INVESTIGATION INTO CAUSES OF POOR PERFORMANCE IN KCSE PHYSICS AMONG FORM FOUR STUDENTS IN THIKA DISTRICT

BY

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A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENT OF THE MASTER OF EDUCATION DEGREE AT KENYATTA UNIVERSITY

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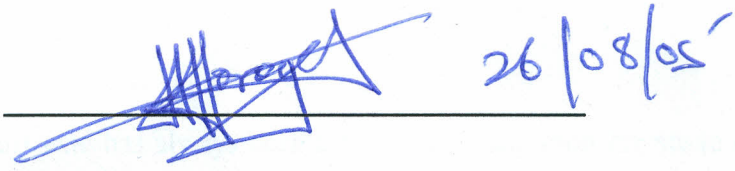
DECLARATION

This research project is my original work and has not been presented for any of the study programme in any other university.

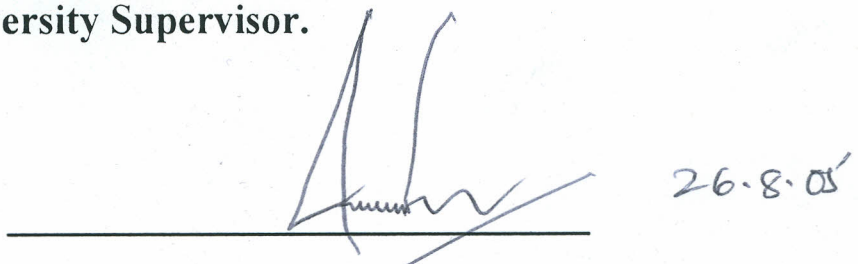


Signature

MUTURI, N. NICHOLAS

Name

This research project has been submitted for examination with my approval as the University Supervisor.



Signature

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DEDICATION

To Elohim of Israel, Creator of the Universe and all that there is above, here and beneath the surface, and His son Yahshua Messiah who gave me the knowledge, wisdom and power to do write this project.

To my mother Waithira Muturi who has always been a source of inspiration for me to continue with my studies.

To my wife Wangui Njoroge who gave me morale, financial support and encouragement throughout the period of study for the course and particularly when writing this project.

To my children Waithira, Muturi, Njuguna and Wairimu who make me feel encouraged to further my education to set an example for them.

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My thanks also go to my family for the financial and moral support and encouragement throughout my period of study especially while I was writing this project.

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ABSTRACT

Poor performance in national examinations is a very disturbing problem and also an issue of global discussion. This is because it shatters the hopes of the candidate of pursuing further education or even securing a good job. It also injuries one's self concept and self-image among friends, parents and community. Both the parent(s) and the government feel the pinch too as they have heavily invested a lot of their capital in the education of the candidate who unfortunately performs poorly in national examinations. For this reason, failure to perform well in these examinations is a serious problem worthy investigation as it sends shockwaves down the spine of the candidate, the parent(s), his friends and even the government.

The purpose of this study was to investigate the causes of poor performance in national examinations with a bias in Physics. The intention was to find out whether the causes of poor performance emanated from the student's home environment, whether he was to blame for his own poor performance or if the school environment was to blame for the candidates poor performance. The main focus was on the causes of poor performance in Physics.

The research was carried out in Thika District of Central Province in Kenya. Sample population included the D.E.O. ten Head Teachers, twenty Physics teachers and one hundred (100) students from ten secondary schools, A descriptive survey design method was used. The research instruments included an Interview Schedule for the D.E.O, Questionnaires for Head Teachers, Physics teachers and students and Observation Schedules for the researcher. These instruments were first pre-tested on one school before the actual study. The data was analysed using Statistical Package for Social Sciences (SPSS) and data was analysed using the Chi-square test

for all statistical analysis at the 0.05 level of significance. Data was reported using frequencies and percentages and presented in form of tables The study showed that the poor performance of Physics is caused by lack of parental encouragement, inadequate learning resources lack of discipline in schools, poor teaching methods among other factors.

The research recommended that

- more Physics teachers be posted to schools
- Physics teachers use methods which can make physics more interesting
- Administrators and parents increase teaching learning resources in school especially for practicals.
- More time for teaching physics be allocated on the timetable.
- Guidance and Counseling be done by Career Masters and Physics teachers with a view to change the negative attitude by students towards Physics.

The study has also given suggestions for further research into this area so that researchers could come up with more recommendations on how the teaching of Physics could be improved for better performance.

List of Acronyms & Abbreviations

D.E.O	-	District Education Officer
I.C.E	-	Institute of Continuing Education
K.C.E.	-	Kenya Certificate of Education
K.C.P.E.	-	Kenya Certificate of Primary Education
K.C.S.E	-	Kenya Certificate of Secondary Education
K.N.E.C.	-	Kenya National Examinations Council
K.N.U.T.	-	Kenya National Union of Teachers
M.O.E.S&T	-	the Ministry of Education Science & Technology ✓ Acronym
T.S.C.	-	Teachers Service Commission ✓

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INTRODUCTION

1.1 Background to the study

Educational evaluation is an important aspect which comes as a culmination of a given learning process. Different countries in the world have different educational programmes for different levels of their learners and at the end of each level there is an examination which is used to decide whether one will proceed to the next stage or not. Many countries use external agencies to prepare, conduct and mark national examinations for their students. Some countries like Britain the USA, India among others have examinations that are taken even outside their boundaries e.g Overseas Cambridge Examinations and the General Certificate of Education (GCE) from Britain.

In Kenya, national examinations at the primary, secondary and in public colleges are administered by the Kenya National Examination Council.(KNEC). The use of external institutions like the Kenya Nation Examination Council (KNEC) among other syndicates in examining the results of curriculum has a healthy facet to it as it introduces some measure of objectivity in the whole process of evaluating students achievement in the various areas of academic endeavour. Such a national agency sets standard examination and its marketing and rating of candidates is fair and objective. The Kenya National Examinations Council (KNEC) has been administering this work satisfactorily for a long time.

According to the **Year 2003 KCSE Examination Candidate Performance Report** the KNEC administers some examinations on behalf of foreign examination boards from the United Kingdom (Britain) These are:

- London General Certificate of Education (LGCE)
- International General Certificate of Education (UCLES)

- Associated Board of Royal Schools of Music (ABRSM)
- Institute of Management of Information Systems (IMIS)
- Engineering Council

In addition to KCPE & KCSE the KNEC also administers post schools examinations such as

- The Primary School Teachers Pre-service and Inservice Examinations (PTE)
- Business Examinations
- Technical Examinations
- Teachers Certificate of Adult Education (TCAE)
- English Proficiency Examinations for Law graduates

(the **Year 2003 KCSE Examination Candidate performance Report , iv & v)**

This research mainly focused on the Kenya Certificate of Secondary Education (KCSE) Examinations with a bias in Physics. The main intentions of the researcher was to find out the causes of poor performance in this subject.

The Kenya Certificate of Secondary Examinations (KCSE) are conducted after a four year course in Kenya. The results are very eagerly awaited for by the students, teachers and parents among other well wishers and agents in the education sector. The results are at times very discouraging especially when there is a declining trend. When the results of 2002 were released Mugumo Munene, a Daily Nation reporter wrote:

> The results showed a declining performance in key subjects – English, Kiswahili and Sciences against an improvement in Social Sciences especially History and government, Geography and Social Education and Ethics…….. **Daily Nation,** Tuesday February 26, 2002. Pp 5 Col 1 and 2.

These remarks were echoed by the Minister for Education, Science and Technology (MOES&T) Prof. George Saitoti who also expressed concern over the continuing poor performance in

Mathematics and Sciences. General performance in these subjects was still low in 2003. The Minister said.

> I wish to state that candidates performance in key subjects like Mathematics and Sciences is still below average, especially for girls... I am appealing to all Secondary School teachers, parents and other leaders to make deliberate efforts to improve he delivery of the quality performance in these key subjects. Daily Nation, Tuesday March 2, 2004 pp2 col. 4

Among the worst performed subjects in Kenya Certificate of Secondary Examinations (K.C.S.E) in 2003 are shown in the table below:-

*Table 1.1 Worst Performed Subjects in KCSE 2003

Subject	**N**	**Mean Score - %**
Mathematics	206,480	19.30
Chemistry	198,747	26.00
Biological Sciences	27	24.34
Physics	56,497	31.36
Total	**461,751**	**100.00**

*Source : Daily Nation, Tuesday March 2, 2004.

All the above subjects were performed dismally at the national level and the researcher found enough reason to investigate why students posted such poor results especially in Physics. In Central Province the performance was fair in some of the science subjects in some of the schools but in other schools the results were very disappointing.

In Central province, Thika was position five in 2002 KCSE results and declined further to position six in the 2003 KCSE results.The table below shows District ranking by performance in KCSE examinations for the year 2003 in Central Province

TABLE 1.3

2003 K.C.S.E EXAMINATION ANALYSIS BY DISTRICTS- CENTRAL PROVINCE: 2000, 2001, 2002 & 2003 COMPARISON

DISTRICT	YEAR	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	X	Y	ENTRY	M.S.S	R/D	M.G
NYANDARUA	2003	1	46	86	144	277	366	521	536	819	905	587	34	25	0	4422	4.7393	0.2447	C-
	2002	1	37	86	132	198	274	378	Q588	749	963	644	42	24	9	4092	4.4946	-0.0792	D+
	2001	0	21	81	117	209	299	489	651	822	965	534	40	21	0	4228	4.574	-0.06	C-
	2000	1	17	55	103	207	302	490	734	853	891	437	17	22	11	4107	4.634	0.348	C-
NYERI	2003	7	137	287	441	600	804	989	1226	1550	1588	955	91	30	3	8682	5.0549	0.1894	C-
	2002	5	132	253	433	535	642	834	1105	1363	1653	1196	100	30	3	8251	4.8655	-0.016	C-
	2001	7	70	190	377	582	791	931	1160	1481	1671	1029	61	28	3	8350	4.8815	0.0225	C-
	2000	7	58	196	366	598	790	991	1249	1587	1732	925	60	46	45	8519	4.904	0.3004	C-
KIRINYAGA	2003	3	39	90	164	294	382	500	635	801	750	384	16	25	0	4058	4.9975	0.2606	
	2002	0	17	78	123	221	304	439	529	690	727	437	21	19	0	3622	4.7369	-0.0176	C-
	2001	1	20	54	95	216	274	479	544	741	764	6	6	1	1	3200	5.044	0.2279	C-
	2000	0	6	46	136	201	314	444	561	673	693	329	17	10	89	3420	4.8161	0.2117	C-
MURANG'A	2003	6	34	89	188	269	419	585	664	982	984	462	25	21	0	4728	4.8379	0.2606	
	2002	0	21	93	144	237	320	502	665	904	1034	642	47	13	46	4607	4.5537	-0.0427	
	2001	1	9	47	133	247	387	524	743	926	1016	560	23	21	5	4616	4.5964	-0.147	
	2000	1	6	44	119	261	399	562	752	928	922	423	13	15	1	4330	4.7434	0.2814	
KIAMBU	2003	3	56	117	215	347	499	786	1133	1507	1864	1540	145	47	4	8212	4.2927	0.118	D+
	2002	8	47	110	189	298	451	673	943	1375	1764	1563	186	33	42	7607	4.1819	-0.0931	D+
	2001	2	32	87	188	344	499	787	1088	1445	1737	1441	157	43	0	7807	4.275	0.131	D+
	2000	0	20	65	176	284	455	758	977	1414	1835	1523	143	38	5	7651	4.144	0.1854	D+

DISTRICT	YEAR	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	X	Y	ENTRY	M.S.S	R/D	M.G
THIKA	2003	1	32	101	202	281	468	614	872	1163	1326	1016	158	49	9	6234	4.4241	0.1593	D+
	2002	1	22	110	174	230	364	507	744	1015	1209	1082	192	36	67	5654	4,2648	0.0098	D+
	2001	1	16	50	133	268	371	598	769	1124	1485	997	84	31	2	5896	4.255	-0.0526	D+
	2000	0	10	58	125	189	388	652	754	1068	1443	683	46	50	78	5597	4.3076	0.2396	D+
MARAGUA	2003	2	29	68	148	233	315	493	665	876	1026	721	60	31	0	47.36	4.4533	0.1226	D+
	2002	1	35	78	130	180	268	413	561	830	1013	829	53	15	2	43.91	4.3307	-0.0054	D+
	2001	0	15	39	89	198	280	455	654	810	1046	610	29	16	28	42.25	4.385	-0.1513	D+
	2000	0	12	48	98	185	312	489	654	771	930	510	22	15	48	10.31	4.5363	0.2742	C-
PROVINCIAL TOTAL	2003	116	603	1062	1684	2470	3377	4555	5862	7708	8565	5665	529	235	16	42177	4.7934	0.1696	C-
	2002	89	604	1027	1502	2032	2718	3812	5170	6935	8364	6430	641	170	169	39326	4.6238	-0.0543	C-
	2001	98	385	764	1321	2222	2988	4321	5623	7355	8686	5177	400	165	39	39340	4.6747	-0.0068	C-
	2000	72	289	677	1346	2119	3093	4479	5707	7162	8449	5010	318	202	377	38721	4.6815	0.2696	C-

In Thika District Biology was the best performed subject among other sciences as shown in the table below while Physics was the worst performed, hence the need to investigate why it was done poorly.

* Table 1.2 Comparison of Science Subjects in the four categories of schools.- Thika district.

Subjects	Category	School	N	Mean Score
Biology	National	Mangu High	123	10.020
	Provincial	Thika High	114	7.921
	District	Mururia Sec	113	7.106
	Private	Abba Salama Sec	5	6.000
Maths	National	Mangu High	200	9.630
	Provincial	Thika High	151	6.517
	District	Mururia Sec	113	5.681
	Private	Abba Salama Sec	5	4.600
Chem.	National	Mangu High	200	9.220
	Provincial	St. Francis Girls	91	7.700
	District	Mangu	113	5.735
	Private	Mururia Sec Hekima Girls	5	5.170
Physics	National	Mangu High	200	8.220
	Provincial	St. Francis Girls Mangu	91	8.700
	District	Mururia Sec	113	8.173
	Private	Hekima Girls	5	4.170
Total			1642	

- Source: DEO's file Thika 2003 KCSE Analysis.

Since Thika District has been lagging behind in the KCSE examinations especially during year 2002 and 2003 the researcher decided to investigate the causes of this poor performance in Thika District especially in Ruiru Division. The main focus was on the subject of Physics. Thika District is divided into five divisions. Gatanga, Kakuzi, Kamwangi, Gatundu and Ruiru. There are one hundred and twenty two public schools in the district. Ruiru Division is divided into three (3) education zones namely: Gatuanyaga, Juja and Ruiru. The schools in each zone is as per the table below:

*Table 1.4 Ruiru Division Schools by Zones

N= (31)

Zone	N
Gatuanyaga	16
Juja	6
Ruiru	9
Total	31

* Source: File at DEO's Office – THIKA (2004)

The researcher decided to investigate ~~on~~ into the caused of poor performance in Physics in Thika because of this worrying declining trend in performance. The KCSE examinations are very important to the candidates as they determine whether he will proceed to higher levels in the education ladder or not. Failure in these examinations spells doom to the candidates for he is only left with other options such as repeating to improve the grade, which is a waste of resources (money and time) or prepare to take up those courses which do not require very good grades in KCSE performance.

The researcher picked on Physics as a subject of investigation because it was one of the worst performed in K.C.S.E. Physics is one of the science subjects which has a lot of attention from the government and hence heavily emphasized and encouraged to be taught to as many students as possible since it is the pillar to industrial development. Through the study of physics the learner is exposed to the principles of measurement as well as preparation and application of various scientific laws and mechanical apparatus. This forms a foundation for courses like Engineering,

Architecture, among others. Physics is a science of inquiry which may also promote self actualization in students who pursue courses like Aviation.

***Table 1.5 Comparison of Biology and Physics in K.C.S.E Performance in all the Subjects (1999-2001)**

Subject	2001	2000	1999
Biology	8.40(B-)	6.855(C+)	6.84(C+)
Physics	5.19(C-)	5.876(C)	5.25(C)

* Source : File at D.E.O's Office –Thika (2001)

The scenario is the same for Ruiru division since students perform equally bad in Physics. Most students attain a mean grade of C and C-, that is below average in performance. Only a few candidates record good grades in Physics in comparison with other subjects like Biology and Chemistry. The result of this has been a growing outcry from among the parents, teachers, politicians, education officers among other agents in the division over the poor performance in Physics.

***Table 1.6 Candidates Performance in 2002 and 2003 K.C.S.E. Examinations in all the Subjects**

SUBJECT NAMES & CODE	2002				2003			
	FEMALE		MALE		FEMALE		MALE	
	NO. SAT	MEAN %	NO. SAT	MEAN %	NO. SAT	MEAN %	NO. SAT	MEAN %
English (101)	91,662	29.65	105,478	29.57	95,620	32.83	110,869	32.46
Kiswahili (102)	91,649	45.45	105,473	44.38	95,621	50.05	110,858	48.56
Mathematics (121)	91,647	16.44	105,471	22.53	95,615	16.05	110,865	22.10
Biology (231)	87,141	24.58	90,241	28,34	91,108	27.23	95,295	31.35
Physics (232)	15,312	26.61	38,868	30.89	16,094	29.07	40,403	32.28
Chemistry (233)	87,725	22.05	99,536	26.62	92,615	24.04	106,132	29.30
Biological Science (235)	20	14.89	17	19.49	07	26.63	20	23.57
History and Government (311)	37,041	48.68	47,807	55.12	43,047	46,79	54,356	54.40
Geography (312)	46,727	31.21	60,165	37.71	44,870	34.61	57,2622	40.04
Christian Religious Education (313)	41,651	58.44	29,173	59.27	44,633	59.12	32,481	58.54
Islamic Religious Education (314)	1,466	51.04	2,699	52.15	1,550	53.71	2,709	54.58
Hindu Religious Education (315)	15	49.20	13	53.46	10	48.15	16	46.31
Social Ethics & Education (316)	9,400	53.73	24,452	46.40	25,677	51.32	26,856	54.26
Home Science (441)	9,400	53.50	434	43.58	9,323	53.93	551	49.05
Art and Design (442)	369	67.42	654	64.40	378	62.47	697	61.37
Agriculture (443)	40,515	42.19	48,158	45.71	43,062	44.72	51.651	48.08
Woodwork (444)	28	54.14	1,247	54.78	13	50.61	1,188	47.66
Metalwork (445)	4	46.00	360	48.46	05	50.40	359	55.98
Building construction (446)	30	43.46	847	49.25	11	43.81	716	50.94
Power Mechanics (447)	5	48.20	274	58.70	04	46.50	319	53.01
Electricity (448)	12	48.33	496	56.82	22	50.04	478	52.46
Drawing and Design (449)	45	37.13	1,522	51,61	39	39.35	1,525	52.77
Aviation Technology (450)	1	52.00	26	63.69	01	67.00	32	68.68
Computer Studies (451)	1,143	53.31	1,033	57.02	1,572	46.84	1,390	49.76
French (501)	1,165	42.83	663	43.80	1,318	43.28	735	46.12
German (502)	253	57.08	128	53.83	254	59.07	99	56.07
Arabic (503)	140	61.82	324	67.75	178	68.37	333	70.31
Music (511)	893	51.03	687	51.08	916	48.98	663	48.86
Accounting (561)	3,253	55.26	9,929	55.88	3,663	56.14	7,099	56.80
Commerce (562)	43,684	43.98	49,360	47,55	42,923	42.89	49,651	46.45
Economics (563)	119	42.37	506	43.74	77	45.16	332	45.58
Typ. With Off. Practice (564)	732	53.60	48	57.58	748	47.56	43	49.34

***Source: The year 2003 KCSE EXAMINATION CANDIDATES PERFORMANCE REPORT, KNEC, 2004 p.p (ii)**

Observation on Candidates Performance

a) In year 2003 KCSE examination, girls performed better than boys in only 10 subjects out of the 32 subjects. These were English (101), Kiswahili (102), Biological Sciences (235), CRE (313) HRE (315), Home Science (441) Art & Design (442), Woodwork (444), German (502) and Music (511).

The above table indicates that in 2003 both boys and girls performed below average in majority of the subjects. Girls scored more than 50% in 13 out of 32 subjects which means in majority of the subjects they scored below average. Boys on the other hand scored more than 50% in 14 out of 32 subjects, which again meant they scored less than 50% in more than half the subjects they sat for. In addition girls performed better than boys in only 10 subjects out of the 32.
These were English (101) , Kiswahili (102) Biological sciences (235), CRE (313) Home Science (441) Art & Design (442), Wood work (444), German (502) and music (511) pp. (ii)
2003 KCSE
Most students attained a mean score less than 50% that is below average in performance. Only a few candidates recorded good grades in KCSE. The performance of Physics was far much below 50% in both years. The result of this has been a growing outcry from among the parents, teachers, politicians, education officers among other agents in the division over the poor performance in Physics. This prompted the researcher to investigate the causes behind this. In the year of investigation boys attained a meanscore of 32.28% while girls got 29.07% meanscore. This poor performance became a problem of concern whose causes the researcher decided to investigate.

1.2 Statement of the Problem

Thika District has been performing poorly in national examinations in the last four years especially from year 2000. Examination analysis in Central Province placed Thika District in position five in 2002 and position six in 2003 overall. (See Table 1.4) These positions were third and second last respectively since the province has seven districts.

The main purpose of this study was to establish the causes of poor performance in the subject of Physics in national examinations because failure to attain good grades in the subject affected a students' chances of admission to the university or other tertially institutions. His/her career

choices for courses like Engineering, Aviation among others became, just a dream. The affected candidates become agonized and humiliated in the society.

1.3 Purpose of the Study

The researcher intended to find out the causes of poor performance of Physics in Thika District. Therefore the purpose of this study was to investigate the causes of poor performance of Physics in Thika District. The study focused on the various factors which were blamed to be responsible for the poor performance such as lack of teaching learning resources, lack of motivation for teachers, negative attitude towards learning some of the subject among students, indiscipline among students, among others. The intention was to launch thorough investigations into the real and possible causes of poor performance of Physics in Thika District.

1.4 Objectives of the Study

The objectives of the study were to:

- Investigate the causes of poor performance in general and of Physics in particular in Thika District.
- Find out the influence of the community on performance of Physics.
- Establish whether discipline had any influence on performance of Physics.
- Find out whether learning/teaching resources influenced in any way students performance in the examinations.
- To draw conclusions which may guide improvements on performance of Physics.

1.5 Research Questions

This paper attempted to find out the answers to the following questions which intended to establish the causes of poor performance of Physics the said division.

- What is the background environmental conditions surrounding the students in Ruiru division Secondary schools?
- What role do parents play in the learning process of their children?
- What part do teachers play in the learning process in the school?
- Does the school administration contribute towards good performance in examinations especially in Physics?

1.6 Significance of the Study

This seminal work was expected to come up with findings which would greatly influence teaching in schools leading to improved results. Hence it was expected to result in overall improvement in the performance of all subjects not only in Ruiru Division but also in the whole country. The findings of this study would hence be very significant to the:

- MOES &T which may utilize the findings to eliminate the factors which caused poor performance.
- Head teachers who may use the findings to improve and equip the school with the required resources among other ways to correct the sorry situation.
- Parents may utilize the findings to adopt any of the recommendations for the benefit of their children.

- PTA and BOG may use the findings as a base for their discussion on how to improve the performance in the schools they represented by providing facilities of learning and maintaining school discipline.
- Teachers may use the results (of the research) to improve their service delivery.

1.7 Limitations of the Study

The research covered only ten schools out of thirty one in Ruiru Division. This was due to the following reasons:

- Time factor: the time permitted for this research was three months which was inadequate to enable inclusion of many schools since the number of issues to be investigated were many.
- Limited Finance: The researcher did not have enough capital to enable him embark on a wide range research of all schools in the division or district.
- Location of some schools was in far remote areas hence not easily accessible by vehicles.
- Only public secondary schools were sampled out: Private secondary schools and the primary schools were not included in the study.
- Only few factors were investigated. Time allowed for this research could not allow thorough investigation of all factors causing poor performance in KCSE Physics examinations .

1.8 Delimitations of the Study

- There are several factors affecting performance. However only causes related to parents, teachers, students and head teachers were investigated due to financial and other logistic constraints such as time.
- Private secondary schools were not investigated as they did not enjoy direct supervision and inspection from the MOES & T
- The data used was of four years of national examination in the Kenya Certificate of Secondary (K.C.S.E) results.

1.9 Assumptions of the Study

The research was based on the assumption that:

- All the students were tested on standardized examinations
- All schools had equal learning time, they used the same syllabus and the same approved books.
- The Teachers Service Commission (T.S.C) appointed qualified teachers to all these schools.

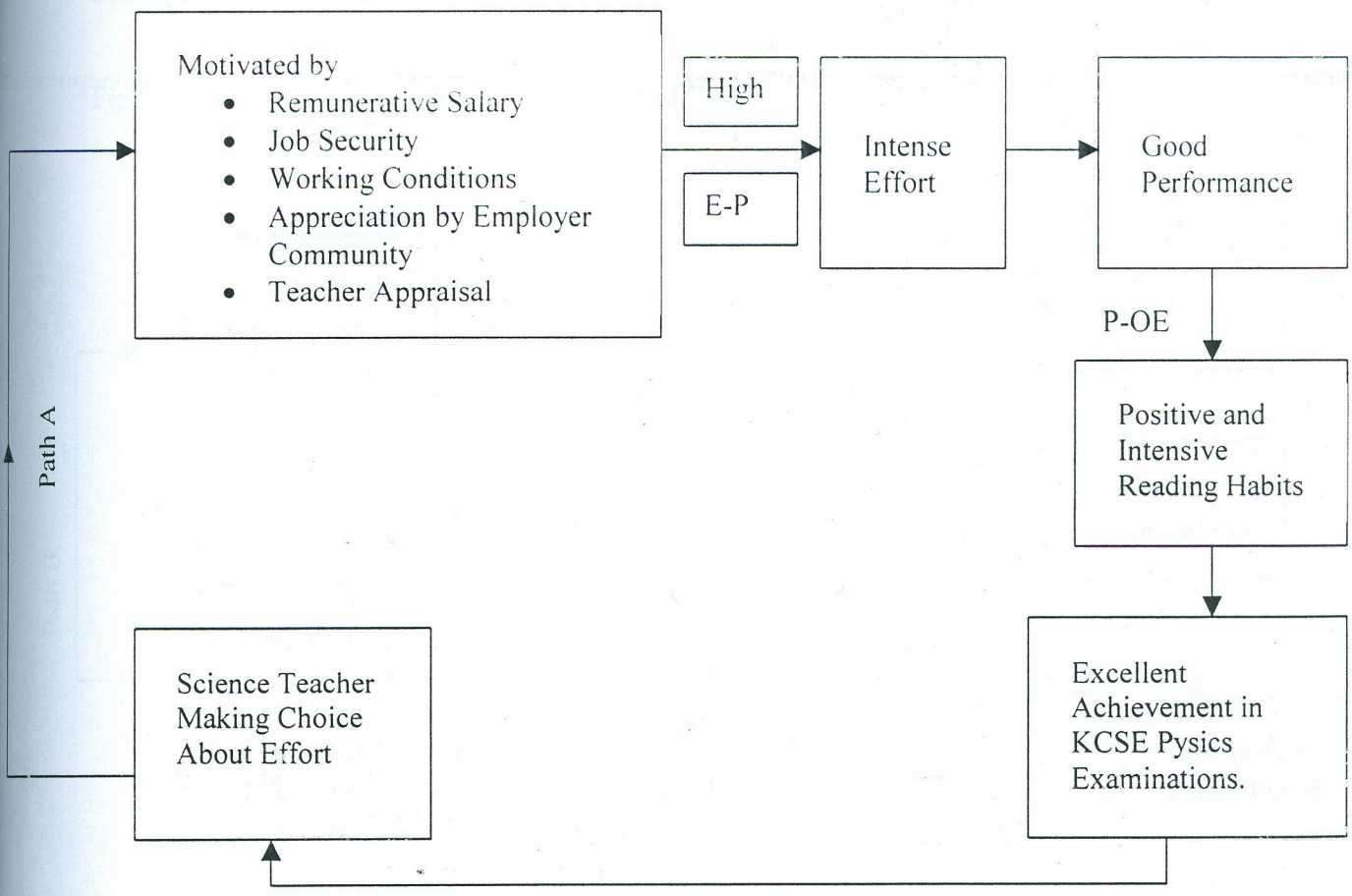
1.10 Theoretical Framework: B.F. Skinner's Theory of Motivation

This research was based on Skinners Theory of Motivation. Motivation is the drive, or strong urge to do something. The question at hand was what caused the teacher and the student to do their teaching/learning activities.

According to Skinner who brought forward the Theory of Motivation a person's motivation to undertake a task depends on expected reward. In this regard a positive perceived reward induces positive motivation and greatly realizes high achievement. The Central arguement here was that the expected reward influenced a persons effort to do something. On the other hand the negatively perceived reward led to negative attitudes and achievement. It was implicit that students high performance was influenced by the teaching experience of the teacher, available instructional resources and the teaching strategies (Orodho 28 1996). The instructional strategies would translate into students high performance (ibid).

1.11 Conceptual Framework on Factors Influencing Teacher Motivation to Teach and Produce Good Results.

* Fig 1: A Motivated Teacher: His effort and Results



* Source Adopted from Orodho J.A. (2004) pp. 30.

KEY

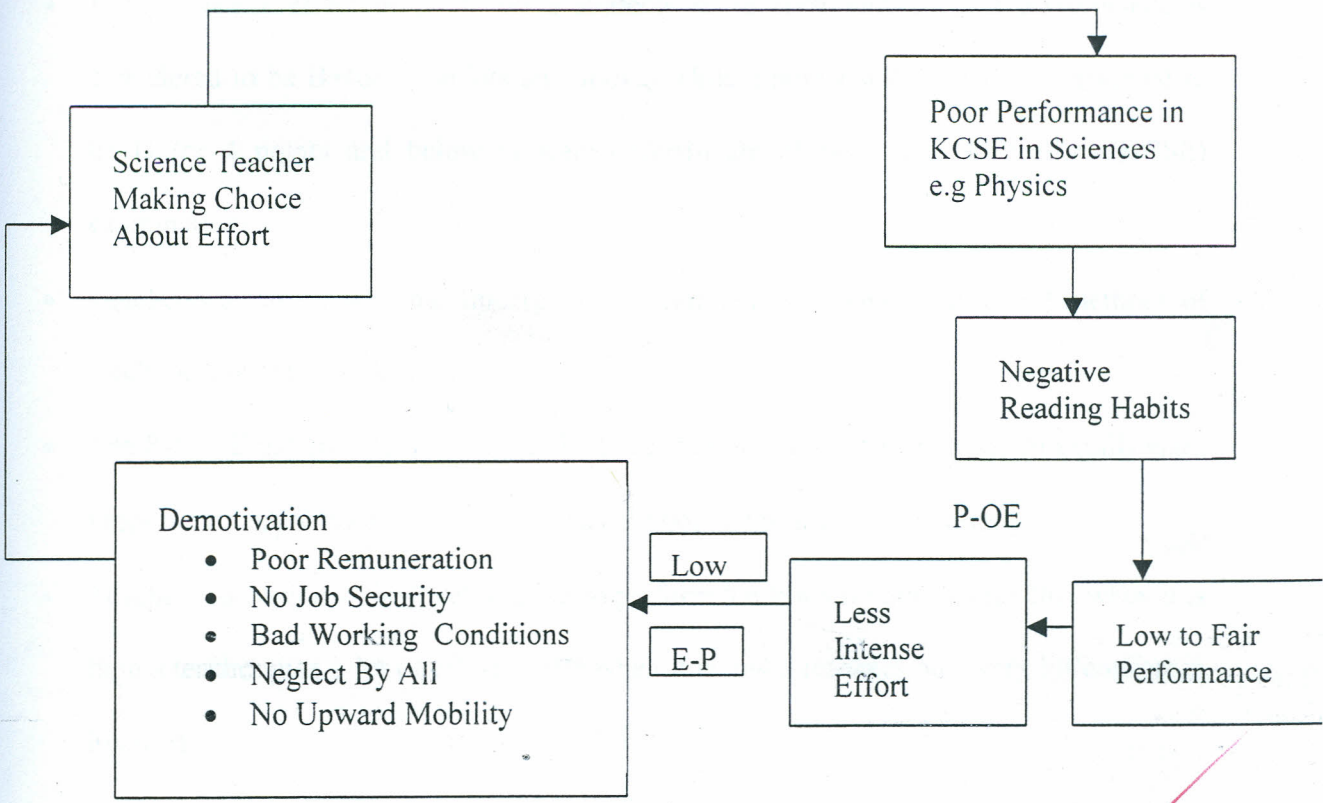
E-P Effort –Performance Expectancy

P-O Performance -Outcome Expectancy

According to Fig. 1 above the Science teacher following Path A was highly motivated by such factors as remunerative salary, job security, good working conditions, his work was appreciated by both the employer and the community, he was given a good appraisal which led to high hopes and also enjoyed upward job mobility. This teacher put a lot of effort in his work, the result of which was good performance in his work. He also had positive and intensive reading habits which made him prepare thoroughly for his teaching. The overall effect of all this was excellent achievement in Physics examinations.

Conceptual Framework on Factors Undermining Teacher Motivation to Teach Leading to Poor Performance.

***Fig 2. A Demotivated Teacher: His Effort and Results**



* Source: Adopted from Orodho JA (2004) pp.30

KEY

E-P Effort- performance

P-O Performance – Outcome Performance

Fig. 2 above is an illustration of a teacher who was demotivated in his occupation. His approach was identified as Path B which was in sharp contrast to the teacher of fig. 1. In this case the teacher in fig. 2 was generally demotivated by such factors as poor remuneration, lack of job security, bad working conditions, being neglected by all and hence he had no prospects of upward job mobility. Such a demotivated teacher put less intensive effort in his teaching duties he had negative reading habits and in overall the results of his students in Physics examinations, were poor.

1.13 Definition of Terms

- Performance - effect of grade on a students score such that a good performance is considered to be B+(or 10 points and above) while a poor performance is considered to be D (or 4 points and below in Kenya Certificate of Secondary Education (KCSE) examinations.
- Teacher - a person who has undergone a programme of courses skills and methods of teaching subject in schools.
- The 8-4-4 (Eight-four-four) - broad fields education design in Kenya which entails eight years in primary school, four in Secondary school and four in the university.
- Teacher motivation - the level of drive to perform the teaching duties such that when it is high a teacher puts a lot of effort, while when it is low a teachers puts very little effort in his work.

CHAPTER 2.0: LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature related to the study as stated in chapter one. The main purpose of this study was to find out the causes which lead to poor performance in Physics in Thika as stated in the problem of study.

Many studies have been carried out both outside and inside Kenya especially by those charged with training of teachers, teacher trainees in various colleges, universities and the KNEC examiners among others. The aim of such studies in Kenya is to improve performance, particularly of KCPE and KCSE.

Other studies are related to students variables, to learning and how their roles contribute to the performance in examinations. Generally literature of these studies show that performances in examinations can be pegged on two main variables; the teacher and the student. In this study therefore the literature review is presented under the following headings:

a) Literature related to selected student variable under various subtopics

b) Literature related to selected teacher variables also under various sub topics.

2.2 Home Environment

Home environment is a broad concept which encompasses very many factors making it difficult to be adequately defined.

Fraser (1949) and Craft (1970) both in their findings of their study on home environment argue that at any given level of ability there will be variations in academic performance which can be accounted for by other factors other than the students ability. Hence the researcher found it important to investigate other social factors which can be associated with a student's

performance of KCSE in Thika District especially in Physics where no such a study has not been done before.

Researchers like Fraser (1959) Douglas (1964) and Cullen (1970) among others have demonstrated in their studies on home environment's influence on performance that differences in home environmental factors such as parental level of education, occupation, living conditions, encouragement, family size among others determine pupils progress to a certain extent.

The researcher therefore found it important to investigate whether home environment factors contribute to poor performance in Physics in the country and in Ruiru Division of Thika District in particular.Home environment also influences a student's academic performance and also his achievement motivation.

Artkinson and Feather (1966) in their studies on parent's level of education noted that the achievement motivation of children whose father attained high education and are in high income tends to be high. Moreover, Heckhauzen (1967) citing several studies on the parental level of education and occupation showed that achievement motivation has been shown to be higher in middle class than in low working class.

Since the study of home environment is a wide and difficult area many scholars and researchers who have investigated on the relationship between the home environment and academic performance have tended to select specific home factors depending on their interests. Some of these scholars include Douglas (1964) Cullen (1969) Pidgeon (1970) Kapila (1976) Fraser (1959) to name just but a few cases.Douglas (1964) in his studies on home environment observed that parents who are unskilled are more often than not of low educational attainment, take little interest in their children's school work, have large families, live in grossly overcrowded homes, lacking amenities and tend to send their children to ill equipped schools.

Other factors from the home background such as socio-economic status, attitude of parents towards education, position of the child in the family, parental aspirations and social classes have been studied and seen to be influential in academic achievement of the students. They can hence affect a students performance in Physics.

Kapila (1976) in his study of school children in Nairobi's performance showed that there is a positive association between parents participation in their children's academic work and academic performance.

Cullen (1970) in his study on the influence of the environment showed that academic performance of a child to some extent is influenced by parental encouragement on academic performance. His study shows that on average parents of high achieving children seem to take more interest in the child's schooling than parents of low achieving children. However not all children whose parents take keen interest in their work do well in school. This implies that there are other factors which contribute to the child's academic performance apart from the parents interest and encouragement. According to him a child who comes from a home where parents are interested in education offer him help and encouragement and stress the value of deferred rather than immediate gratification which highly motivate a child who comes from a family whose values and norms are in conflict with those of a school system. Thus parents who have a positive attitude towards education will not only press their children to do well in school but will also physically help them with their work in subjects which they can.

Douglas (1964) in a study of the influence of home environment on performance among over 500 children from every type of home in England and Wales, found out parental encouragement to be significantly related to the child's school achievement. He saw parental encouragement to be of considerable importance in determining the educability of children. He noted that children

whose parents were most interested in their education and encourage them to do well score high on average than children of parents who were least interested and did not encourage them. He further noted that children with interested parents keep ahead of the rest whatever their initial starting performance was. According to him, parental interest implies level of support and encouragement which will help a student to take interest in study and use his capabilities as far as he can. The researcher decided to investigate whether parental encouragement could influence the performance of Physics in Ruiru Division.

Pidgeon (1970) in his studies on the achievement in Mathematics of children in boarding and in day schools in Britain found out that parental encouragement led to improved performance. The results showed that boarding school children who tended to come from favourable home backgrounds achieved higher scores in early years of primary school. Their performance was compared to that of day school children. It was discovered that day school pupils performed well at higher levels because of the day to day support and encouragement given by their parents at home. This researcher argued that boarding school pupils were separated from their parents while most of their learning went on whereas the day school pupils remained with their parents at home. This means that parents are important in motivating their children to do better in their studies. It can hence be said that parental interest and attitudes of parents are very crucial than material facilities and economic conditions. Parental encouragement and the interest they show to the child's school progress can greatly provide an explanation as to why children who are assisted to solve difficult homework problems record better performance in school.

It is important to point out that this literature did not exhaust all sources hence there is need for further investigation into the relationship between parental encouragement and academic performance in Physics.

This study was done hence try to find out the relationship between academic performance and parental encouragement as stressed by parents active assistance, appreciation and show of interest in students homework.

Cullen (1969) in his study on parents role on their children's education observed that the education of the parent can be an indication of educability of the child, but paradoxically she noted that the relationship between the two appear to be hereditary and environmental; hereditary in that a child will tend to inherit the capacity of parents often reflected by the latters education, economic position, parental familiarity with the school system, their attitudes towards education and the amount of help they give the child.

In her opinion therefore children whose both parents had attained secondary education were rated higher than those children who had only one parent having secondary education or both had not attained secondary education.Her study showed that under achievers in school are 91% from parents who had no secondary education.The researcher intended to find out whether parents education could influence the students performance in Physics examinations.

2.3 Parents Occupation

Fraser (1959) studied 400 Aberdeen school students aged 12 ½ and 13 ½ years to find out how parents' occupation affects students' performance. He found that the father's occupation significantly related to the child's school success. The study revealed that children of parents of high income occupation are at an advantage over those whose parents are of low income occupations. She observed that parents of low income occupations tend to be less well educated and have less intellectual interest than parents with higher income. It can therefore be pointed out here that if parents are poor and lack interest in the child's education, they may not be able to provide the necessary learning facilities at home neither will they encourage their children to do

well in school. Unemployment or low income employment means parents live in a state of poverty, hence they cannot afford to provide the necessary learning facilities to their children.

Douglas (1964) conducted a study to investigate the relationship between parents' occupation and child's performance. He found that children of lower working class parents were underachievers while students of high working class parents perform better in school. He explained that parents in well paying jobs tend to take more interest in their children's education. They frequently visit the schools where their children learn to find out how they are progressing in their academic work. On the other hand parents in low income occupations are least interested in their children's education due to their financial constraints. It is rare for them to visit their children's schools neither to provide adequate learning resources nor to give a lot of encouragement (moral support). Such children are also sent home frequently for school fees.

Another study by Cullen (1969) was aimed to find out whether performance is influenced by a parents occupation. Her study showed that the parents occupation indirectly reflect their intellectual ability which is inherited by the child. In her view social process of occupational mobility places the least gifted parents at the bottom of occupational scale. They in turn produce children who are of low innate ability. Although this argument is true to some extent there are many studies which have matched children's intelligence with parents occupation and have found that those children of parents with high income jobs are superior in academic achievement than children of low income earners. This study was intended to investigate further from the ground the relation between a parents' occupation and income with a child academic performance in Thika District.

Fraser (1959) in his study on home environments' suggest that the parents level of education has some influence on the students academic performance irrespective of his or her intellectual

ability. This line of thought also got backing from other studies conducted by Miller (1970) and Marjoribank (1972) in their studies which emphasized the importance of occupation as index of socio-economic status which positively contributes to the academic performance of a child regardless of his intellectual level. In addition Kathuri (1980) showed that socio – economic background among other factors have a lot of effect upon school pupils. This literature clearly shows that children of parents who occupy good positions in employment tend to perform at a significantly higher level than those children whose parents are in low income occupations. The researcher aimed at finding out if socio-economic status of parents influence the performance of Physics in Ruiru Division of Thika District.

Evidence form literature on the size of the family show that children from large families tend to have less contact with their parents. As a result, such children tend to have less attention, encouragement, simulation and support which is important in the development of intellectual skills. More often than not the standard of living deteriorates with the increase in the number of family members since the resources which are usually limited have to be shared among the members. A student from a large family is not only denied material support required in his school work but also his educational opportunities are limited. Given these circumstances children from large families are likely to perform poorer than those from smaller families. This argument was supported by a lot of research findings, some of which are identified below:

Fraser (1959) in his study on home environment's influence on academic performance argued that a large family implies overcrowding, lack of reading space, insufficient and quiet area for study, frequent disruption of reading and other activities. He found that these combination of factors adversely affect student's school work leading to poor performance. The researcher aimed at investigating whether such factors actually contribute to poor performance in Physics examinations in Ruiru Division.

Nisbet and Entwistle (1967) studied 2,968 Aberdeen school children on relationship between size of family and performance and found that the academic performance of children from small families is significantly higher than that of children from large families. The performance of girls seemed to be more affected by the family size than that of boys since they have more domestic responsibilities than boys in helping mothers to cook, wash, cloth, clean utensil, serve siblings among other family chores. Such domestic duties consume much of these girls time and as a result their performance in school is affected. It was the intention of the researcher of this proposal to find out if in one way or the other the above cited findings were also a common place in Kenya as regards performance in Physics and particularly Ruiru Division of Thika District.

2.4 Learning Resources

Literature related to learning resources of the KCSE course show that a student from a home with adequate learning facilities is at an advantage compared to one whose home has inadequate facilities for example Dale and Griffith (1970) in their study on learning resources found the importance of learning facilities provided by parents when they argued that the most obvious indication of parental encouragement of academic progress is seen when parents give priority to the provision of good learning facilities for quiet 27 and homework. The two scholars found that 20 out of 39 homes of low achieving students have no fire in any other room except the kitchen. Their assumption was that lack of fire in the study room may affect the child's concentration in his study.

Another study conducted by Cullen (1969) aimed to find out if home environment/circumstances can accelerate a child's achievement. Such physical facilities like spacious study room, uncongested and with necessary furniture provide conducive learning environment. She found that insufficient living space constitutes one of the socio-economic factors responsible for low

achievement in academic work. Overcrowding in a study area deprives of the child the privacy and quietness which tend to depress his or her school performance.Chogo (1982) in his study of students in Vihiga division of Kakamega district found out that poor performance in Physics was associated with unavailability of enough necessary facilities and equipment among other variables.It was the intention of the researcher to go into the field and find out if learning resources/facilities in a student's home or school could and did in fact affect the academic achievement of a learner with particular reference to Physics.

2.5 Motivation of Students

Many studies have reported a significant relationship between students achievement motivation score and academic performance. Mc Cceland et al (1953) Atkinson (1964) and Hechauzen (1967). These researchers found that students level of motivation affects their performance. Maundu (1980) in his study on 3525 students from eight government secondary schools in Kenya to find out whether motivation affects performance reported negative relationship between achievement motivation and score attained in different subjects. He observed that pupils in secondary schools are normally in the adolescence stage in which their interests are quite varied. Therefore a pupil may generally have need to achieve success in many other areas but not in academic work. A student with a high academic motivation may not necessarily be highly motivated to do well in the Physics examinations.The researcher aimed at investigating whether a students poor motivation contributes to a poor performance in Physics in Ruiru Division of Thika District.

2.6 Students Attitude to Learning

There is tangible evidence which show that a students attitude towards a subject tend to have some influence on his/her performance. Attitudes affect achievements and achievements on the other hand affect attitudes.

Ongoma (1987) in his study on students attitude to learning and its effects on performance refer to this relationship as a dynamic interaction between feelings and behaviour as observed in performance He studied and analysed the relationship among attitudes, expectation and performance. He found that the level of expectation and performance is a kind of self perpetuating cycle affecting individuals self concept that is related to attitude and anxiety.

Bolton (1976) in his study on attitude of students to learning stated that attitudes influence cognitive learning. He said that when a student's attitude is particularly negative towards a subject, teachers and others who are concerned with teaching of the subject should examine and carefully appraise the situation. Although his study was based on Physics in the USA the results indicate that those who hated physics perform poorly compared to those who liked it.

The researcher of this project intended to find out whether student's attitude to studies could affect performance of Physics in KCSE examinations in Kenya particularly in Ruiru division of Thika District .

2.7 Teachers Qualifications

There is a lot of literature which can be reviewed in relation to teachers variables and how these variables influence a students performance. A few selected literature was deemed sufficient to show how the quality of teachers, their methodology and training background influenced their performance in the job and how in turn these qualities affect a learners performance.

Sifuna, (1972) in his studies on teachers qualification in Kenya noted that in examination oriented school system effectiveness in teaching is predominantly measured in terms of examination achievement. Teachers careers are by and large conducted by examinations. There is always the expectation of providing demonstrative results a high production of passes even if this must be achieved by using rote learning methods.

The above clearly shows that teachers potential to teach has for a long time been pegged to academic achievement. They are hence expected to produce good passes in their students results. Those who do not assist their children to produce good grades are detested. Their poor teaching methods are responsible for poor base of academic standards and are to blame for the mediocre level of performance.

It was for these reasons that a review of literature related to the quality of teachers, teaching methods and their training background was found to be of importance as a way forward in the research as to what attributes were responsible for the performance of Physics examinations

2.8 Quality of Teachers in Relation to Performance of Physics

Teachers have a special role in any good performance of a subject as they control most of the students learning instructions and activities both inside and outside the classrooms all of which affect a students performance.

Teachers are expected to be good role models in daily life situations which closely relate to students academic life. They are also expected to guide students into careers open to them which can be a high motivating factor towards students academic achievement. For these reasons teachers should be of high quality inorder to positively influence students academic achievement.

Eshiwani (1983) in his study on instructional methods indicated the importance of teachers by recommending that appropriate instructional methods in science for schools should be developed and introduced in the pre-service and in-service course for science teachers. He recommended career guidance and counseling in schools in relation to science and technology be strengthened and improved to equip teachers with skill to motivate students highly. Qualitative attributes of teachers are of paramount importance in determining the quality of education in which the intellectual development of the child was passed, says the Report of the National Committee in Education Objectives and Policies of 1976.

Achola (1990) studied teacher characteristics and effects on performance and showed that the teacher who spends a lot of time with students giving and marking homework and giving extra tuition during weekends, students performance tends to be better than those not well catered for.

Kathuri (1980) in his studies examined the teachers qualification factors, both formal and professional training in agriculture and found that teacher qualification was highly significant in contributing to students achievement. For this reason the variable was investigated in Physics to find out how it affected performance.

Rosenshine and Furst (1991) in their study on the quality of teachers in relation to performance reported that some behaviours such as teachers enthusiasm, the degree of orientation of teachers, teachers emphasis on achievement to students, teachers clarity or his presentation of his lesson to students, his constructive criticism of learners and his use of examples influence students performance.The researcher tried to investigate whether teaching experience could influence the performance of Physics Examination in Ruiru Division.

2.9 Teaching Methodology

Many educational researches have been carried out the world over and in Kenya especially by those charged with the training of teachers, teacher trainees in various colleges, universities and by the KNEC among others. The aim of such studies has been to improve performance in examinations especially KCPE and KCSE. It has been found that even trained teachers require regular in-service/refresher courses to keep abreast with the current researched teaching methodologies. Supervisors play a vital and significant role to help teachers identify clearly their own weakness and to see the students problems more squarely. They guide to develop greater competence in job performance of teachers, administrators and all classes of professional workers in schools.

This section will mainly focus on research related to teaching methods. Two main methods are widely used by teachers: Teacher-centred and Child-centred. Many teachers favour Child-centred approach.

Raymond (1973) in his study on teaching methodology pointed out that the teacher should use the laboratory of child-centred approach as a method of enquiry. In this kind of a class the teacher provides for the learning activities which encourage active, participation of each pupil which is highly motivating.

Lasky (1973) conducted a study and observed that teachers should construct models and improvise teaching materials which should aid the child in finding out knowledge for himself as put forth by Comenius who advocated for Child-centred or problem solving approach.

Nyoro (1982) in his study on teaching methodology found out that good teaching methods influences results in examinations. He also supported the Child-centred approach which tends to produce better results.

Russel (1967) studied teaching methods in primary schools where he found that education in elementary schools is almost purely bookish. He asserts that all instruction should be given with a view to teaching the spirit and technique of enquiry rather than from the standpoint of imparting the right answers to questions, to improve the students performance. Similar ideas are shared by Makarenko (1945) who also found that child-centred approach in teaching brings about good results in examinations.

Ivan Illich (1971) conducted a study on teaching methodology in which he blames poor teaching methods as some of the main obstacle to learning. A free and democratic atmosphere is very conducive to learning.

Sifuna (1975) in his study on teaching methods says that instead of a teacher being a source of authority of knowledge using the lecture method from one lesson to another and also being a strict disciplinarian who punishes children if they talk or move, he should be a guide and a facilitator who organizes group activities and allows pupils movement, talk, contribute to lesson procedures and even allow them to initiate their own activities.

2.10 School Discipline

Discipline of the headteachers, teachers and students is paramount to the success of the school. This comes about due to strong devotion, dedication and hard work of all these groups.

Otherwise the school practices which contribute towards failure of students in most cases have been attributed to both teachers and students.

The level of discipline is a very important factor in examination performance. The discipline in schools is inclusive of both teachers and students. Although the teachers role is to provide the students with the knowledge they require for their examinations, this cannot be done in the absence of discipline. Hence good performance in national examinations is invariably associated with teachers and students discipline.

Occasionally the press has published very humiliating articles castigating teachers. For instance Macharia (1986) and Luchemo (1986) had very disturbing report about teachers. Macharia (1986) wrote on teachers' discipline in the following words: "teachers have always been associated with all the evils of the society. Poor examination results, pregnancy of school girls, moral decadence, rumour mongering and others " This remark shows and means poor modeling affecting performance of all subjects. On a similar note Luchemo (1986) observed that the declining performance in national examinations was due to negligence on the part of the teaching staff. "visit any school at 10.30 ar 35 vill find women teachers gossip in the staffroom"

It was the intention of the researcher of this project to investigate whether teachers discipline and that of students could influences students performance in Physics.

2.11 Summary

This chapter focused on literature review related to the causes of poor performance of KCSE Physics among Form Four students in Thika District. The causes which were investigated included the **environmental factors** such as the home background of the student. This includes the economic status of the parents and the role they play in their children's education. **The quality of teachers** in terms of level of qualification and also their teaching methods were

reviewed to find out to what scholars have said on the quality of teachers and **the teaching methods** in relation to the performance of physics in schools.

The literature review also focused on **the learning resources** and facilities in the schools such as laboratories, libraries, text books, chemicals, apparatus among other facilities and resources.

Other literature focused on **the students altitude to learning** especially of Physics and how this affected performance. Finally the literature review focused on the **effects of discipline** on learning and how this leads to poor performance in Physics.

CHAPTER 3.0 RESEACH METHODOLOGY

3.1 Introduction

This chapter dealt with the Research Methodology which was to be used to investigate the causes of poor performance of Physics in Ruiru Division of Thika District.

The chapter is subdivided into the following sub-sections; the Research Design, the Target Population, Sampling Procedures, the Research Instruments, Validity and Reliability of Research Instruments, Piloting and Pre-testing, Research Instruments, Data Collection Procedures and Data Analysis.

3.2 Research Design

To investigate the various causes of poor performance of Physics in Ruiru Division the researcher used, the survey method which would allow for a more extensive research on the nature of the existing conditions. The survey is a non-experimental method of research which involves gathering data and information from a cross-section of sample to come up with incidence, distribution and inter relationship between various variables e.g. population in an area, the facilities available, the distribution of the facilities between the population, how many have got how many and how many have nothing among other considerations.

Survey was preferred in this case than other designs like Case Study, Ethnographic, Historical, Correlational and Expost facto as it is more easier and practical in nature and also it does not involve a lot of statistics like other methods. In fact survey is used more widely in educational research as well as in the industries and ministries.

In addition the survey method fits within the implications of the Expost Facto research design due to the following:

- It is suitable in studying conditions or events which have already occurred but are now existing in the field.
- It investigates and helps to establish the nature of the relationships among the variables,
- It is recommended for research purposes in Social Sciences such as Education.

However the other designs such as the Expost Facto design have got some weaknesses such as

- Inability to manipulate the inadequate variables
- Lack of power to randomize
- Risk of improper interpretation of results and
- The design also lacks control

Kerlinger (1973) however warns that researcher should always treat the result and interpretation of the data of Expost Facto investigation with great care and caution.

3.2.1 Locale

The research was carried out in Ruiru Division of Thika District. The division has 31 public secondary schools while the whole district has 122 public secondary schools (Table 1.1) the district is divided into five divisions: Gatundu, Gatanga, Kakuzi, Kamwangi and Ruiru. The latter which is for the study is further subdivided into three zones; Juja, Ruiru and Gatuanyaga. Ruiru division is generally a hot and dry area and hence not very productive agriculturally. Most parents are peasant farmers and are not financially stable due to unreliable rainfall. Other parents are casual workers in the nearby industries and plantations, or even in business enterprise. The majority are not employed hence suffer all sorts of economic and financial hardships.

The researcher chose this locale because of various reasons:

There is scanty research carried out in this area on education and none at all on the causes of poor performance in Physics. Hence the research was exploring new horizons not investigated upon hitherto. The economic status of the parents has impacted negatively on the schools.

The researcher wanted to investigate whether the parents level of education, his occupation and income could be used to partially account for the poor performance of physics among other subjects in Ruiru Division.

Most homes have large families, which could be another hindrance to the provision of learning resources such as quiet learning rooms at home, textbooks among other provisions as well as the ability to pay school fees to curb frequent absenteeism due to lack of fees.

Most schools lack or have shortage of facilities such as laboratory apparatus and chemicals. Some schools have shortage of Physics Teachers while others have unqualified Physics Teachers.

3.2.1 Target Population

The DEO provided important information as he possessed the most vital documents on education in the district. He is also the custodian of government policies on education in Kenya in the District.

The HeadTeachers views and suggestions were crucial to this research as they are the ones who run the schools. Staffing and provision of learning resources is vested in the hands of the HeadTeachers, hence they were a target group in this study. Ten HeadTeachers filled the questionnaires.

Teachers were another target group for investigation since they are the ones who implement the curriculum throughout the teaching process. Good results are looked upon as directly related to

good teaching. Twenty Physics teachers from the sampled schools filled the questionnaire. Since they are the ones who actually teach they gave their own views on the causes of poor performance of Physics in Ruiru Division.

Students were the other target population in this study because they are on the receiving end in the education system and they are the ones who perform the examinations. They are affected by various factors hence was important to see how they cope with such situations. Their own views on why students perform poorly added more weight to this research work. Ten students from each of the sampled schools from Form Three filled questionnaires.

3.3 Sample and Sampling Procedures

The researcher employed a simple random sampling technique in singling out Ruiru division out of the five divisions by folding papers and picking on the one with a tick. A non-random sampling technique was used in selecting the District Education Officer and the headteachers of the ten sampled schools and the twenty Physics teachers in these schools. The researcher piloted his research instruments at the St. Paul's Gatuanyaga Secondary School. Simple random sampling method was used to arrive at the ten schools from where research was conducted. This constituted about 30% of the schools in the division. The researcher sampled ten Form Three physics students from each school. These were selected through systematic/interval sampling by use of class registers to ensure equal and fair representation of all students in that class. Purposeful sampling of schools was as follows: two boys boarding schools, two girls boarding schools, two mixed boarding schools and three mixed day schools and one Girls' Day School. The sample was used to make generalized remarks on the whole of the student population's causes of poor performance of physics in Thika District

3.4.0 ~~Data Collection~~ Research Instruments

Three research instruments were used in data collection: interview schedule, observation schedules and questionnaires.

3.4.1 Questionnaires

Three questionnaires were used in data and information gathering: the Student's Questionnaires, the Physics Teachers Questionnaire and the Headteacher's Questionnaire.

Students' Questionnaire

This was used to enquire about the home background of the learners, the availability of teaching-learning resources available in their schools and their attitude towards the subject of Physics.

Teachers' Questionnaire

This was used to enquire about the Physics teachers qualification, teaching experience and the teaching methods they apply while teaching their learners. The questionnaire also enquired about the availability of the teaching learning resources in the laboratory , library and the school in general as well as the possible causes enumerated.

Head Teachers' Questionnaire

This was used to enquire about the general environment of the school, the teachers qualifications, the resources available, the quality of students, admitted to Form I and the causes of poor performance of Physics in the schools as well as possible remedies that could be applied to improve the performance of this subject.

3.4.2 Interview Schedule for the D.E.O.

This was used to gather information from the District Education Officer- Thika District. This research instrument was used to gather information on the officer because , he usually operates on a very tight schedule and he is a very busy administrator who hardly has time to fill the many questionnaires which are brought to him by many researchers now and again. The interview schedule was used to enquire generally about the educational matters in the whole district and particularly on the causes of poor performance of Physics and in Thika District and possible solutions to this problem of study.

3.4.3 Observation Schedule

This was used by researcher himself. It highlighted general information about the learning environment in the schools he visited. This information was used to strengthen the data from the Interview Schedules and the Questionnaires. The observation schedule focused on the learning resources like classrooms, laboratories, library, and tried to determine how well equipped they were for use by learners and also a general observation of the school environment and its surrounding was made and noted.

3.5 Validity and Reliability of Research Instruments

Three research instruments were used in data collection: Interview Schedule, Observation Schedules and Questionnaires. Interview schedule was used to gather information from the District Educational Officer who gave a general view of the performance of secondary schools in

Ruiru Division touching on the causes of poor performance in general. An interview was chosen for this officer as he is normally too busy to fill the questionnaires.

An Observation Schedule was used by the researcher himself. It highlighted general information about the learning environment of the schools he visited. This information was used to strengthen the data from the interview schedule and the questionnaires. The Observation Schedule focused on the learning resources like classrooms, laboratories, libraries and tried to determine how well equipped they were for use by learners and also general observation of the schools environment and their surrounding was made and noted.

Three questionnaires were used in data and information gathering: the Student's Questionnaire, the Physics Teachers Questionnaire and the HeadTeacher's Questionnaire. An appendix for each of these research instruments is attached at the back of this research project.

3..5.1 Piloting and Pre-testing Research Instruments

The three Questionnaires and the Observation Schedule were first pre-tested at St. Paul's Gatuanyaga Secondary School before going into the field for the actual study's data collection. The said school provided a small portion of an identical sample of the population. Since the actual study was on ten schools, pre-testing on one school gave a 10% coverage of the total sample population.

The methods of sampling, administration and collection of data was the same as those which were used in the actual study. However this school involved in pre-testing was not be part of the sample in the actual study.

A lot of emphasis was put on the suitability of procedures, the size of the sample, the questionnaires' demands and the responses of the respondents and the completeness and variety

of information obtained.The objective of this pre-testing was to help in refining the research instruments before they were applied in the actual research.

3.6 Data Collection Procedures

The researcher secured a letter of introduction from the Institute of Continuing Education (ICE) Kenyatta University, which stated the purpose of the study. This letter was presented to the District Education Officer, Thika District who wrote a covering letter to all the heads of schools which had been sampled to request them to allow the researcher to collect data and information from their schools.

The researcher then booked appointments with the HeadTeachers of the sampled schools. He then visited the schools personally on the appointed days and dates and also delivered in person the questionnaires to the HeadTeachers and explained to them the purpose of the research. He then requested the HeadTeachers of the schools he visited to fill their questionnaires and also to help in distributing the others to the teachers who then filled theirs. They also assisted the researcher to reach out the sample of students who then were given questionnaires which they filled. The respondents were given ample time to fill the questionnaires before they were collected on the same day. Meanwhile the researcher used the opportunity to complete the Observation Schedule. He then thanked all respondents for their cooperation through the HeadTeacher.

3.7 Data Analysis Plan

Data collected from the field was coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS) . Data was analysed using the Chi-square test

for all statistical anlaysis, at the 0.05 level of significance. Data was reported using frequencies and percentages and presented using tables.

CHAPTER 4.0: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The purpose of this study was to investigate the causes of poor performance in K.C.S.E. Physics among form four students in Thika District. In this Chapter, the researcher presents the data analysis procedures employed to meet the objectives of the study. The study sought to answer the following research questions.

- What is the background environmental conditions surrounding the students in Ruiru Division Secondary Schools?
- What role do parents play in the learning process of their children?
- What part do teachers play in the learning process in their schools?
- Does the school administration contribute towards good performance in examination especially in Physics?

Below is a presentation of the data analysis procedures employed to answer these research questions.

4.2 Background On Environment of Students in Ruiru Division.

The first research question of the study asked:

What is the background environmental conditions surrounding the students in Ruiru Division Secondary Schools?

In order to answer this research question, the students who participated in the study (n=100) were asked to indicate:-

- The highest education level of their parents
- Their parents occupations.

The students responded as shown in the tables below:-

Table 4.1 Education Level of Parents.

(N = 100)

Highest education level	FATHER		MOTHER	
	F	%	F	%
No education	7	7.0	11	11.0
Primary certificate	19	19.0	25	25.0
Secondary certificate	46	46.0	49	49.0
University Education	21	21.0	11	11.0
No response	7	7.0	4	4.0
Total	100	100.0	100	100.0

As the table indicates, most of the parents (both mother and fathers) had upto Secondary level education. Twenty one parent of the fathers had University education while 11% of the mother had reached University level. Only 7% mothers had no education at all. A further 19% fathers and 25% mothers had primary education.

In regard to occupations of the parents, the students responded as shown below.

Table 4.2 Occupation of Parents

(N= 100)

Occupation of parent	FATHER		MOTHER	
	F	%	F	%
Peasant Farmer	31	31.0	42	42.0
Business	7	7.0	3	3.0
Casual laborer	1	1.0	2	2.0
Employed	49	49.0	43	43.0
No response	12	12.0	10	10.0
Total	100	100.0	100	100.0

Most of the parents were either peasant farmers or employed. Only 1% of the casual labourers. 12% of the students did not give any response to this question.

The researcher sought to establish the discipline level of students in the sample schools, as well as the quality of students admitted to form one in those schools. The headteachers who participated on the study (n-10) were asked to state:-

- How the students in their schools rated in discipline
- The general quality of students admitted the form one in their schools.

They responded as indicated in tables 4.3 and 4.4.

Table 4.3 Headteachers' Rating of Students' Discipline

(N=10)

Discipline Rating	F	%
Highly disciplined	7	70.0
Moderately disciplined	3	30.0
Total	10	100.0

Majority of the head teachers reported that their students were highly disciplined. Three of them (30%) reported that the students were moderately disciplined.

Asked to state the quality of the students admitted in their schools, the head teachers responded as below:

Table 4.4 Quality of Students Admitted to Form One

(N=10)

Quality of students	F	%
Above average	2	20.0
Average	6	60.0
Below Average	2	20.0
Total	10	100.0

Majority of the head teachers (N=6, 60.05) reported that the students admitted to form one in their schools were of average quality. Two (20%) reported that the students were above average while a further 20% reported that the students were below average in performance.

It was important also to establish the education qualifications and teaching experience of the Physics teachers in the sample schools. This is so because the teachers form a part of the students environment and directly affect performance. The teachers who participated in the study (N=18) were asked to indicate:-

- Their highest academic achievement
- Their teaching experience

Their responses to these issue are given below:-

Table 4.5 Academic Achievement and Teaching Experience of Physics Teachers:-

(N= 18)

Academic achievement	F	%
Diploma	6	33.3
First degree	8	44.4
Matters	4	22.2
Total	18	100.0
Teaching experience	F	%
Under 2 years	1	5.6
3 years	2	11.1
Over 5 years	15	83.3
Total	18	100.0

A total of eight (44.45) of the teachers were degree holders while six (33.3%) were diploma holders. The rest (n=4), 22.2%) had a masters degree. Majority of the teachers (n=15, 83.3%) had a teaching experience of over five years. Only one teacher had under two years of teaching experience while two more (11.1%) had an experience of 3 years.

An observation conducted by the researcher using the professional documents such as teachers' mark books, registers and admission registers indicated that:-

- Most of the parents were peasant farmers.
- Most of the parents could not pay school fees in time and some students reveled on sponsors.
- Be most of the schools absenteeism as common.

From the above it can be remarked that most students may not perform very well in national examinations due to the high level of poverty in the area which make their parents unable to support their children in all they require while in school.

4.3 Role Played by Parents in the Learning Process of their Children

The second research question of the study asked:-

What role do parents play in the learning process of their children?

The students participating in the study were asked to state the level of their parents' involvement in the provision of learning resources and verbal encouragement.

The following table presents a summary of their responses

Table 4.6 Level of Parents Involvement According to Students

(N=100)

Level of parental involvement	F	%
Very actively involved	52	52.0
Moderately involved	36	36.0
Not much involved	8	8.0
Not involved at all	4	4.0
Total	100	100.0

It can be seen from the table that majority of the students (52%) rated their parents as very actively involved in their school work. Only 4 students (4) reported that their parents were not involved at all.

The researcher sought to find out whether boys and girls differed on the rating of their parents' level of involvement in provision of learning resources and verbal encouragement. To do this, the researcher carried out a chi-square test to establish for significance of gender differences in the students' responses on this issue. The findings of this analysis are summarized in the table below:-

Table 4.7 Responses of Boys and Girls on Parental Involvement.

(N=100)

Gender of student	Level of parental involvement				
	Very actively involved	Moderately involved	Not much involved	Not at all involved	Total
Boys	35	12	3	2	52
Girls	17	24	5	2	48
Total	52	36	8	4	100
Chi-square value			10.588		
df			3		
Significance			0.014		

It was established that there were significant differences, at the 0.05 level of significance between boys and girls in their responses regarding the level of their parents' involvement in provision of learning resources and verbal encouragement. Specifically, more boys than girls rated their parents as very actively involved while more girls than boys rated their parents as moderately involved. The Headteachers were asked to indicate what they considered as the parents' level of involvement in their children's learning. They responded as below:-

Table 4.8 Parental Involvement: Head Teachers' Views

(N=10)

What is the level of parental Involvement	F	%
Very keen and helpful to their children	6	60.0
Rarely do they encourage their children	4	40.0
Never do they show interest	0	0.0
Total	10	100.0

A total of six (60.7) Head teaches reported that the parents were very keen and helpful to their children. The rest (n=4, 405) reported that the parents rarely encouraged their children to work harder at school. No teacher (n=0.90 %) reported that parents never show interest at their children's education. From the above responses on the question of Parental involvement in their children's education it can be remarked that both students and Headteachers concur on the view

4.3 Role Played by Teachers in the Learning Process.

The third research question of the study asked:-

What role do teachers play in the learning process of students in their schools?

The teachers participating in the study were asked to state the teaching methods they used most in teaching Physics. The responded as below:-

Table 4.9 Methods Used Most in Teaching Physics

(N=18)

Teaching method used	F	%
Teacher centered	2	11.1
Learner centered	16	88.9
Total	18	100.0

Only two teachers (11.1%) reported to have been using teacher-centered method of teaching. All the rest (88.9%) used learner-centered method in teaching Physics. Further, the teachers were asked to state how they rewarded those students who performed well in Physics. Their responses as summarized below:-

Table 4.10: Methods of Rewarding Students who Perform well in Physics

(N=18)

Reward	Used		Not used		Total	
	F	%	F	%	F	%
Cash awards (money)	1	5.6	17	94.4	18	100.0
Token (materials)	8	44.4	10	55.6	18	100.0
Verbal praises	16	88.9	2	11.1	18	100.0

It emerged that verbal praises were the most commonly used form of rewarding students who performed well in Physics, with 88.9% of the teachers reporting that they used it. This was followed by issuing of tokens in form of materials to the students (44.4%) while cash awards was the least used method with only 5.6% of the teachers endorsing it.

The head teachers were asked to state:

- Whether teachers in their schools were assigned to teach the subjects they were trained for.
- The rate at which the teachers in their schools utilized the teaching aids.

They responded as shown below:-

Table 4.11 Assigning of Teachers to Subjects:

(N=10)

Are teachers assigned to the subjects trained for?	F	%
To a large extent	3	30.0
Always	7	70.0
Total	10	100.0

Majority of the Headteachers reported that teachers were always assigned to teach the subjects they were trained for. However, three (30%) head teachers reported that happened to a large extent, meaning that some teachers taught subjects they were not trained for.

Table: 4.12: Rate of Utilization of Teaching Aids by Teachers:

(N=10)

Rate of use of teaching Aids	F	%
Often	7	70.0
At times	3	30.0
Total	10	100.0

It was established that majority of the Headteachers (N=7, 70%) reported that their teachers 'often' used teaching aids while the rest used the aids 'at times'.

The District Education Officer (D.E.O) was asked in an interview to indicate how many Physics teachers there were in Thika District. He gave figures shown in table 4.13

Table 4.13 Number of Physics Teachers in Thika District:-

(N= 150)

	Male Teachers	Female Teachers	Total Number
Trained	145	5	150
Untrained	0	0	0
KNEC examiners	3	0	3
District Mock panelists	3	0	3

As can be seen in the table, Thika District had a total of 150 Physics teachers of these, only five (3.3%) were female teachers while the rest were disadvantaged as there were not enough teachers of their gender to mentor them in Physics. There were three KNEC examiners and three district mocks panelists in the subject of these, non was a female.

The responses on this question on the role of the teacher in the learning process has briefly shown that majority of teachers use the child/learner centered method of teaching (88.9%) There rewarding of best performs is mainly through verbal praises (88.9) cash awards are not popular in schools (5.6%). They should not even be encouraged as they create a materialist mentality in the learner. Most Headteacher (70%) reported that they assign teaching duties to those trained for them. Unfortunately about 30% allocate teaching duties to those not trained for them.

It was also observed that majority of teachers (70%) use teaching aids and only 30% reported they use them at times. It was also observed that most of the Physics teachers in Thika District are males (96.6%) while only 3.4% are females. In addition, out of the 3 KNEC examiners and 3 panelists in the subject of Physics in Thika District, none of them is a female. Female teachers should encourage girls to change their attitude towards Physics so that they are not fully, locked out of the careers required good performance in Physics. The government can also offer scholarships to girls/women wishing to pursue courses which require good performance in Physics.

4.4 Contribution of School Administration in Students' Performance in Physics.

The fourth research question of the study asked:-

Does the school administration contribute towards good performance in examinations especially in Physics?

In order to answer this research question, the researcher considered the adequency of learning resources in the sample schools.

The headteachers who participated in the study were asked to rate the availability and provision of learning resources do students in their schools. Their responses were as shown below:-

Table 4.14 Availability of Learning Resources

(N=10)

Availability & Distribution	F	%
Excellent	0	0.0
Good distribution	6	60.0
Fair distribution	4	40.0
Poor distribution	0	0.0
Total	10	100.0

Majority of the heads reported that there was good distribution of resources in the schools, while the rest (n=4, 40.0%) reported as fair distribution. No Head teacher reported a poor distribution of learning resources. The teachers were asked to indicate the adequacy or inadequacy of laboratory and library resources in their schools, and responded as below:-

Table 4.15 Adequacy of Library and Laboratory Resources:- Headteachers Responses

(N=18)

Learning Resources (Laboratory)	Adequate		Inadequate		Total	
	F	%	F	%	F	%
Apparatus	9	50.0	9	50.0	18	100.0
Chemicals	7	38.9	11	61.1	18	100.0
Brochures	5	27.8	13	72.2	18	100.0
Learning Resources (Library)	F	%	F	%	F	%
Class textbooks	9	50.0	9	50.0	18	100.0
Teachers' Reference books	9	50.0	9	50.0	18	100.0
Teaching Aids	9	50.0	9	50.0	18	100.0

Concerning laboratory apparatus, class text books, teachers' reference books and teaching aids, 50% of the teachers reported that they had adequate supply while 50% reported inadequate supply. Regarding laboratory chemicals and Brochures, most of the teachers (61.1%) and the 72.25 respectively) reported that they were inadequate.

Asked the same question, the student participants responded as shown in table 4.6

Table 4.16 Adequacy of Laboratory and Library Resources: Students Responses.

(N= 100)

Learning Resources (Laboratory)	Adequate		Inadequate		No Response		Total	
	F	%	F	%	F	%	F	%
Apparatus	63	63.0	34	34.0	3	3.0	100	100.0
Chemicals	56	56.0	40	40.0	4	4.0	100	100.0
Brochures	22	22.0	74	74.0	4	4.0	100	100.0
Learning Resources (Library)	F	%	F	%	F	%	F	%
Text books	41	41.0	56	56.0	3	3.0	100	100.0
Reference books	35	35.0	62	62.0	3	3.0	100	100.0
Teaching Aids	46	46.0	51	51.0	3	3.0	100	100.0

It was established from the students responses that the schools largely had in inadequacy of library resources, while laboratory resources cape from brochures given by teachers concerning the same.

The purposes for this question from all the target groups: Headteachers, teachers and students indicate that there is main distribution of learning resources in the schools i.e.(50% adequate) However brochures and other teaching aids are inadequate i.e 74% inadequate for brochure, and 51% for teaching Aids.

1.5 Other Causes of Poor Performance in Physics.

The headteachers, teachers, students and the DEO were asked to give the factors that led to poor performance in Physics in the schools. Their responses are as presented here.

The headteachers and the teachers listed the following as the major causes of poor performance in Physics:-

- Low level of performance of students admitted at KCPE.
- Negative attitude among students whereby some students assume that subject (and Sciences in general) is difficult.

- Most of the students especially gives have no interest in the subject.
- Lack of facilities necessary for learning in Physics especially for practicals.
- The teachers do not motivate the students adequately and girls lack female Physics teachers to mentor them, therefore associating the subject with male gender.
- Teachers sometimes rash to over the syllabus and most of the students do not understand what is taught.
- Inadequacy of Physics teachers leading to heavy work load and hence lack of preparation by teachers.
- The subject is itself difficult due to its abstract nature and a wide coverage in the syllabus.

The students were also asked to state the causes of poor performance in Physics, and their responses were grouped into subject related, textbook related, Physics teachers' related and student related, factors. Their responses are as summarized below:-

Table 4. 17 Causes of Poor Performance is Physics: Students Responses

(N= 100)

Factor causing poor performance	Yes		No		Total	
	F	%	F	%	F	%
Subject related	39	39.0	61	61.0	100	100.00
Text book related	24	24.0	76	76.0	100	100.0
Physics teacher related	22	22.0	78	78.0	100	100.0
School related	39	39.0	61	61.0	100	100.0
Student related	71	71.0	29	29.0	100	100.0

It was established that majority of the students (71.0%) felt that the major caused of poor performance in Physics were student related . Such student related causes of poor performance included

- Negative attitude of students towards Physics
- Students not putting enough effort in study
- Girls associating the subject to boys.

This was followed by subject related and school related factors (39% in each case). Among the issues raised concerning schools and subject related factors were:-

- Lack of adequate facilities in the laboratories and libraries.
- The subject being too difficult for students to understand
- The subject covering a very wide area making it difficult for students to cover it thoroughly.

Twenty four of the students (24%) felt that the major causes of poor performance in Physics were text book related, while 22% of them reported that the causes were Physics teacher related. Text book related causes that were highlighted included lack of text books in the schools while teacher related causes included the teachers moving too fast for the students to cope and failure by the teacher to explain concepts to students clearly.

The whole of this chapter has therefore focused on the five research questions and analysed the responses of the various respondents per each question. The fundamental outcomes of the analysed data has shown the following :-

- Environmental factors largely contribute to the academic achievement and hence performance of the students.
- Parents play a key role in the learning process of their children by providing financial, material as well as moral support to them
- The teaching staff are very instrumental in influencing the learning process schools and shape the direction of learning activities. They hence determine a lot the outcome of the learning process.
- School Administration greatly influence the learning process in the schools. It has the onus of providing the learning resources as well as creating a peaceful and conducive environment for learning. This hence determines the performance of students in national examinations.

The data analysis has shed some light on various aspects of factors which cause poor performance in national examinations, particularly in Physics

4.18 Conclusion on Field Experience

The researcher enjoyed a lot of co-operation during all the phases of the study. The pre-study phase was used for the introduction and explanation of the purpose and importance of the study and assuring the target population that the data would be treated confidentially.

In the field the despondence co-operated well with the researcher. Respondents gladly filled in the questionnaires and also gave a lot of assistance where it was required. The D.E.O. and the Headteachers co-operated by answering the question and filling the interview schedule and the questionnaires. The researcher also received a lot of support in the schools from the Headteachers and students. Teachers for instant assisted the researcher during the sampling of students before the questionnaires were administered.The post-field experience involved the process of data analysis which is contained in the following chapter.

4.19 Discussion

The main aim of this study was to investigate the causes of poor performance in K.C.S.E. Physics among Form Four students in Thika District.

The study addressed itself to causes that relate to the home and the school environment and on the students themselves.

The researcher was prompted to conduct, this research on the area and on the subject due to the limited recorded findings on the same, yet it is clear many perform poorly, the subject is greatly feared and very few students take it.

Chapter 4 of this study prescribed the research findings on the selected variables on the home, student and school environment.

The outcome of the analysis on the selected variables are given below:-

4.20 Effect of Home Environment on Performance

On the home environment most of the parents were found to have secondary education. 46% of fathers and 49% of mothers had secondary education. However most fathers, 21% than mothers, 11% had University education. This means that most children may receive more motivation and encouragement to learn from their fathers who have also achieved more than the mothers. It is also clear that the students performance could be influenced by other factors other than their own ability.

The above is supported by Fraser (1949) and Craft (1970) both in their findings of their research on home environment. They argued that at any given level of ability there will be variations in academic performance which can be accounted for by other factors other than the students ability.

The findings related to the parents occupation showed that most parents were employed, 49% of fathers and 43% of mothers were employed. There is a strong relationship between the performance of the students and the occupation and levels of income of the parents as they can provide for all the required learning resources to their children.

Douglas (1964) in his study on the influence of home environment on performance among over 500 children from every home in England and Wales, found out parental encouragement to be significantly related to the child's school achievement.

4.21 Effect of Parental Occupation on Performance

This study showed that parents occupation influence performance of their children in schools. On parents occupations and its influence on performance Douglas (1964) found that children of lower working class parents were under-achievements while students of high working class parents perform better in school. He explained that parents in well paying jobs tend to take, more interest in their children's education. They frequently visit the schools where their children learn to find out how they were progressing in their academic work. The research of this paper fully agrees that students of Thika schools have not been performing so well especially Physics due to lack of this constant contact and encouragement from their parents.

4.22 Effect of Discipline On Performance

The other variable was discipline of the students in relation to their overall performance. This study showed that most headteachers (70%) rated their students discipline to be very high. Only 30% of the students were rated as moderately discipline. It is true that discipline is key to good academic performance. Hence the level of discipline is a very important factor in examinations performance. The discipline in schools is inclusive of both teachers and students. Hence good performance in national examinations is invariably associated with teachers and students discipline. For this reasons other variables were investigated to determine the causes of poor performance since the level of discipline is quite high.

4.23 Quality of Students Admitted Form One in Relation to Performance

The quality of students admitted to Form One was investigated. The data analysis of this research showed that only 2% of all students admitted to form one are above average and that majority (60%) were just average students. 20% are below average.

Such results indicate that the poor performance in Thika is mainly caused by the low quality of students admitted to Form One. The starting point (entry behaviour) is too low to cope with the heavy academic responsibilities and challenges of Secondary Education.

4.24 Quality of Teachers Versus Performance

The study also investigate on the academic achievement of teachers, it established that most of the teachers (44.4%) had a first degree, 33.3% had a Diploma in education while 22.2% had a masters degree.

It was also found that majority (83.3)% had over 5 years teaching experience.

The research noted that since most teachers were of high quality (First degree) and majority had a teaching experience of over 5 years, the poor results in the district may only be attributed to other factors such as too much workload or the pressure to produce good grades.

Sifuna (1972) in his study on teachers qualification in Kenya noted that in examination oriented school system, effectiveness in teaching is predominantly measured in terms of examinations achievement. Teachers careers are by and large conducted by examinations and that there is always the expectation of providing demonstrative results, a high production of passes even if this must be in achieved by using rote learning methods. The above indicates the teachers

potential is pegged on academic achievement. It is the view of this researcher that too much pressure on the teachers at times impacts negatively on the students performance.

4.25 Teaching Methodology in Relation to Performance

The other teacher related variable investigated by the researcher was the teaching methodology. The study showed that majority of teachers use the child-centred approach (88.9%) and only a simple minority of (11.1%) use the teacher-centred approach. Learner-centred approach has been recommended by other researchers such as Raymond (1973) Lasky (1973) and Nyoro (1982). Raymond 1973 in his study on teaching methodology pointed out that the teacher should use the laboratory of child-centred approach as a method of inquiry where by the teacher should provide for the learning activities which encourage active participation of each pupil.

Lasky (1973) conducted a study on use of teaching aids are observed that teachers should construct models and improve teaching materials which should aid the child in finding out knowledge for himself.

Nyoro (1982) also concurs that good teaching, methods influences results in examinations. He also supported the child-centred approach which tends to produce better results.

4.26 Effect of Learning Resources on Performance

The researcher also investigated on the influence of learning resources on performance in examinations. The study found that, most schools had adequate laboratory apparatus (50%) and also adequate library resources such as textbooks (50%) however it was found that teaching aids like brochures are highly inadequate (72% inadequate) and only 27.8% adequate. In addition teaching aids are only used by half of the schools (46%) adequate and (51%) to inadequate. Hence the researcher observed that, Thika District may have been performing poorly because of inadequate utilization of library and laboratory resources as well as teaching aids.

This view is supported by Chogo (1982) whose study of students in Vihiga Division of Kakamega District found out that poor performance in Physics was associated with unavailability of enough necessary facilities and equipment among other variables.

Cullen (1969) in her study on circumstances that can accelerate a child's achievement observed that physical facilities like spacious study rooms, un congested and with necessary furniture provide conducive learning environment. She also found that insufficient living space constitutes one of the social economic factors responsible for low achievement in academic work. It is the

view of the researcher of this paper that students of Thika whose parents cannot provide enough of these learning and Physical resources for their children contribute in one major way to the poor performance of their children in national examinations.

This research project has therefore focused on such causes which lead to poor performance in national examinations in Thika District mainly in reference to Physics. Such causes which have been investigated include the background environmental factors of the learner the provision of learning resources, the teaching methodology, students attitude to subjects and discipline of students in schools, among other causes.

CHAPTER 5.0: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Introduction

This chapter contains a brief summary of the research project, a discussion of the issues contained in the project as it also compares with findings of other researchers. Also in this chapter is a conclusion of the research findings as well as recommendation on how to improve performance of Physics in Thika District and in Kenya as a whole. The chapter ends with suggested readings for further study on this problem of research.

5.2 Summary of the Research Findings

The purpose of the study was to investigate the causes of poor performance in K.C.S.E Physics among form Four Students in Thika District.

Below are the major study findings:-

- The background environmental conditions surrounding the students such as parents level of education, parents occupation, the level of discipline in the school all affect a students performance in the examinations.
- The quality of students admitted to a school also determine the state of performance in examinations. Those admitted to schools with higher marks at K.C.P.E normally produce better grades at K.C.S.E. than those who had low grades.
- The quality of teachers especially his qualification and the teaching experience as well as his/her commitment to the teaching duties also determine the performance of his/her students in national examinations.
- The availability and provision of learning resources and their proper utilization is an important determinant of the performance in examinations. This study has shown that schools which have most of the required learning resources normally do well in national examinations than those with scanty resources.
- Parental involvement in the education of their children is important in influencing the performance in national examinations. This research has shown that most parents pay

more attention to the education of the boy child. Most girls felt that their parents only play a moderate role in the education of the girl child.

- The teaching methodology applied by teachers also have a profound role in determining the performance of their students. The most common method applied is the child centred approach. However it was noted by some students that some teachers are too fast in their teaching and hardly give the learner enough attention and guidance.
- The majority of Physics teachers are males. Only 3.3% are females. In addition no female Physics teacher is a trained national examiner nor a District panelist in mock examinations.
- The school administration also determines the performance of the students in the national examinations. It plays key role in organizing counseling programmes, as well as instilling discipline among students. These are key in the success of any school. The administration also provides learning facilities for the students.
- Students attitude towards learning especially towards Sciences like Physics usually determine their performance in national examinations. This research has shown that girls for example have a mentality that Physics is a difficult subject and its for boys. This makes them not perform well in it.

5.3 Conclusion

From the findings of this research the researcher came up with the following conclusion.

This research project has demonstrated that poor performance in KCSE Physics among Form Four Students in Thika and Kenya in general cannot be blamed on a single variable but a combination of many of them. These factors include: the home background environment of the students such as the socio-economic status of parents, such as parents and also his education which determines the parents ability to provide learning resource as well as introduction for their children to learn.

The research has also shown that poor performance in Physics is caused by school environment such as inadequate learning resources in the laboratories and libraries, poor teaching methods and teachers not showing enough commitment to their work also discourages the students hence they perform poorly. Inadequate and irregular practical experience as in sciences like Physics

contribute to ill preparation of candidates for national examinations. Such practicals for national examinations. Such practicals could promote self- discovery method which could motivate the learner more. This child-centred teaching method is recommended by many science researcher educationists as the best in promoting an inquisitive and self discovery altitude in the learner.

The research has also shown that learners poor or negative attitude to studies affect performance. Girls were found to have negative altitude towards the subject of Physics and they claim that it is a male's subject. This makes them perform poorly in the subject. Other student variables include negative peer pressure and influence by fellow classmates.

Hence the causes of poor performance be well traced from the home environment factors, the school environment and the students themselves. These three key areas are also responsible for the causes of poor performance of Physics in Thika District and the whole country in general.

5.4 Recommendations

This research project has investigated the various causes that lead to poor performance in Physics in K.C.S.E. among the Form Four students in Thika District. The researcher therefore recommends the following:-

- More Physics teachers should be trained and posted to the schools to reduce workload to relieve the teachers so as they could have more time for research and preparations. More female teachers should be trained to mentor girls in their attitude towards Physics. Teachers should also be regularly inserviced so that they apply the best strategies in teaching, to be able to demystify Physics through use of child-centred approach and being more explicit in elaboration of concepts.
- Parents and the school administration should ensure there are enough teaching learning resources such as textbooks, apparatus, chemicals, brochures, learning rooms, Physical facilities e.t.c. Such of these resources school also be put into good use by both the teachers and the students. This research has proved that learning resources are crucial in influencing the outcome of results in examinations positively. Hence all relevant resources of Physics textbooks classes should be made available to the learner and the teacher.

- More time should be allocated for Physics on the timetable. It should be the governments policy to increase the time of learning for this subject as it is the pillar of such important course like Engineering, Architecture e.t.c. The researcher recommends six lessons for Physics per week so that four are for practicals and two for theory work. Towards this the government should motivate the Physics teachers through salary increment.
- Guidance and counseling should be intensified especially in the area of careers so that learners are exposed to the opportunities the subject may lead to Career masters should since the students with the assistance of Physics teachers on the need to select and perform well in Physics as there are many occupations which require good performance in the subject.

5.5 Suggestions for Further Research

The research was only conducted in Thika District of Central Province Kenya. There is need to do a more broad based research covering a wider area such as a province or the whole country. The research also did not investigate all the causes of poor performance in Physics, however the sampled variables provide a foundation for further investigation hence there is need to research into this area move exhaustively. Therefore the research recommend more research in this subject and to be done in more deeper scope and scale so as to come up with more broad and detailed information an the real causes of poor performance.

The recommendations given in this project are just but a few and there is need for more researchers to do more research into the causes of poor performance of Physics and come up with more recommendations which could be used by all curriculum agents to improve the performance of Physics and other subjects in general.

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APPENDEX A

Students' Questionnaire

INSTRUCTIONS

- This is not an examination
- Therefore there are no right or wrong answers.
- Please answer the questions freely and as honestly as possible.
- Do not write your name anywhere on this paper: your responses will be treated with confidence.

1. Write the name of your school

_____

2. Indicate whether you are male or female by ticking (✓) in the box.

Male ☐

Female ☐

3. Indicate the highest level of your parents' education by a tick (✓)

Level of Education	Father	Mother
No Primary Education		
Completed Primary Education		
Completed Secondary Education		
Has University Education		

4. Indicate by (✓) your parents occupation

Occupation	Father	Mother
Peasant farmer		
Shop retailer		
Nurse		
Primary School Teacher		
University Lecturer		
Any other		

5. Please indicate by a tick (✓) the level of your parents involvement in the provision of learning resources and verbal encouragement.

Level of Involvement	**Parents**
Very actively involved	
Moderately involved	
Not much involved	
Not involved at all	

6. Please indicate the adequacy or inadequacy of learning resources

Learning Resources	**Availability**	**Adequate**	**Inadequate**
(i) Laboratories			
Apparatus			
Chemicals			
Brochures			
(ii) Library			
Class Textbooks			
Reference Books			
Teaching Aids			

7. How much time on your personal time-table is allocated to Physics? Show by a tick (✓)

Less than three (3) hours	
Three hours	
Over five (5) hours	

8. Suggest two causes of poor performance in Physics in your school.

_____

_____

_____

_____

_____

_____

Thank you for answering these questions.

APPENDEX B

Teachers Questionnaire

INSTRUCTIONS

- Do not write your name anywhere on this questionnaire
- Air your views freely. They will be treated confidentially

1. Name of your school_____

   _____

2. State your teaching subjects up to three only.

   _____

   _____

   _____

3. Show by a tick (✓) your highest academic achievement.

Academic Achievement	
Diploma	
First degree	
Postgraduate	

4. Show by a tick (✓) your teaching experience

Teaching Experience	
Less than two (2) years	
Two (2) years	
Three (3) years	
Over five (5) years	

5. Indicate by a tick (✓) the teaching method you apply most in your subjects.

Subject I	Teacher centered (Lecture method) Learner (Child) centered	
Subject II	Teacher centered (Lecture method) Learner (Child) centered	
Subject III	Teacher centered (Lecture method) Learner (Child) centered	

6. Please indicate the adequacy or inadequacy of the following in your school.

Learning resources	**Adequate**	**Inadequate**
(i) Laboratories		
Apparatus		
Chemicals		
Brochures		
(ii) Library		
Class Textbooks		
Teachers Reference Books		
Teaching Aids		

7. How do you reward those who perform well in Physics? Indicate by a (✓)

Cash awards (Money) ☐

Token (materials) ☐

Verbal praises ☐

None ☐

8. Indicate the causes of poor performance in Physics in your school up to three.

_____

_____

_____

9. Suggest two ways of improving performance of Physics in your school.

_____

_____

_____

_____

_____

10. Make any comment you think is useful for this study.

_____

_____

_____

_____

_____

_____

_____

Thank you for your Co-operation

APPENDEX C

Head Teacher's Questionnaire

INSTRUCTIONS

The following questions are intended to help gather vital information about the students, teachers and the school as a whole as a background to the research objective to unearth the causes of poor performance of students in Physics.

Please provide answers to all the questions as accurately and as honestly as possible. All your answers will be treated with confidence.

You are also free to give any other information which in your opinion is relevant to this study but has been omitted in this questionnaire.

1. What is the name of your school?_____

2. Are teachers in your school assigned to teach the subject they are trained for?

   Not at all ☐

   At times ☐

   To a large extent ☐

   Always ☐

3. How do you rate the availability and provision of learning resources to students in your school?

   Excellent ☐

   Good distribution ☐

   Fair distribution ☐

   Poor distribution ☐

4. Rate how teachers in your school utilize the teaching resources/aids? Show by a tick (✓)

Often ☐

At times ☐

Rarely ☐

Never ☐

5. In terms of student discipline, how do you rate those of your school? Show by tick (✓)

Very disciplined ☐

Highly disciplined ☐

Moderately disciplined ☐

6. What do you consider as the parents' level of involvement in their childrens' learning?

Very keen and helpful to their children. ☐

Rarely do they encourage their children. ☐

Never, do they show any interest in their children's education. ☐

7. What is the general quality of students you admit to Form One?

Above average ☐

Average ☐

Most below average ☐

8. How many times per year is your school inspected? Show by (✓)

Once only ☐

Two times ☐

Three times ☐

Over three times ☐

9. What is the level of qualification of Physics teachers in your school? Show by a tick (✓)

Untrained teachers ☐

Diploma holder ☐

Degree holder ☐

10. In your opinion what are the factors leading to poor performance of Physics in your school?

_____

_____

_____

_____

_____

11. Suggest some steps that can be taken to improve the performance of Physics in your school.

_____

_____

_____

_____

_____

Thank you for your cooperation and accepting to fill this questionnaire.

APPENDEX D

Interview Schedule for the District Education Officer (D.E.O).

1. Please indicate the number of public Secondary Schools as per the following in the district.

	Boys	Girls
Boarding		
Day		
Total		

Mixed Day_____

Mixed Boarding_____

Mixed Day and Mixed Boarding_____

2. Indicate how many Physics teachers there are in the district as required in the table below:-

	Male	Females
Trained Untrained KNEC Examiners District Mock Panelist		
Total		

3. Suggest three causes of poor performance of Physics?

4. Suggest ways and means of improving Physics performance in the district.

APPENDEX E

Observation Schedule on the school

1. Accessibility of the school from the main road_____

2. (i) Size of the school_____

   (ii) Type of school e.g. Boy's Boarding_____

3. Number of students per class_____

4. Text book ratio per student_____

5. State of the library and the nature of books available_____

6. Number of Physics teachers trained KCSE examiners?_____

7. What are the economic activities of the area the school is located_____

   _____

   _____

8. Briefly outline the general environment of the school_____

   _____

9. A comment on the nature of students and teachers discipline_____

   _____

10. Use this schedule to observe and peruse such documents as the teachers mark books, register and admission register to gather more information on reasons why students perform poorly in Physics. Make remarks.

    _____

    _____

    _____

    _____

APPENDEX F

Research Timetable for Proposal and Research Project.

DATE/MONTH	WEEK(S)	TASK	REMARKS
August 2004	1-2	Preparation of a research problem to be investigated	This has been done
	3-4	Learning techniques of writing the first three chapters of the proposal, reviewing literature of the related areas	This has been well covered.
Sept 2004	1-2	Review of literature (cont)	Review was not fully done. Draft was written
	3-4	Writing draft of chapter one of the proposal	
Oct 2004	1-2	Writing draft of chapter two of the proposal	Draft was written though not on time
	3-4	Preparing for chapter 3 and revision of theory work	
Nov 2004	1-2	Writing draft of chapter three	Chapter three was not completed on time.
	3-4	Writing the full research proposal Revision for theory paper	
Dec. 2004	1	Sitting for exams on theory of research proposal. Handing in research proposal for marking.	Research proposal was ready in early December
	2-4	Attend research seminars	

DATE/MONTH	WEEK(S)	TASK	REMARKS
Jan 2005	1-4	Making corrections on proposal	
Feb 2005	1-4	Supervisors studies the project proposed and makes remarks	
March 2005	1-2	Consultation with the Supervisors	
	3-4	Writing final draft of chapters 1 to 3	
April 2005	1-2	- Furnishing the Research Project Proposal	
	3-4	- Consulting supervisor on writing research project.	
May 2005	1-2	Data collection	
May 2005	3-4	Data analysis	
June 2005	1-2	Writing the draft chapter three and four	
June 2005	3-4	Observation of chapter three and four by the supervisor.	
July 2005	1-2	Writing the whole project and prove reading	
July 2005	2-4	Binding the research project	
Aug. 2005	1-4	Handling in the research project	
Aug- Oct 2005		Marking of the project.	
Oct-Dec 2005		Awaiting the graduation ceremony	

APPENDIX G

Budget Estimates for Research Proposal and Project

Particulars	**Quantity**	**Estimated Amount**
Stationery	Foolscaps/pens	5,000.00
Printing 1- Questionnaires 2- Interview Schedule 3-Observation Schedule Printing and binding the proposal	DEO- 14 copes Headteachers – 14 x 3 copies Teachers – 24 x 3 copies Students – 104 x 3 copies Observation schedules 14 copies 4 copies	 8,560.00 10,500.00
		19,560.00
Transport & Subsistence	4 days to DEO's office @200 10 days to 8 schools @ 200 10 days to schools @ 200	
	2 days (DEOs) 20 days	
		15,800.00
Data Analysis of project Printing 4 copies Production & Binding 6 project copies		15,000.00 12,500.00
Contingencies (%)		13,000.00
Total		**80,360.00**

APPENDIX H. Schools Involved In The Study

1. Thika High School (Boys Boarding)
2. Chania High School (boys Boarding)
3. Munyu Girls Secondary School (Girls Boarding)
4. Chania Girls Secondary School (Girls Boardning)
5. Joytown Secondary School (Mixed Boarding)
6. Thika School for the Blind (Mixed Boarding)
7. Ngoliba (Mixed Day Secondary)
8. Munyu Mixed (Mixed Day Secondary)
9. Juja Secondary School (Mixed Day Secondary)
10. Kenyatta Girls (Girls Day)
11. St. Pauls Gatuanyaga Secondary School (Boys Boarding) Pilot School.

KENYATTA UNIVERSITY

DIRECTORATE OF SELF-SPONSORED PROGRAMMES

P.O. Box 43844
Tel. 810901 – Ext 57536
Nairobi, Kenya

DATE: 28/4/05

TO WHOM IT MAY CONCERN:

This is confirm that MUTURI, N. NICHOLAS
of Reg. No E54/0130/03 is a student of Kenyatta University
undertaking MASTER OF EDUCATION degree programme.

Any assistance offered will be appreciated.

Thank you.

Yours faithfully,

Henry O. Ayot

PROF. HENRY O. AYOT
DIRECTOR, SELF-SPONSORED PROGRAMMES

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Telephone (067) 31398 / 31272 (D.L)
FAX: (067) 31272
When Replying please quote

DISTRICT EDUCATION OFFICE

THIKA DISTRICT
P.O. BOX 262
THIKA.

REF: THK/ADM/19/TPY/75 **18TH MAY, 2005**

TO ALL PRINCIPALS
SECONDARY SCHOOLS
THIKA

RESEARCH: MR. MUTURI N. NICHOLAS

Attached, find a letter of Mr. Muturi N. Nicholas showing that he is a masters student at Kenyatta university. He wishes to carry out an educational research on performance of physics.

Kindly accord him the necessary assistance.

E.OTIENO
FOR: DISTRICT EDUCATION OFFICER
THIKA