A COMPARISON OF ACADEMIC ATTITUDES AND ASPIRATIONS OF STUDENTS IN MIXED AND SINGLE-SEX SCHOOLS AND THEIR RELATIONSHIP TO PERFORMANCE IN KENYA CERTIFICATE OF EDUCATION (K.C.E.) EXAMINATION IN KAKAMEGA DISTRICT KENYA.

BY

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A

Thesis submitted to the Faculty of Education of Kenyatta University in partial fulfillment of the requirements for the Degree Master of Arts in Education.

1987

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DECLARATION

This thesis is my own original work and has not been presented for a degree in any other University.

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DEDICATION

To Nasiche and Mukonyi, my parents

who

toiled tirelessly on the soil

to

enable my brothers, sisters and I

go to school.

ACKNOWLEDGEMENTS

I wish to sincerely thank my University Supervisors, Dr. H. Rwantabagu and Dr. N.M. Kisulu for their invaluable guidance that brought this study to fruition. Their comments and suggestions made this study what it is.

I would like to thank Professor D.N. Sifuna, Chairman of the Department of Educational Foundations and Professor R.J. Njoroge, then Dean of the Faculty of Education, for their encouragement throughout the time I was undertaking this study; Professors G. Eshiwani and J. Maranga of Bureau of Educational Research (B.E.R.) for the sound background they gave me in Research Methodology; Dr. J. Shiundu of B.E.R. for his help in designing the Research questionnaires; Dr. E. Waiyaki and Dr. S.N. Bogonko for their useful comments that helped me improve on this thesis; Mr. Adego of C.B.S. who helped me in data analysis by computer without which this study could not have been completed when it was; my fellow graduate students Lukhoba, Choge, Kombo, Shisanya and Abebe for their useful suggestions.

I am grateful to Kenyatta University for awarding me a scholarship that enabled me to carry out this study.

I am very grateful to my wife Martha and our Sons Ralph and Victor who patiently bore the brunt of my long hours of absence from home during the trying time of writing this thesis. I thank them for their patience, understanding and encouragement.

I would also like to thank my loving sister Mrs. Lydiah Kutima for the keen interest with which she followed the progress of this study.

Last but not least, I am grateful to Miss Margaret Magothe for successfully doing the arduous task of typing the draft, corrections and final copy of this thesis.

To all, I say Thanks.

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ABSTRACT

The purpose of this study was to investigate, the relationship between students' academic aspirations, academic attitudes, sex, school-type, age, parental education and occupation on the one hand and performance in K.C.E. examination on the other. The study also attempted to find out whether there are differences in performance in K.C.E. examination between students with different academic aspirations, academic attitudes, sex, school-type, age, parental education and occupation.

Three different samples were selected from six assisted secondary schools in Kakamega District. These were 277 Form Four students, Forty-one Form Four subject teachers and six careers guidance and counselling masters. Three different types of questionnaires were used in data collection for the different samples selected. The data were then analysed by computer using the Statistical Package for Social Sciences (SPSS) Programme. Three statistical techniques were used to test the hypotheses formulated for this study. These were the Pearson's Product Moment

Correlation Coefficient to test relationships between variables, the Analysis of Variance to test for differences between variables and the Stepwise Multiple Regression Analysis to test the effect of Independent Variables on the Dependent Variable. The research design was an ex post facto one.

The findings revealed that students' academic aspirations, academic attitudes, sex and school-type were significantly related to performance in K.C.E examination. Age, parental education and occupation were not significantly related to performance in the K.C.E. examination.

Statistically significant differences in performance in K.C.E. examination were discerned between students with different academic aspirations, academic attitudes, sex, school-type, age, parental education and occupation. These findings formed the basis for the recommendations that the educational opportunities for girls should be expanded;that the Ministry of Education should take up the task of equipping schools to ensure uniformity in learning facilities; Single-Sex Secondary Schools should be provided as they were found to perform significantly

better than mixed schools in the K.C.E. examination, and that the Inspectorate should be decentralised to districts and regular inspection of schools done as a matter of policy.

CHAPTER ONE

INTRODUCTION

The history of Western education in Kenya is characterised by differences in opportunities for education between boys and girls. These differences have been attributed to a number of causative factors, namely, differences in performance in examinations, conservative cultural beliefs, unavailability of opportunity especially for girls and the uneven expansion of western education in the colonial period.[1]

The following section is an attempt to trace, albeit in summary, the roots of education inequality in Kenya.

1.0.2: Education in Kenya Since 1900: An Overview.

The role christian missionaries played in the provision of formal Western Education in Kenya cannot be underestimated. Prior to 1900, missionaries had

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1 K. Kinyanjui, "The Political Economy of Educational Inequality: The roots of educational inequality in colonial and post-colonial Kenya." Harvard University, Ed. D. Thesis, 1979.

already established mission stations in Kenya. Their major aim was to "Christianise" Africans. To facilitate that aim, elementary education was given to Africans in these stations to enable them read the Bible as well as help in the spreading of the word of God. The type of education provided was not elitist. In fact, it should be referred to as training, for the missionaries were basically training catechists and preachers. The mission stations were initially restricted to the Coast and surrounding areas.

In 1895, Kenya became a British protectorate and the following year, 1896, construction of the Uganda Railway began, reaching Kisumu in 1901. The building of the railway had two effects which were later to influence the spread of western formal education into the interior of Kenya. First, the railway opened up the interior and more foreigners, that is, traders, settlers, missionaries and administrators travelled inland and established settlements. Second, more settlers were encouraged to come to Kenya especially after 1900 to farm and thereby make the railway pay the costs of its construction and maintenance. By 1911 the settler population in Kenya had reached 3200 and they demanded for government's provision of education to their children. In 1910 a department of education was

established and a director appointed. What is apparent however, is the lack of a clear policy concerning the provision of education then.

Throughout the colonial period, education was mainly seen in the light of its usefulness to European settlers. Provision of education to Africans was neglected. A glaring point in the organisation of formal education was its apparent racial bias both in policy and practice. The 1919 commission argued that:

> All members of the state should be well educated ... efficient education to be provided to everyone ... young Europeans have to be educated in order that they exercise the right influence over the mass of natives.[2]

This report seemed to come as a response to settlers outcry that educated Africans would refuse to work on the farms. As if to dispel this fear, the report further said:

> It is obvious that a native who has some education and has had his intellect developed on proper lines must be a better labourer than a totally uneducated labourer.[3]

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2. Report of the Education Commission of East Africa Protectorate, 1919. p. 7.

3. Ibid.

From the foregoing, provision of education to Africans was a response to demands within the colony but totally unrelated to African needs. First, education was given in order to produce Africans to go and labour for European settlers and entrepreneurs. Second, Africans were to be given industrial education to take the place of Asian artisans who demanded higher wages for the same jobs Africans would do at very cheap rates. To achieve this end, the Native Industrial Training Depot (NITD) otherwise known as the Jeanes School was built at Kabete in 1925 to train masons, carpenters, plumbers to take the place of Asians.

From 1920 onwards, Africans found themselves between two but both unpleasant options. First, missionary education was given with religious zeal but did not go beyond elementary literacy and numeracy. Second, government schools were offering technical education which the Africans also resented. The third, expensive but feasible option, was to start their own secular, or what were known as independent schools. The independent schools movement was strongest in Central Kenya where various associations were formed to establish schools free from missionary control.[4]

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4. Kabiru Kinyanjui, "The Political Economy of Education inequality: A study of the roots of educational inequality in colonial and Post-colonial Kenya." Harvard University, Ed.D. Thesis, 1979 p. 191.

Such associations included Kikuyu Independent Schools Association and Kikuyu-Karinga Educational Association. The establishment of Local Native Councils in 1925 was, somehow, a blessing to Africans who agitated for increased educational opportunities. Through these councils, Africans were able to establish and finance their own schools according to demand. This was a big sacrifice on their part given the scarcity of funds.

The colonial government's stance, whether overt or covert, was that of indifference to, and downgrading of Africans. In the education system, there was a three tier structure based on racial lines. These tiers were marked by differences in financing, organisation and curriculum to "prepare the different races (viz European, Asian and African) for the different roles they were supposed to play in society"[5]. For the European, he was to receive the best possible education to equip him with the necessary leadership skills to rule the natives while education for Africans was geared at creating a skilled but subservient labour force to serve European settlers and entrepreneurs.[6]

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5. Ibid., p. 3.

6. Ibid., p. 173.

The development of higher education and especially secondary education in colonial Kenya was not without problems. Notable among these was the government's apparent indecision on policy, missionary opposition to the opening of secular schools and even different missionary sects fighting against one another over the control of education in the colony[7]. Before 1920's, secondary and tertiary education in Kenya was non-existent. Alliance High School, Kikuyu, was the first secondary school to be opened by the Alliance of Protestant Missionaries, that is, Church Missionary Society, African Inland Church, Church of Scotland and Methodist Churches. These religious groups wanted to have a unified code of education in the whole colony.[8] Even though the missionaries were responding to pressure for higher education from Africans. In 1926 Alliance School admitted its first group of students but it

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7. See S.N. Bogonko, "The initial problems of Kakamega, Kagumo, and Kisii Schools, 1930-1940". Department of Educational Foundations, Kenyatta University Staff Seminar Paper, October 29, 1986.

   _____"Missionary responses to African pursuits for intellectual education in Kenya, 1920-1934", Kenyatta University, Department of History, Staff Seminar Paper, May 9, 1984.

   _____"Africans and their politics of education in Kenya, 1910-1934" in Journal of East African Studies and Development Vol. 14, 1984.

8. D.N. Sifuna, Short Essays on Education in Kenya. Nairobi: Kenya Literature Bureau, 1980. p. 50.

offered only Commercial and Technical courses which had been rejected by Africans.[9]

The Catholic High School at Kabaa was opened in 1930 but very much against the wishes of the colonial government and the Alliance of Protestant Missions. The colonial government had argued since 1925 that primary school leavers were still too few to justify the opening of a second high school. The government did not even include the cost of running this school in the 1931 estimates of expenditure. The Alliance of Protestant Missionaries on the other hand feared competition from the Catholic High School and did everything in their might to stop it without success.[10]

Although these schools were fully operational in the 1930's, they did not offer four years of secondary schooling until after twelve years since establishment as in the case of Alliance. In short, this indecision on the part of the government and witchhunting among Christian Missionaries pervaded colonial educational practice, giving rise to regional and class inequality,

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9. Ibid., p. 51.

10. Ibid., p. 68.

sex inequality and government reluctance to provide more educational opportunities for higher education in general and secondary education in particular.[11] For example, in 1951, the education department argued that Kenya needed professional personnel like teachers, doctors, architects, lawyers, and veterinary surgeons in increasing numbers in future. To meet this demand:

> The government intends to expand the secondary school system as rapidly as possible. It plans to reach a stage within the next six or seven years (1957 or 1958) when some five hundred African boys and girls will be taking the school certificate every year.[12]

This was a very conservative statement given the level of development primary education had reached by this time. It can only be seen as deliberate attempt by the colonial government to keep down the education of Africans, if not to underdevelop it.

With the attainment of political independence in 1963, Kenya, like most African countries looked at Education as a panacea to all the problems facing the

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11. For an indepth discussion on regional and class inequality in colonial and independent Kenya, See Kabiru Kinyanjui, Op. Cit.

12. Kenya, Education Department, Annual Report, 1950. p. 36.

newly emergent states. However, the systems of education inherited by the newly independent states had been fashioned to serve minority colonial interests. On the whole, provision of education was very inadequate with only one-third of the primary school age children actually attending school, about three percent in secondary schools and a minute fraction in the few institutions of higher learning that then existed. Secondly, there was uneven spread of educational opportunities in regions within the country depending on the degree of European entrenchment. Curricula were filled with unnecessary European centred content mainly taught by foreigners. Also striking was the gross under-representation of girls in secondary and post-secondary school levels.[13] This was the situation within which emerging African states found themselves at independence time. It was therefore imperative that these nations redirect their educational policy and practice to suit their needs.

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13. For an exhaustive discussion on this subject see the following works:

    (a) D. Court and G. Ghai (eds). Education Society and Development: New Perspectives from Kenya. Nairobi: O.U.P., 1974.

    (b) D. Court and K. Kinyanjui, "Education and Development in Sub-Saharan Africa : The operation and Impact of Education System". University of Nairobi, I.D.S. Working Paper No. 421, March 1985.

In Kenya, the Education Commission[14] Report (Ominde Report) of 1964 tried to streamline policy on such areas of purpose, structure, organisation and curriculum of Education. The report of the National Committee on Educational objectives and Policies[15] (Gachathi Report) of 1976 is seen as part of the government's efforts to make the education offered relevant to the needs of the country. Striking among the objectives include integration of educaiton with rural development and diversification of the curriculum.[16] The Gachathi Report was necessitated by two issues. First, the socio-economic needs of the country had changed over the years since the Ominde Report came out. Second the Ominde Report assumed that every school leaver would be absorbed in formal sector employment. Experience in the period following this report showed that it was not possible. The Gachathi report therefore tried to change some of these objectives and could be seen as the progenitor of the 8-4-4 education system that was launched in 1984.

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14. Kenya, Education Commission Report. Nairobi: Government Printer, 1964.

15. Kenya, Report of the National Committee on Educational Objectives and Policies. Nairobi: Government Printer, 1976.

16. Ibid. pp. 62-63.

In the initial years after independence, education in African states in general and Kenya in particular witnessed substantial quantitative increase in terms of the number of opportunities available for children. With time, however, this increase strained the resources available for the supply of education. A notable result was the emergence of Self-Help 'Harambee' secondary schools in the hundreds. Parents and students alike viewed education as an avenue to salaried employment in the public and private sector. A consequence of the unchecked mushrooming of these Harambee schools was the considerable erosion of education quality:

> Such schools are characterised by large classes ... no desks, chairs, chalk, blackboards or other accountrements of learning. Textbooks are unavailable or innapropriate and untrained teachers predominate. Grade repetition and drop-out are common and ... there has been a decline in average academic performance because of deterioration of facilities and decline of resources. ...[17]

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17 D. Court and K. Kinyanjui (1985), Op. Cit., p. 5.

1.0.3 Education Inequality in Kenya

Education inequality in Kenya can be categorised as having taken three distinct forms. These are sex, class and region. The last two, class and regional inequality, is a continuation of the colonial legacy that Kenya inherited upon independence, while sex inequality is sometimes attributed to conservative traditional biases concerning the role of men and women in society.

Regional inequality in the availability of educational opportunity is a direct reflection of the impact and extent of European settlement. As a result, areas that experienced greater European penetration, in whatever form, had an earlier start in the provision of formal western education. These areas included the Coast, Central and Western Kenya. The arid and semi-arid districts termed as "Frontier" areas experienced negligible or no missionary and settler intrusion thereby leading to non-development of education. These regions were referred to as closed districts, dry, inhospitable and in the eyes of European settlers, unproductive. The communities affected included Turkana, Pokot, Samburu, Boran, Maasai and Somali. The colonial government did not do anything substantial to improve the conditions of these peoples.

The regional disparity in the provision of education was pointed out by one, W.B. Havelock in 1950 when he said:

> We say that the opportunity for education in African areas all over the country is irregular. Would it not be better that the opportunity was made more regular, that schools were spread more evenly all over the African areas? Under the present system of African district councils paying for a large part of the costs of primary education ... It means that the more wealthy districts will be able to provide greater opportunities for education.[18]

Invariably, this situation has continued well into independent Kenya and the gap between the education 'haves' and 'have-nots' is still far from being bridged. Philip Foster observed the following about regional inequality in availability of educational opportunity:

> Inequalities of access are remarkably persistent and those regions that obtained an early lead in educational development have tended to maintain their advantages even in latter periods of education diffusion. In fact, at intermediate stages of growth, the gap between the education

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18. Kenya, Legislative Council Debates. August 23, 1950. pp. 247-248.

> 'haves' and "have-nots" tends to widen rather than diminish, even where mean levels of formal education are everywhere rising.[19]

The northern and eastern districts in Kenya were particularly disadvantaged educationally. For instance, the first primary schools were established in Isiolo in 1947, Garissa and Wajir in 1948 and Mandera in 1955. An intermediate school was opened in Wajir in 1953. What is apparent is that schools upto secondary level had been established in other areas several decades before this time.[20]

Inequality of education opportunity based on class was not as widespread in the colonial times. But its existence cannot be denied. The sons and daughters of colonial chiefs, homeguards and staunch religious converts found their way into some of the best schools of the time like Alliance, while children of the poor were either busy labouring on European farms like their squartter parents or could not understand the meaning and usefulness of Education. However, what was more

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19. Philip Foster, "Social differentiation in African Education", in The Journal of Modern African Studies. Vol. 18, No. 2, 1980, p. 205.

20. Kenya, Report of the National Committee on Educational Objectives and Policies. op. cit., p. 42.

outstanding at this time was inequality based on race, viz African, European and Asian. For example, in 1963 the African population in secondary schools was a meagre 9055 students while non-Africans combined were 16510[21]. This was despite the fact that in the primary schools, Africans consisted of over 90% of the population. After independence, class inequality in education showed its face more clearly in the sense that well established former European and Asian schools were categorised as 'high-cost' and charged restrictively high fees which the average Kenyan could not afford. Therefore the children of emerging African entrepreneurs, former colonial chiefs and senior civil servants were the ones who attended the high-cost schools.

From a developmental standpoint, the most important aspect of present inequality in education concerns the restricted number of opportunities available for girls, particularly at higher levels of the education system. Court and Kinyanjui observed that:

> At the primary school level the expansion in female enrollments has been substantial, from 24% of the age group in 1960 to approximately 60% in 1985, with an increase at the secondary school level from 3% to 15% ... The more fundamental problem of gender inequality is a second order one, that has to do with

21. Kenya, Statistical Abstract. Nairobi: Government Printer, 1970. p. 134.

> the limited access of girls to higher quality secondary schools, to university, to science and particular professions and to training opportunities and scholarships of all types.[22]

The problem of unequal enrollment in secondary schools is not a recent one in Kenya. In 1950, a group of women educationists attending a conference in Limuru directed their concern to the small number of girls gaining access to secondary education.[23] Upto 1970 girls still consisted of only thirty percent of the secondary school population. The government has not been unaware of this problem as it has been documented in official policy statements. The Gachathi report of 1976 confirmed the existence of inequalities by stating:

> Imbalances of access to educational opportunities do exist in the country between provinces, districts and divisions within the same provinces ... caused by historical, social economic and environmental factors ... Imbalances also exist between the sexes with the education of men much more pronounced than women, due to traditions, beliefs and prejudices held by people regarding the role of women in society.[24]

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22. D. Court and K. Kinyanjui (1985) op. cit. p. 7.

23. Kenya Colony and Protectorate, "Conference of Women educationists". Nairobi: Government Printer, 1950. pp. 3-4.

24. Kenya, Report of the National Committee on Educational Objectives and Policies. op. cit. pp. 42-44.

The report was ratified by sessional paper number 5 of 1978 which expressed government concern to review these imbalances with a view of totally eliminating them. This paper attested to the fact that the government was aware of these inequalities. The objectives of the 8-4-4 system include, inter-alia, to facilitate the "equitable distribution of educational resources to ensure that there are equal opportunities for all students regardless of their place of origin, creed, race or sex."[25] Ironically, the sex-ratio is more at disparity in government maintained schools. For instance, in 1985 the ratio of boys to girls in Government Maintained, Assisted and Unaided Schools was 190:100, 108:100 and 127:100 respectively.[26]

A look at enrolment statistics in secondary schools in Kenya reveals that equality in enrolment between the sexes is still far from being achieved. Between 1982 and 1984 boys consistently took up 66.6 percent of all secondary school places throughout the republic. (Tables 1.1 and 1.2). In Kakamega district, which was the location of this study, the picture was somewhat more vivid. For instance, out of 30,344 students in forms one to four (Table 1.3), 42.2 percent were girls while 57.8 percent were boys. However, in government maintained schools, boys consisted of 73.5 percent

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25. Kenya, Economic Survey. Nairobi: Ministry of Finance and Planning, 1985. p. 188.

26. Ibid., p. 190.

Table 1.1: Enrolment in Government Maintained Secondary Schools By Province and Sex in 1982, 1983 and 1984

	1982		1983		1984	
PROVINCE	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
Nairobi	9,153	6,361	12,345	7,716	12,429	4,366
Coast	9,560	4,933	9,406	4,703	9,467	4,761
Eastern	17,598	9,604	21,310	10,655	21,457	10,715
N. Eastern	1,234	255	1,262	1,281	1,271	283
Central	34,646	21,440	36,618	20,697	36,867	24,162
R. Valley	22,754	12,247	22,428	11,962	22,581	12,043
Nyanza	20,888	5,559	22,766	8,537	22,921	8,584
Western	21,018	10,042	19,840	9,920	19,983	9,876
TOTAL	136,851	70,441	145,975	74,471	146,974	74,890

SOURCE: Kenya, Economic Survey. Ministry of Finance and Planning, 1985.

Table 1.2: Enrolment in Secondary Schools by Form, 1983 and 1984.

	1983			1984		
FORM	MAINTAINED	ASSISTED	UNAIDED	MAINTAINED	ASSISTED	UNAIDED
1	55,566	32,251	51,797	56,270	32,663	52,229
2	50,393	29,248	46,975	50,625	29,669	47,243
3	47,598	23,386	32,042	47,428	24,148	32,657
4	46,783	22,987	31,493	46,400	23,055	31,607
5	10,017	381	1,156	10,611	463	1,210
6	10,089	384	1,164	10,530	270	1,068
TOTAL	220,466	108,637	164,627	221,864	110,268	116,014
BOYS	145,975	56,817	91,368	146,974	57,339	92,968
GIRLS	74,471	51,820	33,259	74,890	52,929	73,046

SOURCE: Kenya, Economic Survey, Ministry of Finance and Planning, 1985.

Table 1.3: Secondary School Enrolment in Kakamega District By Sex, Form and School in 1979.

	FORM I		FORM II		FORM III		FORM IV	
SCHOOL	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
MAINTAINED	2,209	834	2,210	813	2,426	900	2,377	785
ASSISTED	646	855	585	755	490	663	547	523
UNAIDED	1,985	2,482	1,691	2,016	1,343	1,310	1,015	844

TOTAL : GIRLS 12,820

BOYS 17,524

SOURCE: Kenya, Ministry of Education Annual Report, 1979. Nairobi: Government Printer, 1982.

while girls formed only 26.5 percent. On the other hand in unaided schools girls consisted of a greater percentage than boys. This means that girls, who were fewer than boys in secondary schools, were mainly concentrated in poor unaided schools under conditions very unfavourable to them to pass the K.C.E. examination and continue to subsequent levels. In fact, very few girls from these unaided schools would be expected to pass their examinations from an environment characterised by lack of physical facilities and trained teachers.

1.1. Statement of the Problem

The study attempted to find out the relationship between performance of students in Kenya Certificate of Education (K.C.E.) examination and academic aspirations, academic attitudes, sex, school type, parental education and age, in Kakamega District.

The study set out to answer the following questions:

(a) Is there a relationship between performance in K.C.E. examination and the sex of the student?

(b) Is there a relationship between the academic attitudes of a student and performance in K.C.E. examination?

(c) Is there a relationship between the academic aspirations of a student and performance in K.C.E. examination?

(d) Is there a difference in performance in K.C.E. examination between:

(i) School type

(ii) Sex

(iii) Age

(iv) Student's aspirations

(v) Student's attitudes

(vi) Parental Education?

An investigation of the relationships between the above variables formed the objectives of this study.

1.2 Research Hypotheses

The following research hypotheses were formulated for testing, all in the null form.:

HO1: There is no relationship between students' performance in K.C.E. examination and the following students' characteristics:

(a) Academic aspirations

(b) Academic attitudes

(c) Sex

(d) School type

(e) Age

(f) Mother's education

(g) Mother's occupation

(h) Father's education

(i) Father's occupation

HO2: There is no relationship between the academic aspirations of a student and:

(a) Academic attitudes

(b) Sex

(c) School type

(d) Age

HO3: There is no relationship between students academic attitudes and:

(a) Sex

(b) School type

(c) Age

HO4: There is no difference in performance in K.C.E examination between students with different:

(a) Aspirations

(b) Attitudes

(c) Sex

(d) Mother's education

(e) Mother's occupation

(f) Father's education

(g) Father's occupation

(h) School type

(i) Age

1.3 Rationale

Formal education in Kenya, as in most other countries of the world, remains the single most important avenue for manpower training necessary for economic, social and technological development. In Kenya, performance in Public/National examinations is the basic criterion used to select people for various positions as well as to allocate opportunity for further education. It became imperative therefore to investigate the relationship between the selected factors and student's performance in public examinations, in this case K.C.E. examination.

Selection of K.C.E. '0' level was made with two underlying reasons. First, in the soon to be phased out 7-4-2-3 education system, '0' level constitutes the largest percentage of secondary school students. It is also at the end of this stage, form four, that a greater percentage of secondary school students are forced by the examination out of the formal schooling pipe. For instance, out of 126,198 K.C.E candidates in 1985, only 12,615 students gained places to pursue 'A' level courses. Second, in the 8-4-4 system, K.C.S.E examination is going to play an increasingly vital role as about 200,000 students will be vying directly for University entry.

Differences in opportunities between the sexes at any level of education are scalene in favour of boys. Since examinations are the criteria upon which selection for further education is based, difference in performance manifests itself in differences in opportunities at subsequent stages. For instance, in 1984, out of a total of 498,146 students in secondary schools, 59.67 percent were boys while 40.33 percent were girls. The disparity increases when government maintained schools are considered. Out of 221,864 students in government maintained secondary schools in 1984, 66.25 percent were boys while 33.75 percent were girls.

1.4 Significance of the Study

The findings of this study are expected to contribute to increased understanding of students characteristics that affect learning and consequent performance in national examinations.

To teachers and educational administrators, the findings of the study are expected to be useful in the preparation of instructional schedules within the school. For example, if a particular sex is found to be consistently outperformed by another, then added attention has to be paid to this sex even under more or less uniform school conditions.

To the educational policy maker, the findings of this study are expected to act as guidelines in the streamlining of school sex composition policy which has remained unclear and vague to date.

Lastly, to the researcher , this study was expected to yield solutions to the problem of differential access to education and performance between the sexes. However, the study was seen as a starting point for the researcher's quest to fully comprehend and, hopefully, provide information to solve the problem.

1.5 Assumptions of the Study

To carry out this study, the following assumptions were made:-

(a) That the subjects of the study would give genuine information reflecting their attitudes and aspirations.

(b) That the subjects would co-operate and give information that actually applies to them regardless of the views of friends.

(c) That education administrators would co-operate and allow the researcher to carry out the research without biasing the students.

(d) That the findings of this study would be taken up by parties concerned with the formulation and implementation of educational policy.

1.6 Limitations of the Study

(a) The sample of schools in this study was limited to district schools that admit more than Eighty-five percent of their students from the district

within which they are located, that is Kakamega District.

(b) The funds and time allocated for this study were not sufficient to allow selection of a sample larger than the one used.

(c) Generalisability of findings may be hampered because of two reasons arising from the above two limitations. First, the findings may not be generalised to apply to all levels of the secondary school as only the form four class was used.

Second, the findings may not be generalised to schools which admit their students from a wider environment other than the district.
The findings may not be generalised to all districts within the republic with different religio-cultural settings. The choice of Kakamega district was therefore a limiting factor.

(d) The research design used, being an ex post facto one, had its limitations. In ex post facto research designs;

> the scientist does not have direct control of independent variables because their manifestations have already occured or because they are inherently not manipulable.[27]

The independent variables could not be scientifically controlled.

1.7 Definition of Terms

The following terms were used in this study as they are defined herein below:-

Academic Attitudes: This was used to refer to a student's settled opinion about school and learning in general. A positive attitude was used to refer to a score of seventy and above on the attitude scale. Negative attitude referred to a score of below seventy on the same scale.

Academic aspirations: Was used to refer to how far a student desired to continue with formal education. Low aspiration was used to refer to students who indicated they wanted to stop formal schooling at form four. Average aspirations - . referred to responses where students wanted to continue but only up to form six.

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27. F.N. Kerlinger, Foundations of Behavioural Research. 2nd Ed. New York: Holt, Rinehart and Winston, 1973. p. 379.

Students were said to have high aspirations if they indicated they wanted to continue with formal education upto University.

Performance: Was used to refer to the aggregrate score or points of the best six subjects in the K.C.E. examination. The result was dichotomised into good performance and poor performance.
Good performance referred to an aggregate of between 6 and 33 points, while poor performance referred to an aggregate of between 34 and 54 points in the candidate's best six subjects.

Education: Unless otherwise stated, it was used to mean formal education.

School: Used to mean secondary school forms One to Four, unless otherwise stated.

School-type: Was used to refer to the sex composition of the school, whether boys' school, girls' or mixed school.

Assisted Schools: Schools which foot a greater part of their budgetary requirements from the school fees paid by students. However the government provides staff and annual grants to help in their running.

In this chapter, the background to this study has been laid. Hypotheses were formulated for testing and terms defined as they will be used in this study. Chapter two will deal with presentation of the theoretical framework provided for this study and review of related literature.

CHAPTER TWO

THEORY AND REVIEW OF RELATED LITERATURE

2.0.0: Introduction

This chapter is divided into two sections. The first is an appraisal of two pertinent theories which form the theoretical framework. The second section is a review of literature related to this study.

2.1.0. Theoretical Framework

Two sociological theories were provided to form the theoretical framework of this study. These were symbolic interaction and structural functionalism. The basic tenets of each theory were presented first. The shortcomings of each theory were discussed and, lastly, the relevance of each theory to this study and education in Kenya was examined.

2.1.1. Symbolic Interactionist Theory

Symbolic interaction has been defined as:

> The peculiar and distinctive character of interaction as it takes place between human beings. Peculiar because human beings define each other's

> actions instead of merely reacting to each others' actions, based on the meaning they attach to these actions.[1]

From the above definition, this theory can be said to view society from the standpoint of the individual, who is seen as most important. Human interaction is mediated by the use of symbols, interpretation and ascertaining meaning of each others' actions. Every human being is seen as having a 'self'[2] which guides his behaviour. Therefore, human action is patterned by inserting a process of "interpretation" between stimulus and response.[3] In effect, the same stimulus may evoke different responses from different individuals depending on the result of interpretation. A human being can also be an object of his own interpretation by the same token as he acts towards others, thereby facing the world within which he is acting.

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1. H. Blumer, "Society as Symbolic Interaction", in Arnold M. Rose (ed.), Human Behaviour and Social Processes. London; Routledge and Kegan Paul, 1962, p. 180.

   See also: H. Blumer, "Sociological Implications of the Thought of G.H. Mead", in W.W. Wallace (ed.), Sociological Theory: An Intrdouction. London: H.E.B., 1969. pp. 234-244.

2. G.H. Mead, "Play the game and the generalised other", in L. Coser and B. Rosenberg (ed.), Sociological Theory: A Book of Readings. New York: MacMillan, 1969. pp.272-281.

3. H. Blumer, op. cit . p. 181.

Consciousness is a key aspect in human action. One is conscious of an object he is indicating to himself. Conversely, anything of which one is not conscious is infact something he is not indicating to himself. To indicate something to oneself is to extricate it from its setting, to hold it apart and give it meaning. Human action, therefore, is not just a release or response to a stimulus but something that is built up gradually.

Symbolic interaction explains social life not from the structural forces acting on the individual, but from the point of view of the actor, how he makes his experiences and copes with his environment. The core of reality is hence the active human being trying to make sense of social situations. The act of interpretation gives interaction its symbolic character.[4] The symbolic interaction theory should be seen as a point of view which calls attention to the detailed person-centred processes that take place within the larger units of social life.[5]

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4. H. Blumer, "Symbolic Interaction" in Encyclopaedia of Social Sciences Vol. 7 & 8.

5. Ibid.

The shortcoming of this theory as provided for this study is that of scope. The relationship between the individual and the society within which an individual lives is not made clear. Instead, the individual is looked at as the centre of all action. The question of whether individual action is relevant to the needs of the wider society arises. In this case, the individual should not just receive education for its own sake but the education received should aid one in his endeavours to cope with the society.

Relevance of the Theory to this Study

Symbolic interaction was provided as a theory in this study because it explains how individuals view and react to situations. This arose out of the assumption that if each student in school has a self peculiar to himself, he is bound to react to school as a structure and education offered depending on the attitudes developed based on the experiences one has undergone and continues to undergo while in the school setting. The underlying assumption here was that if students view education as useful to their future, they are bound to make maximum use of the opportunity and thereby pass the examinations. On the other hand, if students view school with distaste, they end up

developing a negative attitude and hence use school as a pastime.

Symbolic interaction was particularly relevant as it emphasises the individual action. In essence, therefore, if followed, it is bound to enhance creativity among students as well as encouraging self-improvement in Kenya's Education System.

2.1.2 Structural Functionalism

Structural functionalism is a theory that pressumes and/or advocates for social consensus. The basic tenets of this theory are that every society is made up of smaller different structures which work together to maintain society or steer it towards equilibrium. According to Herbert Spencer[6], increase in the number and nature of structures in a particular society is necessitated by increase in the mass of that society. This, he called, a primary trait of evolution from simple to more complex social groups. Society was seen in the analogy of a biological organism and its

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6. H. Spencer, "Social Structure and Social Function" in L. Coser and B. Rosenberg (ed.) op. cit. p. 612.

structures as the organs of that organism. In this analogy, function was seen as the part played by different sections of that organism in order to maintain it.[7] The existence of a particular structure in society is justified by the role it plays in the maintenance of social consensus. According to Robert K. Merton:

> The central orientation of functionalism is expressed in practice of interpretting data by establishing their consequence for larger structures in which they are implicated.[8]

This is interpretation of phenomena in terms of their interconnections within societies as going concerns.

Weakness of the Theory

Within the framework of structural functionalism the individual human being is insignificant and is often relegated to the background. The individual human being is seen as so immured in society and thoroughly shaped by it that the role of novelty,

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7. Michael Mann (ed.), The MacMillan Student encyclopaedia of Sociology. London: MacMillan, 1983. p. 138.

8. R.K. Merton, "Social Structure and Anomie", in W.W. Wallace (ed.), op. cit. p.26.

fluidity and change in social relations is completely obscured.[9] Structural functional approach implies a system of set goals and acceptable modes of achieving the goals. However, the acceptable procedures may not be the most efficient. Behaviour, therefore, becomes ritualistic and social stability is ensured, but at the expense of flexibility.[10] Since the range of alternative behaviours permitted by the culture is severely limited, there is little basis for adapting to new conditions. There develops a tradition-bound society marked by neophobia.[11] The theory negates innovation and creativity on the part of particular structures, in the sense that the need for that structure to perform its function must originate from the wider society.[12]

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9. G. Swanson, "Symbolic Interaction" in M.Mann (ed.), op. cit. p. 496.

10. R.K. Merton, op. cit. p. 163.

11. Ibid., p. 165.

12. H. Spencer, op. cit. p. 615.

Relevance of the Theory

Functionalism has been an overt aspect in Kenya's educational policy. In the Education Act, the Minister for Education was empowered to:

> ... from time to time, formulate a development plan for education consistent with any national plan for economic and social development of Kenya.[13]

From the legal standpoint, education was not to be divorced from the economic and social development of the country.

The commission of inquiry report of 1971 emphasised that education should play a leading role in the economic development of the country, for upon it, depended the nations ability to participate in world affairs.[14] Among the objectives advanced by this report was that education must serve the needs of the society. Concurring with this outlook was the Gachathi report (1976) which, invariably, sought to outline what education should do, the function it should

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13. Kenya, Education Commission Report. op. cit. p. 68.

14. Kenya, Report of the National Committee of Inquiry, 1970-71. Nairobi: Government Printer, 1971. p. 146.

perform in society. The overriding issue was that education should produce manpower needed in all sectors of Kenya.[15] These recommendations were later accepted as key principles to guide in the formulation of education policy in Kenya.[16]

From the foregoing, it is clear that education is seen in functional terms both by society and the individual.

The weaknesses of each theory above notwithstanding, a merger of the two would provide a more befitting theoretical framework for this study. The underlying assumption here was that individuals influence society and at the same time society influences the individual.[17] Therefore emphasis on one would be one-sided and incomplete.

2.2.0 Review of Literature

The literature reviewed in this study was divided into two, but related sections. The first section concerned itself with general literature from books,

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15. Kenya, Report of the National Committee on educational objectives and policies. op. cit. pp. 18-19.
16. Kenya, Sessional Paper No. 5, 1978. Nairobi: Government Printer, 1978. p. 10.
17. See Peter Woods, Sociology and the School: An Interactionist View Point. London: Routledge and Kegan Paul, 1983.

newspaper and magazine articles. The second section was a review of specific research studies relevant to the present one.

2.2.1 General Literature

The chief practical concern in education for parents and educators today is to explain why some students fail while others perform well in examinations. According to G. Eshiwani, factors that influence achievement can be grouped into three categories. These are school characteristics, teacher characteristics and student characteristics.[18] Literature on the above three broad categories and their effect on student's performance in school and National examinations has increased in the recent past. The present review concentrated on student characteristics, which this researcher felt, have not been dealt with exhaustively.

The attitudes and aspirations of students are considered as important student characteristics that affect performance. According to Pidgeon:

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18. G.S. Eshiwani, "Research findings on Success and Failure in School". Nairobi: Daily Nation, Saturday March 7, 1987. p. 13, Col. 1.

> ... a pupils' conception of his own capabilities will also influence his performance. If he is led to believe that he is capable of very little, that is, has low expectations for himself, he will have little self motivation and will infact achieve little.[19]

An attitude has been defined as a tendency, a state of readiness to act or react in a certain manner when confronted with certain stimuli.[20] Thus every human being holds attitudes of one kind or another but for the most part these attitudes are dormant. They are expressed in speech or other forms of behaviour only when an object of an attitude is perceived.

Attitudes are reinforced by beliefs and often attract strong feelings that will lead to particular forms of behaviour.[21] In the final analysis, one can hold, with a high degree of accuracy, that the way people view situations in life depends on the attitudes they hold. Attitudes impel people to react to objects, situations or propositions in ways that can be called favourable or unfavourable.[22] In a school situation,

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19. D.A. Pidgeon, Expectation and Pupil Performance. London: N.F.E.R., 1970, p. 99.

20. A.N. Oppenheim, Questionnaire design and attitude analysis. London: H.E.B., 1966. p. 105.

21. Ibid., p. 106.

22. J.P. Guilford, Psychometric Methods. New York: McGraw Hill, 1954. pp. 456-7.

if the attitude held by the students is unfavourable, then the students will take little or no interest in education and thereby perform poorly in examinations.

K.M. Evans found out that interest and ability were directly related and that success was unlikely where interest was lacking.[23] However, educational and vocational success was related to intelligence more closely than interest.[24] She suggested that interest in a subject played a much smaller role in success in science than intelligence. The pleasure for succeeding may very well influence student liking for a particular subject. For example, subjects like Mathematics, English Language and Kiswahili may be liked by students because they determine one's grade in K.C.E. examination. In early stages, interest may not be necessarily accompanied by good attainment, but it may, nevertheless, result in continued effort eventually leading to success.[25]

Attitudes, which are more deeply rooted than interests, were found to have effect on success, more in arithmetic and physics than languages. Students with

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23. K.M. Evans, Attitudes and Interests in Education. London: Routledge and Kegan Paul, 1965. p. 116.

24. Ibid., p. 120.

25. Ibid., p. 122.

stereotyped attitudes did well in mathematics and natural Sciences but performed poorly in humanities and social sciences.[26] However, Arridson contended that although better attitude to school was associated with high marks, it was not the cause of them, rather the attitude conditioned other factors which determined the students' achievement.[27] Unfortunately, the study did not identify the factors that were conditioned by attitudes to influence achievement.

From the above general literature, the existence of a relationship between attitudes and performance cannot be denied. However, there is no conclusive evidence to show the nature of the relationship.

2.2.2 Specific Literature

The literature reviewed under this section was of empirical nature carried out in the area of attitudes, aspirations, performance and sex differences on these variables.

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26. Ibid., p. 132.

27. R.R. Dale, Mixed or Single-Sex Schools? Attainment, Attitudes and Overview. London: Routledge and Kegan Paul, 1974. p. 109.

R. Dale attempted to assess whether a pupil's environment in a co-educational school could give a student greater impetus to learn than if he/she were in a single-sex school. He also set out to assess whether attitudes towards school work did change with environment,[28] viz single sex or mixed schools. The study, which was done in Britain, had a sample of 175 men and 620 women who had attended both mixed and single sex schools in earlier stages of their school life. A questionnaire with items on attitudes towards school work, enjoyment of school environment and the effect of the presence of the opposite sex on learning, was administered to the subjects who were to respond on a five-point continuum. Allowance for opinion responses was also given.

Dale found out that boys in single sex schools had lower average performance in 'O' level General Certificate of Education (G.C.E.) examination than boys in mixed schools[29], and did not make as good academic progress in relation to their ability. Boys entering single sex schools had superior entry marks than boys who went to mixed schools. It was also found that girls in single sex schools; though slightly

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28. Ibid., p. 110.

29. Ibid., p. 115.

superior to co-educated girls on raw scores, were not by a long way as superior, given their entry scores to the single sex schools. There was no clear distinction by either sex of liking mixed or single sex schools. Single sex school students were found to be more anxious about examinations than co-educated students.[30] Seventeen year old girls reported to have enjoyed the co-educational environment more than the younger thirteen year olds. Fifty-eight percent of girls in mixed schools reported to have enjoyed their academic work as comapred to forty-two percent of the girls in single sex schools. On the other hand, thirteen year old boys reported to have enjoyed the co-educational environment more than seventeen year old boys.

On the whole, it was found that co-educated students had more positive attitudes towards school than single sex school students. These findings were contradictory to the expectations given the fact that single-sex school students had superior entry scores than those who went to mixed schools.

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30. Ibid., p. 133.

The study had two methodological shortcomings that may militate against the generalisability of the findings. First, the sample used in the study had already left secondary school and were in college. Therefore, the students could not be expected to give genuine information about their attitudes while still in secondary school. Second, the schools from which the students came were not uniform. On the author's admission, single sex schools were superior in staff, facilities and academic background of entrants than mixed schools. The spatial and temporal differences necessitate a similar study to be done in Kenya to evaluate whether those findings are applicable in Kenyan situation.

H.C.A. Somerset[31] analysed factors which help determine the educational aspirations of form four students in Kenya, and the effects of these aspirations on the process of selection for opportunities for higher education, training and employment. The sample for this study was 1253 students (993 boys and 260 girls) from twenty-four randomly selected schools country-wide (18 boys', 3 girls' and 3 mixed schools), in 1969.

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31. H.C.A. Sommerset, "Educational aspirations of fourth form students in Kenya". in D. Court and D. Ghai (ed.), op. cit., p. 67.

The study found that the educational experience students underwent affected the students' expectations and aspirations. Students in national high cost schools had higher aspirations than those in local 'Harambee' Schools. Students who had high aspirations performed significantly better than students with low academic aspirations. For instance, students who had high aspirations (wanted to go up to University) had a mean aggregate of 29.93 points while those with low aspirations (wanted to leave school after form four) had a mean aggregate 38.74 points.[32] Students with high aspirations scored significantly high marks and at the same time, academically able students wanted to continue with their studies.

The correlation between academic aspirations and performance varied with type of school, that is, national or local. In National schools, the fit between aspirations and performance was poor. Forty percent of students with high aspirations in national schools obtained either a weak division three, division four or failed. To explain this, the type of school and home environment were thought to wield more influence on aspirations than performance.[33] However, aspirations were highly correlated with performance in local

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32. Ibid., p. 69.

33. Ibid., p. 78.

'Harambee' Schools. Those who passed the examination in these schools all had high aspirations.

The study by Somerset was particularly relevant to the present one except for the fact that it was undertaken a long time back and a repeat would be necessary to ascertain whether the findings of the study still hold at the present. The study also lacked representativeness as only three girls' and three mixed schools were sampled. Lacking in the study also, was a comparison of levels of aspirations and performance between the sexes.

Hoult and Smith analysed the age and sex differences in number and variety of vocational choices, preferences and aspirations[34]. The study sample consisted of 646 children between eleven and seventeen years old. The study found that choices of vocation increased with age, but only up to thirteen years of age. Among the sixteen and seventeen year olds, the range of vocational choices greatly decreased. This decrease indicated a more realistic approach on the part of older students. Younger students tended to be unrealistic and made vocational choices haphazardly. It was also found that boys listed a wider variety of choices and preferences than girls, but their aspirations were not

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34. P.P. Hoult and M.C. Smith, "Age and Sex differences in number and variety of vocational choices, preferences and aspirations". in Journal of Occupational Psychology. No. 51, 1978, p. 119.

significantly different. The study, however, did not include the relationship between aspirations, vocational choices and preferences on the one hand and academic performance on the other.

J.O. Crites examined the effect of sex on vocational choices, preferences and aspirations[35]. It was found out that, like Hoult and Smith above, sixteen and seventeen year olds had significantly a low range of vocational choices and preferences. At $P < 0.05$ significance level differences were found between the sexes in the level of aspirations. The greatest difference was found among sixteen and seventeen year olds. In younger children, the difference was not significant on the t'test.

The study, like the one of Hoult and Smith, did not include the academic perspective, however, they proved to offer invaluable background information to this study.

Two, particularly pertinent studies to the present one, were done by D.M. Thuo. He did a comparative study of the relationship between attitudes

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35. J.O. Crites, Vocational Psychology. New York: McGraw-Hill, 1969. p. 67.

towards mathematics and mathematical attainment.[36] The sample of the study consisted of 748 form four students (424 male and 324 female) in mixed and single sex schools in Kiambu District, Kenya. The study set out to investigate whether there was any difference between the sexes and school type (mixed or single-sex) in regard to attitudes towards mathematics, mathematical attainment and educational aspirations. Other variables considered were teacher qualification and school facilities. The study came up with five major findings. First, there was no difference in attitudes towards mathematics between different school types. The difference was only significant when all girls and all boys were considered together, boys had more positive attitudes towards mathematics than girls. Second, the study found a significant difference in mathematical attainment between sex and school type. The difference was in favour of girls and single-sex schools. Third, a positive relationship was found between attitudes towards mathematics and mathematical attainment. Students who had positive attitudes towards mathematics performed well in mathematics in K.C.E. examination. Fourth, single-sex schools were generally superior to mixed schools. The major drawback in mixed schools was lack of facilities for mathematics teaching and learning. Finally, teacher experience and training

36. D.M. Thuo, "A Comparative Study of the relationship between attitudes towards mathematics and mathematical attainment in mixed and single-sex schools in Kiambu, Kenya". University of Nairobi, M.A. Thesis, 1983.

was found to be insignificant as a factor influencing mathematical attainment.

Thuo's study was particularly pertinent to the present one. However, it was found necessary to carry out a research of similar nature but in a different study area. It was also felt that since grading in K.C.E. does not depend on mathematics alone, an analysis of performance as indicated by the best six subjects would be appropriate to lend credence to the aspect of performance.

Thuo also analysed the factors that affect learning of and performance in mathematics at K.C.E. level in Kenya.[37] A total of 743 students were sampled countrywide from eight government maintained schools, seven aided schools, and seven unaided 'Harambee' secondary schools.

The study found that school type (maintained, aided or unaided), peer groups, resource materials, age, sex and attitudes of students were significantly related to performance in mathematics. However, parental

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37. D.M. Thuo, "Factors affecting the performance and learning of mathematics among secondary school students in Kenya". Kenyatta University, Kenya Education Research Award (KERA), 1983.

influence, educational aspirations of students, frequency of supervision of teachers and teacher qualification were not significant on the Chi-Square as factors influencing performance in mathematics. Parental characteristics like age, level of education and occupation had no influence on a student's attitude towards mathematics. This study, though quite pertinent, focused, like the earlier one above, on mathematics alone. Other K.C.E. subjects were not included. Therefore, the findings may not be applicable to other K.C.E. examination subjects. In this study, an attempt was made to study a wider area and integrate as many different regions as possible, however it was not achieved and hence the findings may not be generalised to all regions within Kenya.

A study by M.T. Makila attempted to assess the effects of coeducation on the socialisation of girls at the secondary school level.[38] She wanted to find out why, she argued, girls performed as well as boys at Certificate of Primary Education (C.P.E.) level but did not perform as well at K.C.E. level. The study also sought to find out whether co-education

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38. Mary T. Makila, "Co-education: Its effects on the Socialisation of girls at the Secondary School level". Kenyatta University, KERA, 1983.

affected the academic ability of girls. 1150 secondary school students were sampled (680 boys and 470 girls) in twenty-five schools (fifteen mixed and ten single sex schools) in seven districts of Kenya. The study found out that co-education had an impact on the socialisation of girls. It was further found that girls were happy in co-educational schools and benefited academically and socially from the free mixing. The study also argued that co-education encouraged a healthy and competitive academic climate.

The study done by Makila was purely a descriptive one. No powerful data analysis tool was employed rendering the findings weak.

E.K.A. Maritim undertook a study on the effect of sex of the examinee on K.C.E. and K.A.C.E. performance.[39] The study claimed that psychological researches on cognitive ability have established a relationship between sex differences in intellectual functioning and sex differences in examination performance. Secondly, the study argued that sex

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39. E.K.Maritim, "The dependence of '0' and 'A' level examination results on the Sex of the examinee". in Kenya Journal of Education. Vol. 2, No. 1, 1985. p. 22.

differences in behaviour is a result of environmental and biological factors. He cited a study done in the U.S.A. which revealed that girls performed poorly in subjects they thought were incongruent to their sex roles. The study concluded that since sex-role stereotypy is a matter of cultural subjectivism, then differences in performance between the sexes in specific subjects is a cultural problem. A cultural setting with great disparities in sex-role expectations will invariably cause differential performance in examinations.[40] Maritim used K.C.E. and K.A.C.E. results as provided by the Kenyan National Examinations Council (KNEC) for the cohort of students who sat for KCE and KACE examinations in 1981 and 1983 respectively. The study found out that boys had a superior mean score in all twelve KCE subjects. The difference in mean score between the sexes was significant on the t'test. In KACE examination, two years later, girls performed better in the Arts and Biology while boys were better in Physics, Mathematics and Chemistry.[41] The findings of this study concur with those of Weinreich-Haste from her study conducted in Britain in 1984. Haste's

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40. R.G. Graf and J.C. Riddle, "Sex differences in problem-solving as a function of problem context". in Journal of Educational Research. No. 65, 1972. pp. 451-452.

41. E.K. Maritim, op. cit., p. 26.

study found that boys performed significantly better than girls in Mathematics, Physics and Chemistry at the ordinary level while girls were better in languages and biological sciences.[42] The sex differences in performance increased at the advanced level. Studies in the U.S.A. (as cited by Maritim) showed that boys were superior in the Physical Sciences while girls were better in humanities. These studies seem to suggest that no particular sex is conclusively superior to another in all academic fields.

The study by Maritim lacked first hand information about the students whose scores he was analysing. The study used what may be referred to as "dormant data". The researcher could not, for instance, come to grips with the factors that play on the individual students to affect learning and performance. Brian Cooksey studied the effects of sex, age and socio-economic background on performance in secondary school entrance examination.[43] The study used a sample of 7,000 pupils in Younde, Cameroon. It was found that boys and pupils from well-to-do families

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42. Helen Weinreich-Haste, "The Values and aspirations of English women undergraduates"., in S. Acker and Pipper (eds.), Is Higher Education fair to Women? London: N.F.E.R., 1984. p. 119.

43. B. Cooksey, "Social Class and Academic Performance: A Cameroon Case Study". In Comparative Education Review. Vol. 25, No. 3, 1981. pp. 403-418.

performed exceptionally well in their examination forming a greater percentage of secondary school entrants. The fact that one was female or from a low socio-economic background put one at a disadvantage in the secondary entrance examination and continued schooling. The study by Cooksey concerned a level different from the one covered by the present study. To add to this the fact that this study was conducted in a different environment makes its findings not completely applicable to Kenyan situations.

J.P. Keeves examined the role of what he called "The attitudinal dimension" on task performance.[44] The findings revealed that good performance in education was associated with positive or favourable attitudes. The study also found that girls performed better than boys on linguistic and verbal tasks. Boys, on the other hand, showed stronger numerical and spatial aptitudes and performed better in tasks involving mathematical reasoning.[45]

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44. J.P. Keeves, Educational Environment and Student Achievement. Stockholm: Almqvist and Wiksell, 1972. p. 36.

45. Ibid., p. 102.

The study by Margaret Sutherland proved quite relevant. Using a sample of 1830 students from both mixed and single-sex secondary schools in Britain, she concluded that the effects of co-education may be different for boys and girls. The study found, for instance, that co-educated boys obtained higher marks than boys in single-sex schools.[46] The difference in marks between the two groups was very significant. However, girls from co-educational schools did not perform as well as girls from single sex schools, but it may have been as a result of the fact that mixed schools did not admit high ability students like the single-sex schools.[47] On the whole, all boys were superior to all girls. Correlation between age and academic attainment was insignificant. The study by Sutherland concurred with the findings of Keeves,[48] Maritim[49] and Dale[50] which found boys to be superior to girls especially in the Physical Sciences and Mathematics. The studies also seemed to reach a

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46. M.B. Sutherland, "Coeducation and School Attainment". in The British Journal of Educational Psychology. Vol. 31. No. 2, 1961, p. 160.

47. Ibid., p. 162.

48. J.P. Keeves, op. cit.

49. E.K. Maritim, op. cit.

50. R.R. Dale, op. cit.

consensus about co-educated boys being superior in performance than single-sex school boys. Single-sex school girls on the other hand performed better than girls in mixed schools. However, the study by Thuo[51] had findings to the contrary. For example, his study revealed that girls in single-sex schools performed significantly better than those in mixed schools. These findings lack support from researches conducted earlier on the subject (Mathematics).

The effect of student attitudes towards school and teachers on performance were studied by J.E. Gustafsson[52]. A forty-item questionnaire was administered which was to be responded to on a five-point continuum. The study found out that at the individual level, attitudes towards the school were significantly related to performance. Students who has positive attitudes towards school performed better than those who held negative attitudes.

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51. D.M. Thuo, op. cit.

52. J.E. Gustafsson, "Attitudes towards the School and Teacher at Class and Individual level". In The British Journal of Educational Psychology. Vol. 49, No. 2, 1979 p. 126.

When the students were considered as a class, attitudes towards the teacher were significantly related to performance. A class with positive attitudes towards the teacher performed better than one with negative attitudes.

In 1985, the UNESCO regional office in Bangkok funded a study to investigate the factors militating against the education of girls in Asia and The Pacific.[53] The countries covered by the study were Bangladesh, Pakistan, India and Nepal. The study revealed that universal education for women was still far from being achieved as girls constituted a very small percentage of the school going children. There were found to be high drop-out rates among girls. This situation was even more pathetic given that only a small percentage of girls of school going age were actually in school as compared to 95 to 100 percent of boys of school-age who were in school.[54]

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53. UNESCO, Towards equality of Educational Opportunity Inter-Country Exchanges of Experiences. Bangkok: UNESCO, 1985.

54. Ibid., p. 9.

The reasons identified as being responsible for girls' low attendance of school were mainly social. High opportunity costs of educaiton for poor families tended to preclude both boys and girls from school. The children would rather work to earn food than go to school. Girls were perceived as economically productive in the family and were compelled to take care of the, often, large families. The education of girls, therefore, received low priority. On the whole, cultural subjectivism, mass poverty, lack of incentives , lack of schools and negative parental attitudes were identified as factors that put girls at a greater disadvantage than boys.[55] From the findings of the foregoing study, it can be concluded that, girls did not fail to continue with education because of inborn factors but social outlook militated against their academic advancement.

The findings of the UNESCO study supported the study by A. Krystall in Kenya. The study examined the effect, on the education of women, of two policy decisions, namely, the progressive abolition of school

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55. Ibid.

fees in primary school since 1974 and the abolition of building fund in 1978.[56] The study revealed differences in the percentages of women attending school between the provinces, districts and within districts. It concluded that the access of women to education was generally a reflection of the level of economic development. For example, "high opportunity" districts had achieved parity between the sexes in primary schools before the school fees were abolished.[57] Low opportunity districts had low overall enrolment in primary schools. Low economic and educational development was found to be reinforced by strong conservative cultural and religious traditions which militated against schooling in general and female schooling in particular.

The argument that parents ignore the education of girls is not valid, the study argued, as in a number of districts, parents spend a lot of money to meet costs in "harambee" schools. The study therefore concluded that:

> The blockage in the access to higher education and thence to the higher cadres of formal sector employment seems in a large measure due to inequalities in the provision of education

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56. A. Krystall, "Women access to Primary and Secondary education in Kenya". University of Nairobi, I.D.S., 1980. Education, Research and Development.
57. Ibid., p. 57.

> rather than the lack of interest on the part of female students and their families.[58]

In Chapter One, the background to this study was presented. The problem which this study investigated was stated, hypotheses were formulated and the objectives of the study were also presented. In Chapter Two, the theoretical framework provided for this study was advanced. A review of literature relevant to this study was also done. Chapter Three deals with a description of the research design and methodology used in this study.

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58. Ibid., p. 58.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

Having presented the background to this study and review of related literature in chapters one and two respectively, this chapter concerns itself with the description of the research design and methodology used in this study. Described in this chapter are the research design, samples, instruments of data collection and data analysis procedures.

3.1 The Research Design

The research design used in this study was ex post facto. Ex post facto research design is defined by F.N. Kerlinger as:

> a systematic empirical inquiry in which the Scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variations of independent and dependent variables.[1]

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1. F.N. Kerlinger, op. cit. p. 379.

This research design was therefore used because of its applicability to this study. It was justified on the basis of the fact that this study sought to investigate the existence of relationships between variables. Kerlinger further says:

> Despite weaknesses, much ex post facto research must be done in psychology, sociology, and education simply because many research problems in the Social Sciences and education do not lend themselves to experimental inquiry. A little reflection of some of the important variables in educational research - intelligence, aptitude, home background, parental upbringing, teacher personality, school atmosphere - will show that they are not manipulable. It can even be said that ex post facto research is more important than experimental research (because) the most important social scientific and educational research problems do not lend themselves to experimentation ...[2]

3.2.0: Population and Sampling

The target population of this study was form four students in assisted (aided) secondary schools in Kakamega District, form four subject teachers and career guidance masters.

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2. Ibid., pp. 391 - 2.

3.2.1: Schools

Six secondary schools were randomly selected (two boys', two girls' and two mixed schools) from a population of assisted (aided) schools in Kakamega district. * The selected schools were Malava girls, Musoli girls, Lugari mixed, Bushiangala mixed, Malava boys and Kivaywa boys .

3.2.2: Students

Students formed the greatest part of the study sample. From the six schools selected, form four students were used as subjects of this study. They had undergone four years of secondary education and were preparing to sit for the Kenya Certificate of Education (K.C.E.) examination at the end of the year (1986). It was therefore hoped that they were more mature and would give more realistic responses. Only one stream was used from each school. In all the cases, the researcher used the stream that was made available to him by the school administration.
A total of 277 students participated in this study. Of these, 168 students (60.6%) were boys while 109 (39.4%) were girls. Ninety five students (34.3%) were from mixed schools, 27.4 percent from girls' schools and 38.3 percent from boys' schools.

3.2.3: Teachers

Form four subject teachers in the selected schools formed the second sample of this study. A total of forty-one teachers took part in this study. Eight teachers (19.5 percent) were graduates, three (7.3 percent) were untrained graduates, that is, those holding general bachelors degrees without education, twenty (48.8 percent) were S_1 and Diploma holders and ten (24.4 percent) were untrained form six leavers.

3.2.4: Career Masters

Six career masters and guidance counsellors participated in this study, one from each school. Their selection was predetermined in so far as their school was selected.

3.3.0: Instruments of Data Collection and Procedure

The instruments used in data collection and procedure followed are described in this section.

3.3.1: Questionnaire

Questionnaires were the major data collection tools used in this study. Three types of questionnaires were used in each school. These were students'

questionnaire, subject teachers' questionnaire and career masters' questionnaire.

3.3.1.1: Students' Questionnaire:

The students questionnaire (Appendix A) had four parts. The first part was an introductory letter stating the purpose of the questionnaire. The second part sought general background information from the respondents. The information sought included name of student, name of school, school type (whether mixed, girls' or boys'), sex of student, age, parental education, training and occupation, family size and subjects registered for in K.C.E. The third part was the academic attitudes scale. This scale was constructed by the researcher using the Likert model[3] of attitude measurement as a guide. The section had nineteen items concerning schooling and education in general to which the subjects were to respond on a five-point continuum, that is, strongly agree, agree, undecided, disagree and strongly disagree. For a positively stated item, a score of five (5) was given for a strongly

3. A.N. Oppenheim, op. cit. p. 110.

agree response in that order to a score of one (1) for a strongly disagree response. If an item was negatively stated, the reverse scoring method was used, that is, a score of five (5) for strongly disagree and one (1) for strongly agree. Whether the item was negatively or positively stated, a score of three (3) was given in case of an "undecided" response.

The fourth section was the academic aspirations scale. It had five items seeking information on how far academically the student wanted to go, whether he/she felt she/he would be able to pass the examinations and what the student wanted to pursue as a career after schooling.

Each of the sections had an introductory part with instructions on how to fill it.

3.3.1.2: Teachers' Questionnaire

The teachers' questionnaire had two sections (see Appendix B). Section one had twenty items on type of school, sex, age, level of formal education reached, training, experience, and availability of teaching resources.

Section two was largely of a comparative nature, between boys and girls in school as perceived by teachers. This section was responded to by teachers in mixed schools and those who had taught in both boys' as well as girls' schools. The section had seven items dealing with comparison in class performance, K.C.E. performance, interest in academic work, attitudes towards school and academic aspirations.

3.3.1.3: Career Masters' Questionnaire

Career masters' questionnaire (Appendix C) had twenty-one items. The items covered name, type of school, sex, age, training, experience, training in careers guidance and counselling, importance of counselling and parental involvement in guidance and counselling of students.

3.3.2: Piloting

Piloting was done to assess the type of responses the researcher expected from the field. The questionnaires were piloted using graduate students in the Faculty of Education at Kenyatta University. Unreliable items were dropped while others were improved with the help of University supervisors of this study.

3.3.3: Data Collection Procedure

Before proceeding for data collection a clearance permit was obtained (Appendix D).

The researcher paid a visit to each of the six selected schools and made an appointment for questionnaire administration with the school administration, convenient to both the school routine and the researcher. The researcher was assigned a co-operating teacher in each school who was to help in the data collection exercise. On the agreed date, the researcher visited each school and gave out questionnaires. A total of 277 students' questionnaires, forty-one teachers' and six career masters' and counselling questionnaires were filled. The return rate for each type of questionnaire was very high.

3.4.0: Data Analysis Techniques

The data obtained from the field were coded for analysis by computer using the statistical package for Social Sciences (S.P.S.S.) Programme.[4]

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4. Norman H. Nie, et. al., Statistical Package for Social Sciences. New York: McGraw Hill Book Company Ltd., 1975.

The purpose of the analysis was to test the hypotheses formulated for this study, as listed in Chapter One, Section 1.2 above.

Hypotheses stating "no relationship" between variables were tested using the Pearson product - moment correlation coefficient. These were hypotheses HO_1 a - i, HO_2 a - d, HO_3 a - c. Hypotheses stating "no difference" between variables were tested using the analysis of variance (ANOVA). These were hypotheses HO_4 a - i.

Each of the techniques used in data analysis is described below.

3.4.1: The Correlation Coefficient (r_{xy})

The correlation coefficent was used to find out the strength of relationship between the variables in this study. This statistic was preferred over the Chi-Square because the latter only shows that there is a relationship but it does not show the strength and direction. The correlation coefficient varies from negative one (perfect negative correlation) to positive one (perfect positive correlation). A correlation matrix showing all possible pairs of variables in the study was obtained.

The Pearson product - moment correlation coefficient[5] is calculated by the formula:

$$r_{xy} = \frac{\Sigma xy - \frac{\Sigma x . \Sigma y}{N}}{Sx.\ Sy\ (N - 1)}$$

Where: Σxy is the sum of xy

Sx is the standard deviation of X.

Sy is the standard deviation of Y.

Σx is the sum of X values.

Σy is the sum of y values.

The correlation coefficients were further tested for statistical significance using the t'test. To test the null hypothesis HO: $r_{xy} = 0$, the following formula was used:[6]

$$t = \frac{r \sqrt{N - 2}}{\sqrt{1 - r^2}}$$

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5. Robert E. Slavin, Research Methods in Education: A Practical Guide. New Jersey: Prentice Hall Inc., 1984. p. 199.
   See also D.G. Lewis, Statistical Methods in Education. London: University of London Press, 1973. pp. 46-66.

6. Ibid., p. 200.

Where: r is the Correlation Coefficient.

N - the number of Cases.

Degrees of freedom: N - 2.

3.4.2: Analysis of Variance (ANOVA).

The analysis of Variance[7] (ANOVA) was used to assess whether differences between variables were statistically significant. The F-ratio[8] was calculated by the formula:

$$F = \frac{MSB}{MSW}$$

Where: MSB is the mean square between groups calculated by dividing the sum of squares between groups by degrees of freedom.

MSW - the mean square within groups calculated by dividing the sum of squares within groups by degrees of freedom.[9]

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7. Ibid., p. 185.

8. D.G. Lewis, The Analysis of Variance. Manchester: Manchester University Press, 1971.

9. Robert E. Salvin, op. cit. p. 187.

3.4.3: The Stepwise Multiple Regression Analysis

The stepwise multiple regression analysis was used to evaluate the effect of the independent variables on the dependent variable, that is, performance in K.C.E. examination. The degree to which each independent variable, in order of strength, accounted for variation in the dependent variable was assessed and the findings presented in a summary table. The justification of its use was based on the account of its popularity and versatility. According to W.R. Borg:

> Multiple regression has become one of the most widely used statistical techniques in educational research. Its popularity stems from its considerable versatility and information yield about relationships between variables. Multiple regression can be used to analyze data from causal-comparative, correlational, or experimental research. It can handle interval, ordinal or categorical data.[10]

Conclusion

In this chapter, the research design and methodology of this study were discussed. The analysis of data, presentation of findings and interpretation will be done in Chapter four below.

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10. W.B. Borg and M.D. Gall, Educational Research: An Introduction. 4th Ed. New York: Longman Inc., 1983. p. 596.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION OF FINDINGS AND INTERPRETATION

4.0 Introduction

This chapter is divided into two main sections. The first section deals with description of basic data obtained from students, teachers and careers and counselling masters samples. The second section concerns itself with the analysis of data in the light of the hypotheses formulated for this study (See Chapter One Section 1.2). This section is subdivided into three parts, each dealing with findings from each data analysis technique (See Chapter Three above).

4.1.0 Description of Basic Data

Description of the basic data of this study is presented in three sections. In Section One, data pertaining to students' responses are described. In Section Two, data pertaining to teachers' responses are described while the final section describes data pertaining to responses of careers and counselling masters.

4.1.1: Data Pertaining to Students' Responses

Table 4.1: Number of Students From Each School Type

School Type	Number	Percent
Mixed	95	34.3
Girls'	76	27.4
Boys'	106	38.3
TOTAL	277	100

A total of 277 form four students from the selected schools took part in this study. Ninety-five students (34.3 percent) were from mixed schools, 76 students (27.4 percent) were from girls' schools while more than a third, 106 students (38.3 percent), were from boys' schools (Table 4.1).

Table 4.2: Sex of Students

Sex	Number	Percent
Male	168	60.6
Female	109	39.4
TOTAL	277	100

From table 4.2, it can be seen that 168 students (60.6 percent) were males while 109 students (39.4 percent) were females.

Table 4.3: Age of Students

Age	Number	Percent
15 - 16 years	72	26
17 - 18 years	175	63.2
Over 18 years	30	10.8
TOTAL	277	100

Table 4.3 shows the age categories of the students who took part in the study. Only 30 students (10.8 percent) reported to be above eighteen years of age. The majority of the stduents, 175 (63.2 percent) fell within the 17 - 18 year age category, while 72 students (26 percent) reported to be within 15 - 16 year category. The above findings may form the basis for the suggestion that the majority of form four students in Kakamega district, and in Kenya fall within the age category of seventeen to eighteen years.

4.1.1.1: Findings Pertaining to Students' Performance

Table 4.4: Students Aspirations and Performance

Aspirations / Performance	Low		Average		High	
	Number	Percent	Number	Percent	Number	Percent
Low	60	21.7	71	25.6	46	16.6
High	3	1.1	14	5.1	83	30.0
TOTAL	63	22.8	85	30.7	129	46.6

Table 4.4 shows students performance by students' aspirations. It was found that 60 students (21.7 percent) who had low aspirations performed poorly in K.C.E. examination, 71 students (25.6 percent) had average aspirations and performed poorly in K.C.E. while only 46 students (16.6 percent) who had high aspirations performed poorly in K.C.E. examination. Of the students who performed well in K.C.E. examination, 83 (30.0 percent) had high aspirations, 14 (5.1 percent) had average aspirations while only three students (1.1 percent) with low aspirations performed well in K.C.E. examination. From the above

findings, it was revealed that students with high aspirations have a high probability of performing well academically. Conversely, students who had low aspirations ended up performing poorly in academic subjects. However, a strict cause-effect relationship could not be established.

Table 4.5: Students' Academic Attitudes and Performance

Attitudes / Peformance	Negative		Positive	
	Number	Percent	Number	Percent
Low	99	35.7	78	28.2
High	23	8.3	77	27.8
TOTAL	122	44.0	155	56.0

Table 4.5 shows performance of students by their academic attitudes. It was found out that many students who had negative academic attitudes, 99 (35.7 percent), performed poorly academically and only 23 students (8.3 percent) who had negative academic attitudes performed well in K.C.E. examination. Seventy-eight students

(28.2 percent), with positive attitudes performed poorly in K.C.E. examination while 77 students (27.8 percent) with positive attitudes performed well. From this table, it can be concluded that students with positive attitudes performed better than those who had negative attitudes.

Table 4.6: Performance of Students By School Type

School Type	Mixed		Girls'		Boys'	
Performance	Number	Percent	Number	Percent	Number	Percent
Low	62	22.4	62	22.4	53	19.1
High	33	11.9	14	5.1	53	19.1
TOTAL	95	34.3	76	27.4	106	38.3

Table 4.6 shows performance in K.C.E. examination by school type. Sixty-two students (22.4 percent) from mixed schools, 62 students (22.4 percent) from girls' schools and 53 students (19.1 percent) from boys' schools performed poorly in K.C.E. examination. Among students who performed well, boys' schools had the highest percentage (19.1 percent) followed by

mixed schools with 33 students (11.9 percent) and only 14 students (5.1 percent) from girls' schools performed well. While students performing well and poorly in boys' schools were same in number (53 students in each category) most of the students in mixed and girls' schools performed poorly in this examination.

Table 4.7: Students' Performance By Sex

Sex	Male		Female	
Performance	Number	Percent	Number	Percent
Low	91	32.9	86	31.0
High	77	27.8	23	8.3
TOTAL	168	60.6	109	39.4

Table 4.7 shows students' performance in K.C.E. examination by sex. The table shows that 91 male students (32.9 percent) and 86 female students (31.0 percent) performed poorly in K.C.E. examination. It was found that 77 male students

(27.8 percent) and only 23 female students (8.3 percent) performed well. Girls were overrepresented among the low performance group.

Table 4.8: Students' Performance By Age

Age / Performance	15 - 16 yrs. Number	15 - 16 yrs. Percent	17 - 18 yrs. Number	17 - 18 yrs. Percent	Over 18 yrs. Number	Over 18 yrs. Percent
Low	47	17.0	110	39.7	20	7.2
High	25	9.0	65	23.5	10	3.6
TOTAL	72	26.0	175	63.2	30	10.8

Table 4.8 presented findings on students' performance in K.C.E. examination by age. Among those categorised as low performers, 47 students (17 percent) were below sixteen years old, 110 students (39.7 percent) were between 17 and 18 years old while only 20 students (7.2 percent) were above 18 years old. The greatest percentage among high performers, 65 students, (23.5 percent) were between 17 and 18 years old, 25 students (9.0 percent) were 15 - 16 years old while only

ten (3.6 percent) were above 18 years old. Students who were between 17 and 18 years old were overrepresented in both categories. However, this was because they formed the greatest percentage (63.2 percent) of the total sample. Students above 18 years old performed particularly poorer than the other age categories as only about one-third of them performed well.

4.1.1.2: Findings Pertaining To Students' Academic Attitudes

Table 4.9: Academic Attitudes By Sex of Students

Sex / Attitudes	Male		Female	
	Number	Percent	Number	Percent
Negative	73	26.4	49	17.7
Positive	95	34.3	60	21.7
TOTAL	168	60.6	109	39.4

Students' academic attitudes were analysed in relation to the sex of the student. The findings are presented in Table 4.9. It was found that 73 male

students (26.4 percent) and 49 female students (17.7 percent) had negative academic attitudes while 95 male (34.3 percent) and 60 female students (21.7 percent) had positive academic attitudes. Although more male students had more positive academic attitudes than females, the difference was not significant.

Table 4.10: Students' Academic Attitudes By Academic Aspirations

Aspirations / Attitudes	Low		Average		High	
	Number	Percent	Number	Percent	Number	Percent
Negative	38	13.7	40	14.4	44	15.9
Positive	25	9.0	45	16.2	85	30.7
TOTAL	63	22.7	85	30.7	129	46.6

Table 4.10 shows the anlaysis of students' aspirations. The findings were that among students categorised as having negative academic attitudes, 38 (13.7 percent) had low aspirations, 40 (14.4 percent) had average aspirations and 44 (15.9 percent) had

high aspirations. A greater percentage of students with positive attitudes (85 students, 30.7 percent) had high aspirations, that is, they wanted to attain University education. The relationship between students' academic attitudes and aspirations was significant. Those who had high aspirations also had positive academic attitudes.

Table 4.11: Students' Attitudes By School Type

School Type / Attitudes	Mixed		Girls'		Boys'	
	Number	Percent	Number	Percent	Number	Percent
Negative	42	15.2	37	13.4	43	15.5
Positive	53	19.1	39	14.0	63	22.7
TOTAL	95	34.3	76	27.4	106	38.3

Table 4.11 shows the analysis of students' attitudes by school type. The findings showed that 42 students (15.2 percent) from mixed schools, 37 students (13.4 percent) from girls' schools and 43 students (15.6 percent) from boys' schools had negative attitudes. Fifty-three students

(19.1 percent) from mixed schools, 39 students (14.0 percent) from girls' schools and 63 students (22.7 percent) from boys' schools had positive academic attitudes. The relationship between school type and academic attitudes was, however, not significant.

Table 4.12: Students' Aspirations By School-Type

School Type / Aspirations	Mixed		Girls'		Boys'	
	Number	Percent	Number	Percent	Number	Percent
Low	22	7.9	24	8.7	17	6.1
Average	29	10.5	24	8.7	32	11.6
High	44	15.9	28	10.1	57	20.6
TOTAL	95	34.3	76	27.4	106	38.3

Students' aspirations were analysed by school type. The findings in Table 4.12 show that among students categorised as having low aspirations, 22 students (7.9 percent), 24 students (8.7 percent) and 17 students (6.1 percent) were from mixed, girls' and boys' schools respectively. Twenty-nine

students (10.5 percent) from mixed schools, 24 students (8.7 percent) from girls' schools and 32 students (11.6 percent) from boys' schools were categorised as having average aspirations, while 44 students (15.9 percent) from mixed schools, 28 students (10.1 percent) from girls' schools and 57 students (20.6 percent) from boys' schools were categorised as having high aspirations. However, the relationship between school type and level of aspiration was not significant.

Table 4.13: Students' Aspirations By Sex

Sex / Aspirations	Male		Female	
	Number	Percent	Number	Percent
Low	28	16.7	35	32.1
Average	46	27.4	39	35.8
High	94	55.9	35	32.1
TOTAL	168	100	109	100

Table 4.13 shows data on students' aspirations analysed by Sex. Only 16.7 percent of the male students (28 students) had low aspirations as compared to about a third of the female students (32.1 percent). A bigger percentage of the girls (35.8 percent) as compared to male students (27.4 percent) were in the average aspirations category. However, more than half of the male students (55.9 percent) had high aspirations as compared to only 32.1 percent of the female students. The relationship between sex and aspirations was significant. Male students had higher aspirations than female students.

4.1.2: Data Pertaining to Teachers' Responses

Data on teachers' responses were presented in two sections. Tables 4.14a to 4.14g presented data on teachers personal and professional characteristics. Tables 4.15 to 4.17 presented data pertaining to teachers' comparison of male and female students.

4.1.2.1: Data on Teachers' Personal and Professional Characteristics

Table 4.14a: Teacher Respondents by Type of School

Type of School	Number	Percent
Mixed	16	39.0
Girls'	11	26.8
Boys'	14	34.2

Table 4.14a shows teachers distribution by type of school. Of the 41 teachers who took part in the study, 39 percent were from mixed schools, 26.8 percent from girls' schools and 34.2 percent from boys' schools.

Table 4.14b: Sex of Teacher Respondents

Sex	Number	Percent
Male	28	68.3
Female	13	31.7
TOTAL	41	100

Table 4.14b shows teachers' distribution by sex. More than two-thirds (68.3 percent) were male while only 31.7 percent were female.

Table 4.14c: Age of Teacher Respondents

Age	Number	Percent
Below 20 years	0	0
20 - 29 years	22	53.7
30 - 39 years	15	36.6
40 and above	4	9.7
TOTAL	41	100

The teachers were asked about their age. The findings are presented in Table 4.14c. None of the teachers reported to be below 20 years old. The majority of teachers (53.7 percent) were young adults between 20 and 29 years old. Fifteen teachers (36.6 percent) were between 30 and 39 years old and only four teachers (9.7 percent) reported to be 40 years old and above.

Table 4.14d: Attendance of Post-graduate Course

Attended	Number	Percent
Yes	19	46.3
No	22	53.7
TOTAL	41	100

Teachers were asked if they had undertaken any post-graduate course. The responses are tabulated in Table 4.14d. More than half the teachers (53.7 percent) reported in the negative, while 19 teachers (46.3 percent) reported to have attended courses. All the teachers who indicated having taken a course reported undergoing an examiners course with the Kenya National Examinations

Council in their various teaching subjects. To the researcher, this was not a post-graduate course.

Table 4.14e: Teachers' Professional Status

Status	Number	Percent
Untrained	10	24.4
S_1/Diploma	20	48.8
Approved	0	0
Graduate U.T.	3	7.3
Graduate	8	19.5
TOTAL	41	100

Teachers were asked about their professional status. The findings are presented in Table 4.14e. Ten (24.4 percent) reported that they were untrained form six leavers, 48.8 percent were S_1 or Diploma of Education holders. Three teachers (7.3 percent) were untrained graduates, that is, those holding general bachelors degrees without education. Eight teachers (19.5 percent) were graduates with University degrees in education. The number of untrained teachers was particularly

high in one mixed school where they composed of almost half the group of untrained teachers. Most of these were previous year's 'A' level students awaiting admission to University.

Table 4.14f: Teachers' Experience

Experience	Number	Percent
Less than one year	7	17.1
1 - 5 years	16	39.0
6 - 10 years	11	26.8
11 years and above	7	17.1
TOTAL	41	100

Table 4.14f shows teachers responses about their experience as rated by number of teaching years. Seven teachers (17.1 percent) reported to have less than one year teaching experience. Most of these were 'A' level leavers. Sixteen (39.0 percent) reported to have 1-5 years teaching experience. The majority of this group were Diploma holders from the Colleges opened within the past few years. Eleven teachers (26.8 percent)

had between 6-10 years teaching experience. Only 17.1 percent of the teachers had taught for 11 years and above.

Table 4.14g: Teachers Responses on Availability of Resource Materials

Adequacy	Number	Percent
Inadequate	34	82.9
Average	0	0
Adequate	7	17.1
TOTAL	41	100

Teachers were asked about the availability of adequate resource materials. Their responses were presented in Table 4.14g. Most teachers (82.9 percent) reported that resource materials were either inadequate or completely unavailable in their subject areas. Science teachers indicated that there were no laboratories. The few who indicated that their schools had laboratories complained that they were poorly equipped and

Science teaching facilities were inadequate. Science teachers also indicated that the syllabi were wide and could not be effectively covered given the time allocated. Teachers of arts subjects mainly reported lack of textbooks both for their reference and students' use. They also reported having large unmanageable classes.

All teachers suggested that the Ministry of Education should take up the task of providing equipment to schools to ensure uniformity.

Only 7 teachers (17.1 percent) reported availability of adequate resource materials in their teaching subjects.

4.1.2.2: Findings on Comparison of Boys and Girls By Teachers

Table 4.15 shows a summary of the findings on comparison of boys and girls as rated by teachers.

Table 4.15: Teachers' Responses on The Comparison of Boys and Girls in Class Performance, K.C.E. Performance, Interest in Academics, Work Attitudes and Academic Aspirations.

	Class Performance		K.C.E. Performance		Interest in Academic Work		Attitudes		Aspirations	
	Number	%	Number	%	Number	%	Number	%	Number	%
Girls better than boys	4	12.9	1	3.2	3	9.7	5	16.1	5	16.1
Girls equal to boys	7	22.5	9	29.0	3	9.7	2	6.5	4	12.9
Girls below boys	20	64.5	21	67.8	25	80.6	24	77.4	22	71.0
	31	100	31	100	31	100	31	100	31	100

In class performance, 12.9 percent of the teachers rated girls as better than boys, 22.6 percent indicated boys and girls performed equally well. Most of the teachers (64.5 percent) however, felt girls performed much below boys in class.

Only one teacher (3.2 percent) rated girls as better than boys in K.C.E. performance, nine teachers (29.0 percent) rated girls as equal to boys while more than two-thirds rated girls as performing poorer than boys in K.C.E. examination.

Table 4.15 also shows that only three teachers (9.7 percent) rated girls as having more interest in academic work and equal to boys in interest respectively. Twenty-five teachers (80.6 percent) felt girls has lower interest in academic work than boys.

In academic attitudes, five teachers (16.1 percent) rated girls as having more positive attitudes than boys. Two teachers (6.5 percent) indicated that girls and boys had similar academic attitudes while most of the teachers (77.4 percent) rated boys as having more positive academic attitudes than girls.

Five teachers (16.1 percent) rated girls as having higher academic aspirations than boys, four teachers (12.9 percent) indicated that both boys and girls has similar academic aspirations while 71 percent of the teachers rated boys as having higher academic aspirations than girls.

From table 4.15, it was found that, on average, more than two-thirds of the teachers rated boys as better than girls on all the five variables, that is, class performance, K.C.E. performance, interest in academic work, academic attitudes and academic aspirations.

Table 4.16: Teachers Recommendation on Sex Composition in Secondary Schools

Recommendation	Number	Percent
Single-Sex Schools	17	54.8
Mixed Schools	14	45.2
TOTAL	31	100

Teachers were asked which school-type they would recommend. Their responses were tabulated and presented in Table 4.16. Seventeen teachers (54.8 percent) said they would recommend single-sex secondary schools. Among the reasons advanced were that in single sex schools students become more responsive to education and there is more concentration in academic work on the part of the students. The teachers also indicated that there are fewer discipline-related problems in single-sex schools unlike in mixed schools where students are pre-occupied with unacademic affairs. Fourteen (45.2 percent) of the teachers indicated they would recommend mixed schools because they are reflective of real life situations and are to prepare students for future mutual co-existence. They also indicated that in mixed schools, there is active participation and competition by both sexes thereby leading to improved performance.

4.1.3: Findings From Careers and Counselling Masters' Responses

Tables 4.17a to 4.17f show findings from the careers and counselling masters' questionnaire. A total of six teachers took part, one from each school.

Table 4.17a: Sex of Careers and Counselling Masters

Sex	Number	Percent
Male	4	66.7
Female	2	33.3
TOTAL	6	100

Table 4.17a shows the distribution by sex of which 66.7 percent were male while 33.3 percent were female.

Table 4.17b: Careers and Counselling Masters By Age

Age	Number	Percent
20 - 29 years	2	33.3
30 - 39 years	3	50
40 years and above	1	16.7
TOTAL	6	100

The careers guidance and counselling masters were asked to indicate their age. The findings were presented in Table 4.17b. Two teachers (33.3 percent) were between 20 and 29 years old. Half the teachers (50 percent) were between 30 and 39 years old while one (16.7 percent) was 40 years old or above.

Table 4.17c: Careers and Counselling Masters By Professional Status

Professional Status	Number	Percent
Untrained	0	0
S_1/Diploma	2	33.3
Approved	1	16.7
Graduate U.T.	1	16.7
Graduate	2	33.3
TOTAL	6	100

Careers and Counselling Masters were also asked to state their professional status, (Table 4.17c). Two teachers (33.3 percent) were S_1 or Diploma holders, one (16.7 percent) was an approved

teacher, one (16.7 percent) was a graduate untrained teacher, that is, had a University degree but was not professionally trained, and two (33.3 percent) were graduates. None of them indicated to be untrained form six leavers.

Table 4.17d: Careers and Counselling Masters By Their Qualification in Careers and Counselling

Course Attended	Number	Percent
Yes	2	33.3
No	4	66.7
TOTAL	6	100

The teachers were asked to indicate whether they had any qualifications in careers and counselling (Table 4.17d). Two teachers (33.3 percent) responded in the affirmative. They indicated they had taken the course just as a unit during their training. Four teachers (66.7 percent) had no qualifications in careers and counselling.

Table 4.17e: Teachers' Experience in Careers and Counselling

Experience	Number	Percent
Less than one year	0	0
1 - 5 years	5	83.3
6 - 10 years	1	16.7
11 years and above	0	0

Table 4.17e shows the teachers' experience, as shown by number of years, in careers and counselling. Five teachers (83.3 percent) had between 1-5 years' experience and only one (16.7 percent) had between 6-10 years' experience. None indicated to have less than one year or 11 years and more.

Table 4.17f: Careers and Counselling Masters on Whether Students had Clear Career Information

	Number	Percent
Yes	2	33.3
No	3	50.0
Not sure	1	16.7
TOTAL	6	100

The teachers were requested to indicate whether the form four students had full information about career opportunities and their related fields of study (Table 4.17f). Half the teachers (50 percent) responded in the negative while 33.3 percent responded in the affirmative. One Master (16.7 percent) indicated not sure. This master had been in that school for less than six months although he had experience from other schools.

All the teachers indicated that careers and counselling had been allocated no formal time in the school routine and any sessions were held either at any free available time, including at night or was done by private arrangement between individual students and the teacher. The careers and counselling masters, therefore, held some kind of a ceremonial position in the school as they indicated making no effort to reach the students.

The teachers, however, felt that careers and counselling services can be improved in schools if the following recommendations were met. First, careers guidance and counselling should be allocated time on the regular school time-table. Second, personnel should be trained by organising courses and workshops during the school holidays. Third, all teachers and parents should be involved in guiding and counselling students instead of leaving the exercise to the masters alone.

In the preceding sections of this chapter the basic data of this study were descriptively analysed and presented in form of tables. The following sections, therefore, will dwell on analysis of data pertaining to the hypotheses formulated for this study.

4.2.0: Findings From Statistical Data Analysis.

Introduction.

The basic data of this study were described in the first section of this chapter above. The intent of this section is to present the findings from the students' sample data in relation to the hypotheses formulated for this study. Three statistical techniques were used to test the hypotheses. These were:

(a) The Pearson Product-Moment correlation coefficient to test null hypothesis which stated "no relationship" between variables.

(b) The analysis of Variance (ANOVA) to test hypotheses which stated "no difference" between variables.

(c) The Stepwise Multiple regression analysis was used to assess the effect of independent variables on the dependent variable.

The findings from the analyses are presented below, in different sub-sections.

In all the sub-sections, the null hypothesis was stated first. Second, the findings from the analysis were presented, and last, the interpretations arising from the findings were made.

4.2.1: Hypotheses Stating no Relationship Between Variables.

These hypotheses were tested by the Pearson's Product-Moment correlation coefficient.

HO1(a): There is no relationship between performance in K.C.E. examination and students' academic aspirations.

Data pertaining to the above hypothesis were correlated and a correlation coefficient of 0.529 was found between performance in K.C.E. examination and the academic aspirations of the student, (Table 4.18). The null hypothesis stating no relationship between academic aspirations and performance in K.C.E. examination was rejected. The findings formed the basis for the suggestion that students' academic aspirations are related to performance in K.C.E. examination. Students who had high aspirations would be favoured in terms of performing well in the K.C.E. examination.

HO1(b): There is no relationship between performance in K.C.E. examination and students' academic attitudes.

Data pertaining to the above hypothesis were correlated and a correlation coefficient of 0.318 was found between performance in K.C.E. examiantion and students' academic attitudes (Table 4.18). The null hypothesis stating no relationship between performance in K.C.E. and students' academic attitudes was rejected. From the results, it would appear that students with positive academic attitudes would be the ones who would score better in K.C.E. examination than those having negative academic attitudes.

HO1(c): There is no relationship between performance in K.C.E. and Sex of the student.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. A correlation coefficient of 0.251 was found between performance in K.C.E. examination and the Sex of the student. The null hypothesis stating no relationship between performance in K.C.E. examination and Sex of student was, therefore, rejected. Boys were found to perform better than girls in the K.C.E. examination.

HO1(d): There is no relationship between performance in K.C.E. examination and school type, that is, mixed, boys' or girls' schools.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. A correlation coefficient of 0.141 was found between performance in K.CE. examination and school type. The null hypotheses HO1(d) was therefore rejected. Boys' schools were found to perform better than the other two school types in K.C.E. examination.

HO1(e): There is no relationship between performance in K.C.E. examination and age of student.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. A correlation coefficient of 0.002 was found between performance in K.C.E. examination and age of the student. This relationship was however, not significant. Therefore hypothesis HO1(e) was not rejected.

HO1(f): There is no relationship between performance in K.C.E. examination and the level of education reached by the Mother of the student.

Table 4.18: Correlation Between Independent Variables and the Dependent Variable, Performance.

INDEPENDENT VARIABLE	CORRELATION COEFFICIENT	t'calculated	Remark
Aspirations	0.529	10.344	S
Attitudes	0.318	5.574	S
Sex	-0.251	-4.310	S
Mother's Education	0.080	1.340	S
Mother's Occupation	0.028	0.465	N.S.
Father's Occupation	0.015	0.248	N.S.
Father's Education	0.048	0.804	N.S.
School Type	0.141	2.372	S
Age	0.002	0.033	N.S.

NOTE: N.S. - Not Significant

S - Significant

$P < 0.05$

Degrees of Freedom: N - 2

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. A correlation coefficient of 0.08 was found between the variables. Hypothesis HO1(f) was, on the basis of the findings, rejected. From the findings, it would appear that students whose mothers attained secondary education and above, would perform better in K.C.E. examination than those whose mothers had little or no education at all.

HO1(g): There is no relationship between performance in K.C.E. examination and the occupation of the students' mothers.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. A correlation coefficient of 0.028 was found between the Variables. The relationship was not, however, significant and hypothesis HO1(g) was not rejected.

HO1(h): There is no relationship between performance in K.C.E. examination and the level of education reached by father of the student.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. The coefficient of 0.048 was not significant and HO1(h) was not rejected. The relationship between father's education and performance in K.C.E. examination was not significant.

HO1(i): There is no relationship between performance in K.C.E. examination and the occupation of the students' fathers.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.18. No significant relationship was established between performance and fathers' occupation. Hypothesis HO1(i) was, therefore, not rejected.

HO2(a): There is no relationship between academic aspirations of a student and his/her academic attitudes.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.19. A correlation coefficient of 0.210 showed a significant relationship between the variables. The null hypothesis HO2(a) was rejected. There was a significant positive

relationship between students' academic aspirations and academic attitudes.

H02(b): There is no relationship between the academic aspirations of a student and his/her sex.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.19. A correlation coefficient of 0.240 was found between the variables. Hypothesis H02(b) was therefore rejected. Male students had significantly higher academic aspirations than girls.

H02(c): There is no relationship between the academic aspirations of a student and his/her school-type.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.19. A correlation coefficient of 0.081 was found between the variables. The relationship was significant and the null hypothesis H02(c) was rejected.

Table 4.19: Correlation Matrix Showing Relationships Between Variables.

Variable	V19	V17	V16	V4	V7	V11	V10	V6	V3	V5
V19 Performance	1.000									
V17 Aspirations	0.529	1.000								
V16 Attitudes	0.318	0.210	1.000							
V4 Sex	0.251	0.240	0.015	1.000						
V7 Mother's Educ.	0.081	0.002	0.055	0.049	1.000					
V11 Mother's Occupation	0.028	0.019	0.011	0.048	0.529	1.000				
V10 Father's Occupation	0.015	0.047	0.022	0.015	0.431	0.379	1.000			
V6 Father's Education	0.048	0.039	0.035	0.082	0.626	0.328	0.457	1.000		
V3 School-Type	0.141	0.081	0.033	0.324	0.069	0.107	0.091	0.068	1.000	
V5 Age	0.002	0.061	0.043	0.056	0.175	0.194	0.069	0.083	0.070	1.000

H02(d): There is no relationship between the academic aspirations of a student and his/her age.

Data pertaining to hypothesis H02(d) above were correlated and the findings presented in Table 4.19. There was no significant relationship between the academic aspirations of a student and his/her age. Hypothesis H02(d) was, therefore, not rejected.

H03(a): There is no relationship between students' academic attitudes and their sex.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.19. The relationship between students' academic attitudes and Sex was not significant. Hypothesis H03 (a) was, therefore, not rejected.

H03(b): There is no relationship between students' academic attitudes and school-type.

Data pertaining to hypothesis H03(b) were correlated and the findings presented in Table 4.19. The relationship between academic attitudes and school-type was not significant. Hypothesis H03 (b) was therefore, not rejected.

HO3(c): There is no relationship between students' academic attitudes and their age.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 4.19. No significant relationship was established between academic attitudes and age. Therefore, hypothesis HO3(c) was not rejected.

4.2.2: Hypotheses Stating No Difference in Performance

Hypotheses which sought to establish whether differences exist between variables were tested by the analysis of variance (ANOVA).

HO4(a): There is no difference in performance in K.C.E. examination between students with different academic aspirations.

Table 4.20: Students' Academic Aspirations By Their Performance in K.C.E. Examination.

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	17.90	1	17.90	
Within	45.99	275	0.16	107.01
TOTAL	63.89			

F_c* (1;275) P < 0.05 = 3.84.
d.f. degrees of freedom.

Data pertaining to hypothesis H04 (a) were subjected to the analysis of variance and F-test and the findings presented in Table 4.20. The findings show that the difference in performance between students with different academic aspirations was significant. Students who had higher academic aspirations performed better than those with low aspirations. The hypothesis H04 (a) was rejected.

H04(b): There is no difference in performance in K.C.E. examination between students with different academic attitudes.

Table 4.21: Students Academic Attitudes By Their Performance in K.C.E. Examination.

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	20.77	2	10.386	
Within	43.12	274	0.157	65.99
TOTAL	63.89			

F_C (2;274) $P < 0.05$ = 3.00

*F_c is the criterion value of F.

Data pertaining to the above hypothesis were tested by analysis of variance and F-test.
The results shown in Table 4.21 revealed significant difference in K.C.E. performance between students with different academic attitudes. Students who had positive attitudes performed better in K.C.E. than those with negative attitudes. Hypothesis H04(b) was therefore rejected.

H04(c): There is no difference in K.C.E. performance between boys and girls (Sex).

Table 4.22: Students' Performance in K.C.E. By Sex

Source Variation	Sum of Squares	d.f.	Mean Square	F
Between	21.95	3	7.31	
Within	41.94	273	0.15	47.64

F_c (3;273) $P<0.05 = 2.60$

Data pertaining to the above hypothesis were analysed by analysis of variance and F-test and results presented in Table 4.22. The results revealed significant difference in performance in K.C.E. examination between boys and girls. Boys performed significantly better than girls. The null hypothesis H04(c) was therefore rejected in favour of boys.

H04(d): There is no difference in performance in K.C.E. examination between students whose mothers attained different levels of education.

Table 4.23: Students' Performance in K.C.E. Examination By Their Mothers' Education

Source of Variation	Sum of Square	d.f.	Mean Square	F
Between	22.58	4	5.64	
Within	41.31	272	0.51	37.17
TOTAL	63.89			

F_c (4;272) $P < 0.05 = 2.45$

Data pertaining to hypothesis H04(d) were analysed by analysis of variance and F-test and the findings presented in Table 4.23. The results revealed significant differences in K.C.E. examination performance between students whose mothers attained different levels of education. Hypothesis H04(d) was therefore rejected in favour of students who had educated mothers.

H04(e): There is no difference in performance in K.C.E. examination between students whose mothers have different occupations.

Table 4.24: Students' Performance in K.C.E. Examination By Their Mothers' Occupation

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	23.52	6	3.92	
Within	40.37	270	0.14	26.21
TOTAL	63.89			

F_c (6;270) $P < 0.05 = 2.18$

Data pertaining to hypothesis H04(e) were analysed by analysis of Variance and F-test and the findings presented in Table 4.24. The results revealed differences in performance in K.C.E. examination between students whose mothers were involved in different occupations. Hypothesis H04(e) was rejected in favour of students whose mothers were

engaged in some regular income earning activity.

H04(f): There is no difference in performance in K.C.E. examination between students whose fathers attained different levels of education.

Table 4.25: Students' Performance in K.C.E. Examination By Fathers' Education

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	24.05	8	3.006	
Within	39.84	268	0.148	20.22
TOTAL	63.89			

F_c (8;268) $P < 0.05 = 2.02$

Data pertaining to hypothesis H04(f) were analysed by the analysis of Variance and F-test and the findings presented in Table 4.25. The results revealed that there is a difference in performance between students whose fathers attained different

levels of education. Hypothesis H04(f) was, on the basis of these findings, rejected in favour of students with educated fathers.

H04(g): There is no difference in performance in K.C.E. examination between students whose fathers have different occupations.

Table 4.26: Students' Performance in K.C.E. By Their Fathers' Occupation

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	23.74	7	3.39	
Within	40.15	269	0.149	22.72

F_c (7;269) $P < 0.05 = 2.09$

Data pertaining to the above hypothesis were subjected to the analysis of Variance and F-test and the findings presented in Table 4.26. The results revealed that there is a difference in performance between students whose fathers have different

occupations. Hypothesis H04(g) was therefore, rejected in favour of students with working fathers.

H04(h): There is no difference in performance in K.C.E. examination between school-types.

Table 4.27: Students' Performance in K.C.E. Examination By School-Type

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	24.31	11	2.21	
Within	39.58	265	0.149	14.79
TOTAL	63.89			

F_c (11;265) $P < 0.05 = 1.96$

Data pertaining to the above hypothesis were subjected to the analysis of Variance and F-test and the findings presented in Table 4.27. The results revealed that there is a difference in performance between school-types. Hypothesis H04(h) was

therefore, rejected in favour of boys' schools. When the schools were dichotomised into mixed and single sex, the latter were found to perform better than the former in K.C.E. examination.

HO4(i): There is no difference in performance in K.C.E. examination between students in different age categories.

Table 4.28: Students' Performance in K.C.E. Examination By Age

Source of Variation	Sum of Squares	d.f.	Mean Square	F
Between	24.37	12	2.03	
Within	39.52	264	0.149	13.56

F_c (12;264) $P < 0.05 = 1.96$

Data pertaining to the above hypothesis were subjected to the analysis of Variance and F-test and the findings presented in Table 4.28. The results revealed that there is a difference in performance in K.C.E. examination between students in different

age categories. Older students were found to perform better than younger students. Hypothesis H04(i) was therefore rejected.

All the hypotheses in this section (4.2.2) were rejected. Differences were found between the variables in the hypotheses.

4.2.3: Findings From The Stepwise Multiple Regression Analysis

The Stepwise Multiple Regression analysis was used to evaluate the cummulative effect of independent variables on the dependent variable, performance in K.C.E. examination. Table 4.29 shows the findings from the stepwise multiple regression analysis. The variables in Table 4.29 were entered in order of strength, an automatic technique in the stepwise multiple regression computer programme.

In Table 4.29, simple - r is the bivariate correlation coefficient between each independent variable and the dependent variable.

Multiple-R is the multiple correlation coefficient between independent variables and the dependent variable. The Multiple-R value increases at every

Table 4.29: Summary Table of the Findings From Stepwise Multiple Regression Analysis Between Independent Variables and the Dependent Variable Performance.

Step Number	Variable Name	Simple-r	Multiple-R	R-Sq.Change	Beta	F
1	Aspirations	0.529	0.529	0.28041	0.447	68.477
2	Attitudes	0.318	0.570	0.04497	0.217	17.930
3	Sex	-0.251	0.586	0.01852	-0.153	7.860
4	Mothers' Education	0.080	0.594	0.00988	0.123	2.984
5	Mothers' Occupation	0.028	0.606	0.00650	0.217	4.183
6	Fathers' Occupation	0.015	0.609	0.00346	-0.110	1.788
7	Fathers' Education	0.048	0.613	0.00488	0.084	1.506
8	School Type	0.141	0.617	0.00073	-0.107	0.339
9	Age	0.002	0.618	0.00088	0.034	0.435
	Constant				-0.22365	

subsequent step. The independent variables in the regression equation had a multiple correlation of 0.618 with the dependent variable. When the multiple correlation coefficient was tested for statistical significance by the t'test, it was found to be significantly different from zero. This finding forms the basis for the suggestion that the independent variables in the regression equation were significantly related to performance in K.C.E. examination.

R-Square change (Table 4.29) represents the proportion of variation explained by the variables in the equation. In total, the independent variables in the regression equation accounted for 38.284 percent of the variation in performance in K.C.E. examination.

Resume:

Chapter four was concerned with data analysis, presentation of findings and interpretation. This chapter was divided into two parts. In the first part, the basic data of this study were descriptively analysed and presented in Tables. In part two, the data were statistically analysed in relation to the hypotheses formulated for this study. Three techniques were used in this analysis, namely, the Pearson's

product-moment correlation, the analysis of Variance and the Stepwise Multiple regression analysis.

Summary of the study, conclusions and recommendations will be done in chapter five below.

CHAPTER FIVE

SUMMARY OF THE STUDY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In chapter four, the data collected for this study were analysed and the findings presented. In this chapter, summary of the study, conclusions and recommendations will be presented. This will be done in three main sections. First, a summary of the objectives of this study will be done. Second, a summary of the findings of this study in relation to the hypotheses formulated will be presented. Finally, recommendations for further research as well as for educational policy and practice will be presented based on the issues raised by this study.

5.1.0 Summary of The Study

This section is discussed in two parts. The first part will deal with a summary of the objectives of this study. The second part will focus on a summary of findings in relation to the hypotheses formulated for this study.

5.1.1: Objectives of The Study

The main objective of this study was to investigate whether relationships exist between performance in K.C.E. examination and:-

(a) Students' academic aspirations

(b) Students' academic attitudes

(c) Sex

(d) School-type (whether mixed, girls' or boys' schools).

(e) Age

(f) Parental education and occupation.

The study further sought to investigate whether there are differences in performance in K.C.E. examination between students with different:-

(a) Academic aspirations

(b) Academic attitudes

(c) Sex

(d) School-type

(e) Age

(f) Parental education and occupation.

To achieve the above objectives, guiding hypotheses were formulated for testing (See Chapter 1 Section 1.2).

5.1.2: Summary of Findings Pertaining to The Hypotheses Formulated.

Two types of hypotheses were formulated for this study, namely, hypotheses on relationships and hypotheses on differences.

5.1.2.1: Hypotheses of Significant Relationships

Hypothesis (HO1(a): There was a significant positive relationship between performance in K.C.E. examination and students' academic aspirations. Students who had high academic aspirations performed better in K.C.E. than students with low academic aspirations. This finding supports studies done by Pidgeon[1] and Evans[2].

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1. D.A. Pidgeon, op. cit.

2. K.M. Evans, op. cit.

Hypothesis HO1(b): There was a significant positive relationship between performance in K.C.E. examination and students' academic attitudes. Students with positive academic attitudes performed better in K.C.E. examination than students who had negative academic attitudes.

Hypothesis HO1(c): There was a significant relationship between performance in K.C.E. examination and sex of student. This finding supports studies done by Thuo[3] and Maritim[4] and Hoult[5].

Hypothesis HO1(d): There was a statistically significant relationship between performance in K.C.E. examination and school-type.

Hypothesis HO1(f): There was a significant relationship between performance in K.C.E. examination and the level of education reached by the students' mothers.

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3. D.M. Thuo, op. cit.

4. E.K. Maritim, op. cit.

5. P.M. Hoult, op. cit.

Hypothesis HO2(a): There was a significant relationship between students academic aspirations and academic attitudes. Students who had high academic aspirations also had positive academic attitudes.

Hypothesis HO2(b): There was a significant relationship between academic aspirations and sex. Male students had, on the average, higher academic aspirations than female students.

Hypothesis HO2(c): There was a significant relationship between academic aspirations and school type. Students in boys' schools had higher aspirations than students in either girls' or mixed schools. The relationship was still significant even after the schools were dichotomised into mixed and single-sex schools.

5.1.2.2: Hypotheses of No Significant Relationships

Hypothesis HO1(e): There was no relationship between performance in K.C.E. examination and age of student.

Hypothesis HO1(g): There was no relationship between performance in K.C.E. examination and the occupation of students' mothers.

Hypotheses HO1(h) and (i): No significant relationships were discerned between students' performance in K.C.E. and fathers' education and occupation.

Hypothesis HO2(d): No relationship was established between students' academic aspirations and their age. No age category of students had significantly higher aspirations than other age categories.

Hypothesis HO3(a): There was no relationship between students' academic attitudes and sex. This finding supports a study done by Thuo[6] and forms basis for the suggestion that no sex has more positive academic attitudes than another.

Hypothesis HO3(b): There was no relationship between students academic attitudes and school-type. This finding forms the basis for the

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6. D.M. Thuo, op. cit.

conclusion that the academic attitudes students hold are not related to the school-type of the student.

5.1.2.3: Hypotheses of No Significant Differences

All the hypotheses on differences in performance in K.C.E. examination were rejected. This means differences in performance were found to exist as will be shown below.

Hypothesis H04(a): There was a significant difference in performance in K.C.E. examination between students with different academic aspirations. Students who had high academic aspirations performed better than those who had low academic aspriations. This finding supports the study by Somerset[7].

Hypothesis H04(b): There was a significant difference in performance in K.C.E. examination between students who had different academic attitudes. This difference was in favour of students who had positive academic attitudes. Students who had positive academic attitudes performed better than those with negative academic

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7. H.C.A. Somerset, op. cit.

attitudes. This finding supports studies by Evans[8], Hoult[9] and Dale[10], and forms basis for the conclusion that students who have positive academic attitudes perform better in examinations.

Hypothesis H04(c): There was a significant difference in performance in K.C.E. examination between girls and boys. This difference was in favour of boys, who performed better than girls. This finding supports studies by Sutherland[11] and Dale[12] but does not support the study by Thuo[13] which found girls to be superior to boys.

Hypotheses H04 (d) and (f): There were significant differences in performance in K.C.E. examination between students whose parents reached different levels of education. Students whose parents had reached secondary school level and above performed better than those whose parents had little or no education at all.

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8. K.M. Evans, op. cit.
9. P.M. Hoult, op. cit.
10. R.R. Dale, op. cit.
11. M.B. Sutherland, op. cit.
12. R.R. Dale, op. cit.
13. D.M. Thuo, op. cit.

Hypothesis H04 (h): There were significant differences in performance in K.C.E. examination between school-types. Boys' schools performed better followed by girls' and mixed schools in that order. However, this difference may have been amplified by differences in performance by sex (Hypothesis H04 (c) above). When the schools were classified as single sex and mixed, the former were found to perform better than the latter in K.C.E. examination. This finding does not support the study by Thuo[14] which found girls' schools performing better than boys' and mixed schools.

Hypothesis H04 (i): There was a difference in performance between students in different age categories. Students who were between 17 - 18 years of age performed better than both younger and older students.

Among hypotheses on relationship, hypotheses H01 (a) - (d), (f) and H02 (a) - (c) were rejected. This means statistically significant relationships were found between the variables. Hypotheses

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14. Ibid.

HO1 (e), (g), (h), (i); HO2 (d) and HO3 (a) - (c) were not rejected. No significant relationships were found between the variables.

All hypotheses on differences in performance in K.C.E. examination were rejected. Statistically significant differences were found between the variables.

So far, a summary of this study has been presented. First, the objectives were summarised followed by a summary of findings pertaining to the hypotheses formulated for this study. Finally, as a conclusion to this study, the section below concerns itself with recommendations for further research as well as for educational policy and practice in Kenya based on the findings and limitations of the present study.

5.2.0: Recommendations Based on The Findings of This Study

The recommendations of this study are presented in two, but closely related sub-sections. First, recommendations for further research are made, based on the findings of, and limitations of this

study. Second, recommendations for educational policy and practice in Kenya, are made in relation to the issues raised by this study.

5.2.1: Recommendations For Further Research

This study should not be seen as conclusive and the findings as applicable to different spatial-temporal aspects from the one covered. Therefore:

(i) Research of similar nature is recommended in all regions of the country so as to come up with integrated findings that can be generalised to apply to the whole country.

(ii) Similar research is recommended at various stages of Kenya's educational system in order to conclusively establish the role of the variables in this study in affecting students' performance in national examinations.

(iii) Research is recommended into other school factors that may affect performance of students in examinations. The research

should cover such areas as school organisation and administrative procedures, availability of teaching and learning resources in form of textbooks, laboratories and workshops; teacher qualification and training, teacher remuneration and dedication to their work as educators, teacher supervision and inspection, and teaching methods in use in our schools.

(iv) Research is also recommended into out of school factors that are likely to affect students' performance in school. Such factors as parental education and occupation, parental support in form of provision of collateral learning materials, and encouragement should be investigated for effects on students' performance in examiantions.

5.2.2: Recommendations For Policy and Practice

(i) This study found statistically significant relationships between performance in K.C.E. examination and students' academic aspirations, academic attitudes, sex and school-type. The relationships

were, to a greater extent, in favour of boys. These findings form the basis for the recommendation that, at all stages, extra attention should be paid to girls. The attention should be in form of provision of adequate and appropriate teaching and learning materials. In mixed schools, more attention should be paid to girls to enable them improve on their performance.

(ii) This study also revealed that single-sex schools perform better in K.C.E. examination than mixed schools (Hypotheses H04 (c) and (h). This finding forms the basis for the recommendation that ideally, students should attend single-sex secondary schools. However, available resources may not allow for exclusive single-sex schools. Therefore students should be encouraged to work together. More so, girls should be made to see that they are equally capable of doing what boys can do.

(iii) To the society, it is recommended that the widely held belief about female inferiority should be discarded and more avenues opened for advancement of women both in school and out of school. This, it is hoped, will serve as an incentive to women to develop more positive attitudes towards education.

(iv) Teachers rated the availability of facilities as the most important (non-student) aspect that affects performance in examinations. Therefore, the Ministry of Education should take over wholly the provision of learning facilities and relevant textbooks. The Ministry of Education should also decentralise the inspectorate to the districts to ensure that there is a near uniformity in facilities in all secondary schools.

(v) To parents, it is the recommendation of this study that they should take the education of their daughters with the same dedication and seriousness as

they do their Sons'. Parental bias would only militate against the education of girls.

The limitations of this study notwithstanding, it should be seen as an attempt to build up information that could be very useful to those concerned with the formulation and implementation of educational policy.

P.W. MUKONYI,
KENYATTA UNIVERSITY,

1987.

BIBLIOGRAPHY

Acker, S. and Pipper, P. (ed.) Is Higher Education Fair to Women? London: National Foundation for Educational Research, 1984.

Banks, O. The Sociology of Education. 2nd Edition. London: B.T. Batsford Ltd., 1976.

Blumer, H. "Society as Symbolic Interaction" in Rose, A.M. (ed). Human Behaviour and Social Processes. London: Routledge and Kegan Paul, 1962.

_____, "Sociological Implications of the Thought of G.H. Mead"., in Wallace, W.W. (ed.), Sociological Theory: An Introduction. London: Heinemann; 1969.

_____, "Symbolic Interaction" in Encyclopaedia For Social Sciences. Vols. 7 & 8. London: Collier-MacMillan Ltd., 1968.

Bogonko, S.N. "The Initial Problems of Kakamega, Kagumo and Kisii Schools, 1930-1940". Kenyatta University; Department of Educational Foundations Staff Seminar Paper, October 29, 1986.

_____, "Missionary responses to African Pursuits for Intellectual Education in Kenya, 1920-1934". Kenyatta University, Department of History Staff Seminar Paper, May 9, 1984.

_____, Africans and their Politics of Education in Kenya, 1910-1934". Journal of East African Studies and Development. Vol. 14, 1984.

Borg, W.R. and Gall, M.D. Educational Research: An Introduction. 4th Ed. New York: Longman Inc., 1983.

Bruckman, I.R. The Relationship Between Achievement Motivation, Sex, Age and Social Class. New York: Eaglewood, 1966.

Chadwirck, B.A. et. al. Social Science Research Methods. New Jersey: Prentice Hall Inc., 1984.

Cooksey, B. "Social Class and Academic Performance: A Cameroon Case Study". Comparative Education Review. Vol. 25, No. 3, 1981.

Coser, L. and Rosenberg, B. (ed.) Sociological Theory: A Book of Readings. New York: MacMillan, 1969.

Crites, J.O. Vocational Psychology. New York: MacGraw-Hill, 1969.

Court, D. and Ghai, D. (ed.) Education, Society and Development: New Perspectives From Kenya. Nairobi: Oxford University Press, 1974.

_____and Kinyanjui, K. "Education and Development in Sub-Saharan Africa: The Operation and Impact of Education Systems". University of Nairobi; Institute for Development Studies, Working Paper 421, March 1985.

_____, Development Policy and Educational Opportunity: The Experience of Kenya and Tanzania. Paris: Provisional Text Publishers, 1978.

Dale, R.R. Mixed or Single-Sex Schools? Attainment, Attitudes and Over View. London: Routledge and Kegan Paul, 1974.

Datta, A. Education and Society: A Sociology of African Education. London: MacMillan Publishers, 1984.

Eshiwani, G.S. "Research Findings on Success and Failure in School". Nairobi: Daily Nation, Saturday March 7, 1987.

Evans, K.M. Attitudes and Interests in Education. London: Routledge and Kegan Paul, 1965".

Ezewu, E.E. Sociology of Education. Lagos: Longman Nigeria Ltd., 1983.

Finn, J.D. Sex Differences in Educational Attainment. Buffalo: University of New York, 1978.

Foster,P.J. "Social Differentiation in African Education". The Journal of Modern African Studies. Vol. 18 No. 2, 1980.

Graf, R.G. and Riddle, J.C. "Sex Differences in Problem-Solving as a Function of Problem Context". Journal of Educational Research. No.65, 1972.

Guilford, J.P. Psychometric Methods. New York: McGraw-Hill, 1954.

Gustafsson, J.E. "Attitudes Towards the School and Teacher at Class and Individual Level". The British Journal of Educational Psychology. Vol. 49, No. 2, 1979.

Halsey, A.H. et.al. (ed.) Education, Economy and Society: A reader in Sociology of Education. London: MacMillan, 1961.

Hartley, D. "Teachers Definition of Boys and Girls: Some Consequences". Research in Education. No. 20, Nov. 1978.

Hoult, P.P. and Smith, M.C. "Age and Sex Differences in Number and Variety of Vocational Choices, Preferences and Aspirations". Journal of Occupational Psychology. No. 51, 1978.

Keeves, J.P. Educational Environment and Student Achievement. Stockholm: Almqvist and Wiksell, 1972.

Kenya, Legislative Council Debates. Nairobi: Government Printer, August 1950.

Kenya, "Conference of Women Educationists". Nairobi: Government Printer, 1950.

_____, Ministry of Education Annual Report. Nairobi: Government Printer, 1950.

_____, Education Commission Report. Nairobi: Government Printer, 1964.

_____, National Commission of Inquiry, 1970-71. Nairobi: Government Printer, 1971.

_____, Report of the National Committee on Educational Objectives and Policies. Nairobi: Government Printer, 1976.

_____, Sessional Paper No. 10, 1978. Nairobi: Government Printer, 1978.

_____, Statistical Abstract, 1970. Kenya: Government Printer, 1970.

_____, Economic Survey, 1985. Nairobi: Government Printer, 1985.

Kerlinger, F.N. Foundations of Behavioural Research. 2nd Ed. New York: Holt, Rhinehart and Winston, 1973.

Kinyanjui, K. "The Political Economy of Educational Inequality: The Roots of Educational Inequality in Colonial and Post-Colonial Kenya". Harvard University; Ph.D. Thesis, 1979.

_____, "Education and Inequality in Kenya". Univeristy of Nairobi; Institute for Development Studies, Discussion Paper 2037, 1980.

Krystall, A. "Women's Access to Primary and Secondary Education in Kenya". University of Nairobi; Institute for Development Studies, 1980. Education, Research and Development.

Lewis, D.G. Experimental Design in Education. London: University of London Press, 1968.

_____, The Analysis of Variance. Manchester: Manchester University Press, 1971.

Lewis, D.G., Statistical Methods in Education. London: University of London Press, 1973.

Luepton, L.B., "Parental Status and Influence and the Achievement Orientation of High-School Seniors". Sociology of Education. Vol. 48 No. 1 1975.

Makila, M.T. "Co-education: Its Effects on the Socialisation of Girls at the Secondary School Level". Kenyatta University; K.E.R.A., 1983.

Mann, M. (ed.) The MacMillan Student Encyclopaedia of Sociology. London: MacMillan, 1983.

Maritim, E.K. "The Dependence of 'O' and 'A' level Examination Results on the Sex of the Examinee". Kenya Journal of Education. Vol. 2, No. 1, 1985.

_____, "The Academic Self-Concept and Teachers Perception: Their Relationship to Pupils Grade Attainment in Rural Kenya". Harvard University; Unpublished Ph.D. Thesis, 1979.

McGrath, J.H. Research Methods and Designs For Education. Scranton: International Textbook Co., 1970.

Mead, G.H. "Play the Game and the Generalised Other" in Coser and Rosenberg (eds.). Sociological Theory: a Book of Readings. New York: MacMillan Inc., 1969.

Merton, Robert K., "Social Structure and Anomie" in Wallace, W.W. (ed.) Sociological Theory: An Introduction. London: Heinemann, 1969.

Oppenheim, A.N. Questionnaire Design and Attitude Analysis. London: Heinemann, 1966.

Ottaway, A.K.C. Education and Society: An Introduction to the Sociology of Education. 2nd Ed. London: Routledge and Kegan Paul, 1962.

Pidgeon, D.A. Expectation and Pupil Performance. London: National Foundation for Educational Research, 1970.

Rose, Arnold M. (ed.) Human Behaviour and Social Processes. London: Routledge and Kegan Paul, 1962.

Sifuna, D.N. Short Essays on Education in Kenya. Nairobi: Kenya Literature Bureau, 1980.

Slavin, R.E. Research Methods in Education: A Practical Guide. New Jersey: Prentice-Hall Inc. 1984.

Sommerset, H.C.A. "Educational Aspirations of Fourth Form Students in Kenya", in Court, D. and Ghai, D. (eds.) 1974.

Spencer, H. "Social Structure and Social Function". In Coser, L. and Rosenberg , B. (eds.) 1969.

Sutherland, M.B. "Co-education and School Attainment". The British Journal of Educational Psychology. Vol. 31, No.2, 1961.

Swanson, G. "Symbolic Interaction". In Mann, M. (ed.) 1983.

Thuo, D.M. "A Comparative Study of the Relationship Between Attitudes Towards Mathematics and Mathematical Attainment in Mixed and Single Sex Schools in Kiambu, Kenya". University of Nairobi, M.A. (Ed.) Thesis, 1983.

_____, "Factors Affecting the Performance and Learning of Mathematics Among Secondary School Students in Kenya". Kenyatta University; K.E.R.A., 1983.

UNESCO, Towards Equality of Educational Opportunity: Inter-Country Exchange of Experiences. Bangkok: UNESCO, 1985.

Wallace, W.W. (Ed.) Sociological Theory: An Introduction. London: Heinemann, 1969.

Weinreich-Haste, H. "The Values and Aspirations of English Women Undergraduates". In Acker, S. and Pipper (Eds). 1984

Woods, P. Sociology and The School: An Interactionist Viewpoint. London: Routledge and Kegan Paul, 1983.

Youngman, M.B. Analysing Social and Education Research Data. London: McGraw-Hill Book Co., 1979.

APPENDIX A

STUDENTS QUESTIONNAIRE

Dear Student,

This is not a test, therefore there are no correct or wrong answers. No marks will be awarded for the answers you give. It is infact a research conducted under the Department of Educational Foundations at Kenyatta University. The findings of which may be useful in improving teaching/learning methods and also performance in K.C.E. in this district as well as the republic at large.

Answer the questions honestly and truthfully as they apply to you alone. The answers will be treated as highly confidential. They will not be used to victimise you or in any other way except for the purpose of this research.

While you are asked to give your name, your individual answers will be treated with caution and confidentially. The name is necessary because it will be used to classify the questionnaires for analysis in terms of other data.

Thank you.

BACKGROUND INFORMATION

SECTION 1:

Questions in this section seek your background information. Like in the subsequent sections, the information gained here will NOT be used against your or anyone else. It will be treated confidentially. Please be honest and give true answers as concerns yourself. If a box is provided, please put a tick (✓) against the answer of your choice. In case of blanks, answer in the spaces provided.

Answer all questions.

Do not write in this Margin.

1. Your name _____

2. Name of your school _____

3. Type: 1. Mixed ☐

2. Girls ☐

3. Boys ☐

4. Your sex: 1. Male ☐

2. Female ☐

1 2 3 ☐

4 ☐

5 ☐

6 ☐

Do not write in this Margin.

5. Your Age:

1. Under 15 years ☐
2. 15 - 16 years ☐
3. 17 - 18 years ☐
4. Over 18 years ☐

7 ☐

6. What level of formal education did your father attain?

None ☐

Primary ☐

Secondary ☐

University ☐

Other ☐

8 ☐

Please specify _____

_____

Do not write in this Margin.

7. What level of education did your mother attain?

None ☐

Primary ☐

Secondary ☐

University ☐

Other ☐

9 ☐

8. Did your father undergo any training?

Yes ☐

No ☐

10 ☐

If Yes please specify _____

_____

_____

11 ☐ 12 ☐

Do not write in this Margin.

9. Did your mother undergo any training? 13 ☐

Yes ☐

No ☐

If Yes please specify _____ 14 ☐ 15 ☐

_____

_____

10. What is your father's occupation? _____ 16 ☐

_____

11. What is your mother's occupation? _____ 17 ☐

_____

12. How many are you in your family (sister, brothers but excluding parents? 18 ☐ 19 ☐

_____

Do not write in this Margin.

13. Indicate the type of primary school you attended.

1. Mixed ☐
2. Girls' ☐
3. Boys' ☐

20 ☐

14. Do you have any sisters or brothers who have gone upto.

	Yes	No
(a) Form six	☐	☐
(b) University	☐	☐

21 ☐

15. Which subjects will you take in the K.C.E. examination?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

23 ☐

ACADEMIC ATTITUDES SCALE

SECTION II:

Below is a list of statements concerning education and schooling in general. Against each statement is a set of possible feelings one may hold towards the statement. For each one of the statements tick (✓) the response that best describes your own feeling towards that statement.

In this case:

SA	Means	STRONGLY AGREE
A	Means	AGREE
UD	Means	UNDECIDED
D	Means	DISAGREE
SD	Means	STRONGLY DISAGREE

For example if you agree with a particular statement place tick (✓) in the column for Agree which is A. And if you strongly disagree, place a tick (✓) in that column SD. Please respond to all statements in this section.

		SA	A	UD	D	SD
1.	I always feel education is important in ones's everyday life.	☐	☐	☐	☐	☐
2.	Education is necessary in everyday life.	☐	☐	☐	☐	☐
3.	For society to progress, people have to be educated.	☐	☐	☐	☐	☐
4.	One can get along in life without education because there are many uneducated people who are well up economically.	☐	☐	☐	☐	☐
5.	I would not come to school if there was another way to earn a living.	☐	☐	☐	☐	☐
6.	I attend school because my parents insist I should.	☐	☐	☐	☐	☐
7.	Sometimes I feel education is not very important to people.	☐	☐	☐	☐	☐

		SA	A	UD	D	SD
8.	The education I get is not applicable to daily life outside the school.	☐	☐	☐	☐	☐
9.	Education makes one to live comfortably with others in society.	☐	☐	☐	☐	☐
10.	Education has increased my understanding of other people and has made me more tolerant of other peoples views.	☐	☐	☐	☐	☐
11.	I enjoy doing my classwork most of the time.	☐	☐	☐	☐	☐
12.	I dislike education most of the time.	☐	☐	☐	☐	☐
13.	Most times I fear education because learning is hard.	☐	☐	☐	☐	☐
14.	I feel bored in school most of the time.	☐	☐	☐	☐	☐

		SA	A	UD	D	SD
15.	Sometimes I wish to leave schooling.	☐	☐	☐	☐	☐
16.	I work very hard to cope with academic standards expected of me.	☐	☐	☐	☐	☐
17.	I wish I could do better in my academic work.	☐	☐	☐	☐	☐
18.	One has to be lucky to pass K.C.E. Examination.	☐	☐	☐	☐	☐
19.	In most cases my classwork is below average.	☐	☐	☐	☐	☐

ACADEMIC ASPIRATIONS SCALE

SECTION III:

Below is a set of questions to assess your academic aspirations. Indicate your answers as honestly as possible in the spaces provided.

Do not write in this Margin.

1. If you would go as far as wanted in school, how far would you like to go?

   Form four ☐

   Form six ☐

   University ☐

   44 ☐

2. Do you think you are able to continue with education through From six to University?

   Yes ☐

   No ☐

   45 ☐

Do not write in this Margin.

If your answer is NO please give the reason(s) why you think you may not continue with your education to University.

1. _____
2. _____
3. _____
4. _____

46 ☐

3. If you want to continue to Form Six, indicate, in order of preference, the subjects you would like to take in A, level.

1. _____
2. _____
3. _____
4. _____

47 ☐

4. Below is a list of persons who help and inspire students to work harder in their studies. Please rank them in order of their importance in your studies, so that rank Number 1

Do not write in this Margin.

4. stands for the most important in that order to the least important.

	Rank
1. Brothers/Sisters	
2. Friends	
3. Parents	
4. Yourself	
5. Teachers	
6. Relatives	
7. Others (Please specify who they are and give a rank.	

48 49

5. What would you like to do as a career after schooling?

50 51

_____

_____

_____

Thank you for your cooperation.

Yours Faithfully,

P.W. MUKONYI.

APPENDIX B

TEACHERS QUESTIONNAIRE

This research questionnaires is aimed at getting information about the school and teaching in general. Personal background information sought will be treated with strict confidence. The information so obtained will not be used for any sinister activities other than for the purpose of this research. Please give your answers in the provided spaces. However, feel free and write at the back of each page should the space provided be insufficient.

Do not write in this Margin.

1. Your name _____ 1 2 ☐ ☐

2. Type of your school:

   1. Mixed ☐
   2. Girls' ☐ 3 ☐
   3. Boys' ☐

3. Your Sex: Male ☐ 4 ☐

   Female ☐

Do not write in this Margin.

4. Your Age:

Below 20 years ☐

20 - 29 years ☐

30 - 39 years ☐

40 - 49 years ☐

50 years and over ☐

5 ☐

5. Please state your highest level of formal education. _____

_____

6 ☐

6. What is your status?

(a) Untrained Teacher/ Form Six ☐

(b) S_1/Diploma ☐

(c) Approved Teacher ☐

(d) Graduate (U.T.) e.g. B.A., B.Sc. etc. ☐

(e) Graduate (B.Ed, B.A./B.Sc. etc. with a Dip. Fd.) ☐

(f) Other (Please specify) _____ ☐

_____

7 ☐

Do not write in this Margin.

7. How long have you taught?

Less than 1 year ☐

1 - 5 years ☐

6 - 10 years ☐

11 - 15 years ☐

16 - 20 years ☐

21 years and above ☐

8 ☐

8. Have there been any interruptions since you started your teaching career?

Yes ☐

No ☐

9 ☐

If Yes Please state date(s) and reason(s).

1. _____

2. _____

3. _____

4. _____

Do not write in this Margin.

9. How long is it since you left formal schooling (School, College or University)?

_____ years.

10 11

10. Which subjects were you trained to teach? (If U.T. subjects taken at 'A' level).

1. _____
2. _____
3. _____
4. _____

12

11. Which subjects do you teach in the present form four class?

1. _____
2. _____
3. _____
4. _____

13

12. Did you take any other course relevant to your teaching subjects after your training?

Yes ☐

No ☐

14

Do not write in this Margin.

12. If Yes specify title of course and dates.

1. _____

2. _____

3. _____

13. How many years have you taught a form four class?

(a) Less than 1 year ☐

(b) 1 - 5 years ☐

(c) 6 - 10 years ☐

(d) 11 - 15 years ☐

(e) 16 - 20 years ☐

(f) 20 years and over ☐

15 ☐

14. When did you start teaching the subject(s) you teach to the present students in form four?.

	Subject	Year
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____

16 ☐ 17 ☐

Do not write in this Margin.

15. Have there been any interruptions (other than normal holidays and vacations) since you started teaching the present form four class?

Yes ☐

No ☐

18 ☐

If Yes please state dates and reasons.

1. _____
2. _____
3. _____
4. _____

16. What resource materials do you have that aid you in lesson planning and classroom instruction?

SUBJECT	RESOURCE MATERIALS
1. _____	_____
	_____
	_____
	_____

19 ☐ 20 ☐

Do not write in this Margin

16. SUBJECT RESOURCE MATERIALS

2. _____ _____ 21 22

3. _____ _____ 23 24

4. _____ _____ 25 26

17. Would you say the resource materials available are adequate?

Yes ☐ 27

No ☐

Do not write in this Margin.

18. Which resource materials do you think are necessary but are not available in your school?

	SUBJECT	RESOURCE MATERIALS	
1.	_____	_____	28 29
2.	_____	_____	30 31
3.	_____	_____	32 33
4.	_____	_____	34 35

Do not write in this Margin.

19. Would you say the availability of the resource material you have indicated in Q. 18 above can improve Teaching/Learning and Students performance in examination?

Yes ☐

No ☐

36 ☐

20. What comments would you make regarding the teaching of your subject in secondary schools in Kenya?

_____

_____

_____

_____

_____

_____

SECTION II

This section deals with comparison of boys and girls in school. The responses should be based on your own experience and observation as a teacher. This section can best be responded to by the following categories.

(a) Teachers who have taught in mixed schools before or are teaching in mixed schools.

(b) Teachers who have taught in girls' schools and are now in boys' schools.

(c) Teachers who have taught in boys' schools and are presently in girls' schools.

Do not write in this Margin.

1. How do girls' compared to boys perform in class?

(a) Much better than boys ☐

(b) Better than boys ☐

37 ☐

Do not write in this Margin.

(c) Equal to boys ☐

(d) Below boys ☐

(e) Much below boys ☐

(f) Other _____ ☐

Please specify _____

_____

2. How do girls perform in K.C.E. in relation to boys?

(a) Much better than boys ☐

(b) Better than boys ☐

(c) Just as much as boys ☐

(d) Below boys ☐

(e) Much below boys ☐

(f) Other _____ ☐

Please specify _____

_____

38 ☐

Do not write in this Margin.

3. Which sex would you say, takes more interest in academies in school?

Boys ☐

Girls ☐

39 ☐

4. Which sex would you say has more positive attitudes towards school?

Boys ☐

Girls ☐

40 ☐

Comment if your wish _____

_____

_____

_____

_____

_____

Do not write in this Margin.

5. Would you say, from your experience and observation that boys have higher academic aspirations than girls?

41

Yes ☐

No ☐

Comment if you wish _____

_____

_____

_____

6. From your experience, which type of schooling would you recommend?

42

(a) Mixed ☐

(b) Single sex ☐

Please briefly give reasons for your answer: _____

_____

_____

_____

_____

_____

Do not write in this Margin.

7. If you were to choose the type of school to teach in, which one would you prefer?

(a) Girls' ☐

(b) Boys' ☐

(c) Mixed ☐

43 ☐

Please give reasons for your preference. _____

_____

_____

_____

_____

_____

Thank you for your cooperation.

Yours faithfully,

P. W. MUKONYI

APPENDIX C

CAREERS' MASTERS QUESTIONNAIRE

This questionnaire tries to examine the extent to which careers guidance and counselling services are provided in secondary schools. All the information you provide will be treated in strict confidence and will be used for no other purpose except for this research. Please indicate your replies in the spaces provided. However feel free to write at the back of each page should the space provided be insufficient.

Thank you.

Do not write in this Margin.

1 2

1. Your name _____

2. Type of your school:

   1. Mixed ☐
   2. Girls ☐
   3. Boys ☐

3

Do not write in this Margin.

3. Your Sex:

1. Male ☐

2. Female ☐

4 ☐

4. Your Age:

Below 20 years ☐

20 - 29 years ☐

30 - 39 years ☐

40 - 49 years ☐

50 and over ☐

5 ☐

6. What is your professional status?

Untrained teacher/Form six ☐

S_1/Diploma ☐

Approved Teacher ☐

Graduate U.T. (BA, BSC. etc.) ☐

Graduate (B.Ed, B.A./ BSc. with Dip. ED.) ☐

Other (Please specify) ☐

7 ☐

_____

_____

Do not write in this Margin

7. How long have you been a careers guidance and counselling master?

Less than 1 year ☐

1 - 5 years ☐

6 - 10 years ☐

11 and over ☐

8 ☐

8. Do you have any qualifications in careers guidance and counselling?

Yes ☐

No ☐

9 ☐

If your answer is Yes, please state title of course and date of qualification.

10 11 ☐☐

1. _____

2. _____

3. _____

4. _____

5. _____

Do not write in this Margin.

9. Briefly outline your duties as careers guidance and counselling master.

_____

_____

_____

_____

_____

12 ☐

10. Do you have an office in this school for careers guidance and counselling services?

Yes ☐

No ☐

13 ☐

11. Is careers guidance and counselling included in the weekly timetables of the following classes?

	YES	NO	
Form 1	☐	☐	14 ☐
Form 2	☐	☐	15
Form 3	☐	☐	16 ☐
Form 4	☐	☐	17 ☐

Do not write in this Margin

12. If your answer to Q. 11 is Yes, please indicate the number of hours you devote to careers guidance and counselling per class per week.

Form 1	☐	18 ☐
Form 2	☐	19 ☐
Form 3	☐	20 ☐
Form 4	☐	21 ☐

13. If careers guidance and counselling is NOT included in the regular weekly time-table, please state briefly how you organise and conduct careers guidance and counselling sessions. 22 ☐

_____

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_____

Do not write in this Margin.

14. Are there such resource materials in the form of books, pamphlets etc. in the library, staffroom or your office on careers guidance and counselling?

Yes ☐

No ☐

23 ☐

15. In your opinion, are these materials up to date and informative to students?

Yes ☐

No ☐

24 ☐

Comment if you wish _____

_____

_____

_____

16. Are such resource materials readily available to students?

Yes ☐

No ☐

25 ☐

Do not write in this Margin.

17. In your opinion, is careers guidance and counselling important, necessary and useful to students?

Yes ☐

No ☐

26 ☐

18. Do students pay keen interest in careers guidance and counselling?

Yes ☐

No ☐

27 ☐

19. Do you get any support from parents in your endeavour of guiding and counselling students?

Yes ☐

No ☐

28 ☐

Do not write in this Margin.

20. Would you say that the present Form Four students are clear about the career opportunities open to them in relation to their ability and subject combinations?

Yes ☐

No ☐

Not sure ☐

29 ☐

21. Which suggestions would you make for improving careers guidance and counselling services in secondary schools in Kenya?

_____

_____

_____

_____

_____

_____

Thank you for your cooperation.

Yours Faithfully,

P.W. MUKONYI.

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THIS IS TO CERTIFY THAT:

~~Prof/Dr~~./Mr./~~Mrs/Miss~~ Philip Wanjala Mukonyi

of (Address) Dept. of Educational Foundations, Kenyatta University, P.O. Box 43844, NAIROBI.

has been permitted to conduct research in

..... Location,

Kakamega District,

Western Province,

on the topic "A comparison of Academic attitudes and aspirations of girls and boys in mixed and single sex schools and their relationship to performance in Kenya Certificate of Education (KCE) in Kakamega, Kenya"

for a period ending September, 19 87

PAGE 3

Research permit No. OP.13/001/16C 232/3

Date of issue 26/9/86

Fee received 25/=

for Permanent Secretary/Administration
Office of the President

Applicant's Signature

E.M. KISOMBE

for: Permanent Secretary,
Office of the President