in this regard, to give universities not only greater academic autonomy, but also to depoliticise the university management.

Fourthly, this researcher feels that the main reason why staggered semester system was found unpopular among university staff was the manner in which it was conducted. Lecturers were not given fixed semester dates to enable them plan in advance. If well planned, and uncalled for closures avoided, staggering the semesters could help ensure maximum utilisation of resources.

Fifthly, there is need to train lecturers on ways of effectively handling large numbers of students. Staff development programmes should be enhanced to ensure adequacy of lecturers.
Finally, the decentralised campus system at the University of Nairobi should be adopted at Kenyatta University as it has been found to have stronger advantages over the centralised campus system.

Recommendations for Further Research

The study further recommends the following areas to be researched into:

- There is need to carry out research aimed at identifying ways of managing large student numbers without compromising quality of education at the universities.

- Similar study should also be carried out with a wider sample of universities to find if the trends remain the same.

- A similar study is also recommended with more departments (including those offering general degree courses) to see if the trends are the same.
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APPENDIX 1

ADMISSION TREND IN KENYAN PUBLIC UNIVERSITIES SINCE 1974

<table>
<thead>
<tr>
<th>ACADEMIC YEAR</th>
<th>TOTAL APPLICATION RECEIVED</th>
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<th>TOTAL ADMITTED</th>
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<td>5,381</td>
<td>2,338</td>
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<td>(1974 'A' Level)</td>
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<td>1976/77</td>
<td>7,701</td>
<td>3,377</td>
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<tr>
<td>(1975 'A' Level)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1977/78</td>
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<td>(1977 'A' Level)</td>
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<td>(1979 'A' Level)</td>
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<td>1981/82</td>
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<td>(1980 'A' Level)</td>
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<td>1982/83*</td>
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<td>---------------</td>
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<td>1983/84</td>
<td>10,522</td>
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<td></td>
<td>Kenyatta University 1,047 142</td>
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<tr>
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<td></td>
<td>Egerton Univer. Coll</td>
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<tr>
<td>1986/87</td>
<td>13,346</td>
<td>6,856</td>
<td>University of Nairobi 2,020 2,184 8,579</td>
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<td></td>
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<td>Kenyatta University 1,108 1,945</td>
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<td>1988/89</td>
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<tr>
<td>ACADEMIC YEAR</td>
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<td>APPLICATION WITH MINIMUM REQUIREMENTS</td>
<td>TOTAL ADMITTED</td>
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<tr>
<td>1989/90 (1988 “A” Level)</td>
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</tr>
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<td>1990/91 (second double intake) 1989 “A” Level</td>
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<td>(1989 K C.S.E.) (‘O’ Level group)</td>
<td>ABOUT 45,000 (Registered candidates about 120,000)</td>
<td>(i) C+ of 65 with subjects clusters satisfied or (ii) C+ of 68 Total 31040</td>
<td>University of Nairobi 2,831 Moi University 2,026 Kenyatta University 1,346 Egerton Univer. Coll 1,589 Jomo Kenyatta U C 256</td>
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<td>1991/92 (1990 K S.C.E.)</td>
<td>66,742 (Registered Candidates-133,063)</td>
<td>C+ of 66 points</td>
<td>University of Nairobi 3,147 Moi University 2,368 Kenyatta University 363 Egerton Univer. Coll 1,683 Jomo Kenyatta U C 1,888</td>
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<td>ACADEMIC YEAR</td>
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</tr>
<tr>
<td>1993/94</td>
<td>59,660 (Registered Candidates - 138,745)</td>
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<td>University of Nairobi 2,700 Kenyatta University 1,810 Egerton Univer. Coll 1,751 Jomo Kenyatta U.C 448 Moi University 1,170 Maseno Univ. Coll 580</td>
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Source: University of Nairobi, Joint admissions Board’s office, Admissions register extract.

* The government closed the university
APPENDIX 2

Accelerated Student Enrolments in Kenyan Public Universities:
Implications for Quality Instruction.

LECTURERS’ QUESTIONNAIRE

Introduction

I am a master’s student interested in investigating how the increased student numbers have affected your professional work and that of the institution. This is in partial fulfillment of the requirements of the degree programme. You are therefore requested to answer the questions which follow as accurately as you can. Your responses will be treated with confidence and only for this study.

Section I: Demographic Information

1. (a) In which university do you teach?

    (b) Give the faculty And the department

2. (a) Please give your highest academic qualification

    (b) What is your current designation (i.e. professional rank)?

3. (a) For how long have you taught at the university level?

    (b) For how long have you taught at this university?

4. Please indicate your gender. Male Female

5. (a) Did you undertake your undergraduate degree programme in a Kenyan public university? Yes No

    (b) If Yes, in which years did you study? From 19 to 19

Section II: Assessment of resources, Teaching and Evaluation

6. (a) Since the double intake in 1987, how would you describe your workload?

    (Tick against the correct response)
[ ] my workload has increased considerably.
[ ] my workload has remained about the same.
[ ] my workload has decreased

(b) Please, briefly explain your answer above

7. In what ways has the increased student numbers affected each of the following?

(a) Materials available for use by students in the laboratories/workshops.

(b) Working space available for students in the laboratories/workshops.

(c) The way you present your lessons.

(d) Your evaluation of students

8. (a) Has there been adequate lecture rooms to accommodate the increased student numbers?

   Yes ......................  No .................

(b) Please, explain your answer above.
9. (a) Has the increased student numbers since 1987 affected your ability to conduct research?
   Yes .................... No ....................

   (b) Please, explain your answer above.

   (c) Are there other factors which have affected your ability to do research? (List them).

10. (a) Has the increased student numbers since 1987 affected your ability to publish in books and journals?

   Yes ................. No ....................

   (b) Please, explain your answer above.

   (c) List other factors which may have inhibited your publishing in books and journals.

11. How would you compare the academic performance of the graduates produced before 1987 and those produced after 1987 (please explain fully).
12. (a) As you are probably aware, the Kenyan public universities have been using a staggered semester system since 1987. Why was this system introduced?

(b) What are the advantages of this staggered semester system?

(c) What are some of its disadvantages?

13. Give any comments which you feel can improve the quality of education in the public universities in Kenya.

❖ Thank you for your time and cooperation → Waituru Mwangi
Introduction

I am a master's student interested in investigating how the increased student numbers may have affected instructional process in the Kenyan public universities. This is in partial fulfilment of the requirements of the degree programme. You are therefore requested to answer the questions which follow as accurately as you can. Your responses will be treated with confidence and only for this study.

Section I: Demographic Information

1. In which university did you undertake your undergraduate degree programme?

2. Give your faculty Department and area of academic/professional specialisation.

3. In which years did you study? From 19...... to 19......

4. Indicate your sex Male Female

Section II: Assessment of Resources, teaching and Evaluation

When you were at the university as an undergraduate student, what was the situation regarding the following resources (tick in the box against the statement that best describes the situation)

5. (a) Number of lecturers compared to students
6. (a) Library books in your subject area.
   [ ] Very many books were available.
   [ ] The books were adequate.
   [ ] The books were few.

(b) If the answer is "the books were few", what problems did this cause you?

7 (a) Reading space in library during peak/exam times.
   [ ] Space was abundant
   [ ] Space was sufficient
   [ ] Space was overcrowded

(b) If the answer is "space was overcrowded", what problems did this cause you?
8. (a) Laboratory/workshop materials
   [ ] The materials were more than adequate.
   [ ] The materials were sufficient
   [ ] The materials were insufficient

   (b) If the answer above is "the materials were insufficient", how did this affect the teaching/learning of practical lessons?

9. (a) Working space in the laboratory/workshops
   [ ] Space was abundant
   [ ] Space was sufficient
   [ ] Space was overcrowded

   (b) If the answer is "space was overcrowded", what problems did this cause you?

10. (a) Lecture halls/rooms
    [ ] Space was abundant
    [ ] Space was sufficient
    [ ] Space was overcrowded

    (b) List any problems you have encountered in your studies that are related to lecture rooms.
11. (a) Did you encounter any problems in your studies related to number of students accommodated in the halls of residence? Yes No.

(b) Explain your answer above.

Section III: Educational Outcome

12. Indicate how well the degree programme you followed equipped you with the factors listed below:

Tick on the scale provided

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<th>Very adequately</th>
<th>Adequately</th>
<th>Inadequately</th>
<th>Very inadequately</th>
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<tr>
<td>(a) Research skills</td>
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<td>(b) Professional skills</td>
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<td>(Practical)</td>
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<td>(c) Professional knowledge</td>
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<td>(d) Subject content matter</td>
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13. In those areas where you were inadequately equipped, what do you think caused the problem(s)?

14. Give any other comments that you feel can improve the quality of education in Kenyan public universities.
Thank you for your time and co-operation → Waituru Mwangi.
APPENDIX 4

Accelerated student enrolments in Kenyan Public Universities:
Implication for Quality instruction.

ADMINISTRATORS AND LECTURERS INTERVIEW GUIDE

Section I: Demographic information

1. (a) Gender of respondent
   (b) University (all to be recorded/filled by the interviewer)
   (c) Faculty
   (d) Department

2. (a) Highest academic qualification (ask the institutions in which the degrees were obtained and years of study)
   (b) Area of academic specialisation.
   (c) Professional designation (Rank)
   (d) Teaching experience (probe for experience in the same university and elsewhere).

Section II: Assessment of resources, teaching and evaluation

3. How has increased student numbers affected the relevant staff? (Probe for changes in qualification numbers-especially by gender and workload).

4. What have been the trends in the supply and availability of library books and journals? (Probe for impact on teaching and evaluation – not for hostel or laboratory/workshop staff)
5. Which are the trends in the supply and availability of laboratory/workshop materials and space? (Probe for impact on teaching and evaluation – not for library and hostel staff).

6. How has increased student numbers compared with the carrying capacity of the library. (Probe for crowding during pick uses in the face of increased student numbers. Only for library staff).

7. What have been the changes in the carrying capacity of lecture halls? (Probe for impact on teaching – only for lectures and administrators).

8. What have been the changes in the available working space per student in the laboratories/workshops (probe for impact on teaching – not for library and hostel staff).

9. What have been the changes in the carrying capacity of the halls of residence? (Only for hostel officers).

Section III: Educational Outcome

10. What is the impact of student numbers on lecturers’ ability to conduct research? (Probe also for ability to publish in books and journals – for the academic staff only).

11. In what ways has the staggered semester system affected staff services? (Probe for the objectives of the system and its impact on workload, leave and staff development).

12. How do the members of academic staff compare the academic performance of pre and post expansion graduates? (probe for explanation of views held).

13. Seek suggestions for improvement of services in the library and halls of residence and improvement of quality of university education.