

**A STUDY OF COMPUTER INTEGRATED EDUCATION  
IN SECONDARY SCHOOLS  
IN NYANZA PROVINCE, KENYA**

by

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## DECLARATION

I declare that this research report handed in herewith for the degree of Doctor of Philosophy at the University of Pretoria is the researcher's independent work. It has not been submitted for a degree or examination before in this or any other university.

FLORENCE Y. ODERA

  
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21 day of 3 2002.

## DEDICATION

This work is dedicated to my late parents, Andronico and Nerea, who inspired and motivated me to love education and believed in the education of girls as a catalyst to better family living.

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## ABSTRACT

This study is about computer-integrated education focusing on public secondary schools in Nyanza Province, Kenya. It is concerned with the investigation of issues involved in the implementation of computer technology in secondary education. The purpose of the study was to investigate how computers are used in schools and to provide evidence on the obstacles that inhibits effective implementation of computers in teaching and learning. It examined government policy, curriculum guidelines, secondary school computer policies and the school departmental policies regarding the use of computers in the classroom. A review of relevant literature explored the use of computers in teaching and learning in developed and developing countries.

Data were collected from Officers in the Ministry of Education, the Director and a Curriculum specialist at the Kenya Institute of Education (KIE) using structured interviews, from Principals and Heads of Department, using questionnaires in order to obtain qualitative and quantitative data. A semi-structured interview was also used for in-depth investigation with computer teachers. The data collected were analyzed through the use of descriptive statistics and tabulation. A sample of two Senior Education officers, two Curriculum Specialists, 25 Principals, 89 Heads of Department and 20 teachers participated in the investigation representing rural, urban and suburban areas.

It was established from the data obtained that the Kenya Government formulated a policy and supports the use of computers in secondary schools but there was no written policy document or guidelines circulated to schools for the implementation of the policy. It was further revealed that the government had no funds for purchasing computers for schools. Further results indicated that KIE had developed a Secondary Computer Syllabus and distributed it to some secondary schools, but no evaluation was done to assess the effectiveness of computer education in schools.

Most of the Principals reported having a computer policy and practiced whole school integration of computers in education, and using computers to teach computer literacy, traditional subjects and in administrative work. It was also found that a few HODs had departmental policies for the use of computers and were applying computer technologies in the teaching of the traditional subjects such as Accounting, English language, Mathematics and Science Education. Further more, computer teachers saw themselves as competent with computer literacy skills and taught students word processing, spreadsheets, database and programming. They were less confident to integrate computers into traditional subjects, although some of them integrated computers into various subject topics.

Barriers to computer integration into traditional subjects that were identified by the participants as lack of teacher training in the use of computer technology in the teaching of subjects and lack of adequate computers and lack of suitable software. The study suggests that systematic teacher preparation at pre-service and in-service course would facilitate effective integration and use of computers in teaching and learning. Finally, the study identified various limitations and makes suggestions for further research direction and recommendations for improvement and immediate action. A model of re-training of teachers is proposed to assist Principals of schools in the task of staff development in CIE.

## KEY WORDS

Policy

Curriculum

Evaluation

Implementation

Secondary Computer Syllabus

Computer Integrated Education

Computer literacy

Teaching and learning

Qualitative and quantitative studies

Software application

## CONTENTS

Declaration	i
Dedication	ii
Acknowledgements	iii
Abstract	iv
Abstract	v
Key words	vi
Table of contents	viii
List of tables	viii
List of figures	ix
List of abbreviations	x

### CHAPTER 1 PROBLEM STATEMENT AND DESCRIPTION OF THE RESEARCH METHODOLOGY

	Page
1.1 Introduction	1
1.2 Background to the study Problem	1
1.3 Statement of the Problem	4
1.4 Objectives of the Study	5
1.5 Significance of the Study	6
1.6 Scope and Limitation of the Study	10
1.7 Basic Assumptions	11
1.8 Research questions	13
1.9 Conceptual Framework	14
1.10 Research Strategy and Methods	16
1.10.1 Introduction	16
1.10.2 Review of literature	16
1.10.3 Field research procedures	16
1.10.4 Data collection instruments	17
1.10.4.1 Structured interview method	17
1.10.4.2 Semi-structured interview method	18

1.10.4.3	The questionnaire survey method	18
1.10.5	Sources of data	19
1.10.6	The sample of the schools that participated in the investigation	20
1.10.7	The pilot study	21
1.10.8	Administration of research questionnaires	22
1.10.9	Data collection procedures	23
1.10.10	Data analysis	23
1.11	Definition of Terms	24
1.12	Plan of the research project on the use of computers in secondary schools	26
1.13	Organization of the Thesis	27
1.14	Summary	28

## **CHAPTER 2 ROLES AND FUNCTIONS OF COMPUTERS IN THE LEARNING ENVIRONMENT**

2.1	Introduction	30
2.2	Government policies on the use of computers in schools	31
2.3	Functions of computers in secondary schools	36
2.4	The potential of computers as tools for instruction	37
2.5	Reasons for using computers in classroom instruction	38
2.6	Patterns of using computers in teaching and learning	39
2.7	Benefits of using computers in teaching and learning	40
2.8	Disadvantages of computers in teaching and learning	42
2.9	Definition of Computer Integrated Education	44
2.10	Teaching and learning with computers in the classroom	45
2.10.1	Planning for teaching with computers	46
2.10.1.1	Preparing the schemes of work	47
2.10.1.2	Teachers preparation for teaching with computer technology	48
2.10.1.3	Lesson planning	49
2.10.1.4	Lesson presentation	50
2.10.2	Evaluation of the teaching and learning processes	51

2.10.3	Appropriate teaching strategies	52
2.10.3.1	Teacher-centred approach	53
2.10.3.2	Student-centred-approach	53
2.10.4	The concept of learning and CIE	54
2.10.4.1	Behaviourist approach to teaching and learning	55
2.10.4.2	Constructivist approach to teaching and learning	56
2.10.5	Facilitation of learning via the computer	57
2.10.6	The teachers' role in CIE learning environment	58
2.10.6.1	How computers help students to learn	58
2.11	The relevance of CIE to teaching and learning	59
2.11.1	Using computers as tools in classroom instruction	60
2.11.2	Defining computer literacy skills	61
2.11.3	Using the computer to learn how to use word processing	63
2.11.3.1	Using Word Processor to improve writing skills	64
2.11.3.2	Using Word Processor for revision work	66
2.11.4	Using computers to learn Spreadsheet	66
2.11.5	Using computers to learn Programming	67
2.11.6	Using computers to maintain Databases	69
2.12	Integration and use of computers in curriculum subjects	71
2.12.1	Learning mathematics with computers	71
2.12.2	Learning science with computers	73
2.12.2.1	Pre-instructional simulation	78
2.12.2.2	Post-instructional simulation	78
2.12.3	Learning social studies with computers	79
2.12.4	Using computers to improve learning foreign languages	81
2.12.5	Using computers to learn graphics	82
2.13	Summary	84

## CHAPTER 3 FACTORS FACILITATING AND AFFECTING THE USE OF COMPUTERS IN SCHOOLS

3.1	Introduction	86
3.2	Factors that encourage the introduction and use of computers in schools	87
	3.2.1 The need for educational reform	87
	3.2.2 Teacher knowledge and skills are necessary for curriculum innovation	88
	3.2.3 The necessity of resources for teaching and learning with computers	89
	3.2.4 The availability of time for the use of computers in teaching and learning	90
	3.2.5 Provision of incentives and encouragement to teachers using computers in teaching	91
	3.2.6 Teachers' participation in the initial computer technology innovation	91
	3.2.7 Commitment by the school authority to the use of computers in teaching and learning	92
	3.2.8 Commitment by the government to the use of computer technology innovation in schools	92
3.3	Factors that affect the use of computers in teaching and learning	93
	3.3.1 Lack of teachers' preparation to integrate and use computers in teaching and learning	93
	3.3.1.1 The training of teachers to integrate computers into teaching traditional subjects	96
	3.3.1.2 Pre-service teacher training course in computer integrated education	97
	3.3.1.3 In-service teacher training on the use of computer integrated education	98
	3.3.1.4 School-based workshops/seminars for serving teachers on CIE	98
	3.3.2 Attitudes of teachers towards computers in education	99
	3.3.3 Lack of computers for teachers to use in teaching and learning	100
	3.3.4 Accessibility of computers and resources for teaching and learning	102
	3.3.5 Technical support for effective use of computer in schools	103
	3.3.6 Lack of adequate time use computers in teaching and learning	104
3.4	Other factors to be considered in the use of computers in education	105

3.4.1	The use of computers to motivate students to learn	105
3.4.2	The cost of using computers in teaching and learning	107
3.4.3	Cost-effectiveness of the use of computers in teaching and learning	108
3.4.4	Support from the school for the use of computers in teaching and learning	109
3.5	Summary	110

## **CHAPTER 4 RESEARCH METHODS APPLIED AND CONTENT VALIDATION OF THE QUESTIONNAIRES**

4.1	Introduction	113
4.2	Planning for field research	114
4.3	Specific objectives of the field research	115
4.4	Formulating research questions	115
4.5	The content validation of the questionnaires	118
4.5.1	Questionnaires 1, 2, 3: background information of participants and the schools	120
4.5.2	Questionnaires 1,2,3,4 on policies and the use of computers in schools	121
4.5.3	Questionnaires 1 and 2	123
4.6	Collection of data	126
4.6.1	Choosing the sample	127
4.7	Data collection procedures	130
4.7.1	The consideration of the review of literature	131
4.7.2	Use of structured interview method to collect data	132
4.7.3	The application of questionnaires during the investigation	133
4.7.4	Use of semi-structured interviews to collect data	135
4.8	Administration and application of the instruments	137
4.8.1	Seeking permission to conduct interviews	137
4.8.2	Pre-interview arrangements	138
4.8.3	Interviews with Officials from the Ministry of Education, KIE and computer teachers	139
4.9	The general plan for data analysis	139
4.10	Problem with data collection and field research experiences	140

4.11	Summary	141
<b>CHAPTER 5 INTERVIEWS WITH MINISTRY OF EDUCATION OFFICERS CONCERNING THE INTRODUCTION OF COMPUTERS IN PUBLIC SECONDARY SCHOOLS</b>		
5.1	Introduction	142
5.2	An Overview	143
5.3	Current Government Policy on Computer Education in Secondary Schools	144
5.3.1	Reasons for adopting a computer policy for schools in Kenya	145
5.3.2	Steps taken for the implementation of the computer policy	146
5.3.3	The success of the implementation of computer policy in schools	148
5.3.4	Problems and difficulties with the implementation of computer policy in schools	150
5.3.5	Financial policy on the use of computers and resources allocation	152
5.3.6	Evidence available on the use of computers in schools	154
5.3.7	Number of schools using computers and software available	155
5.3.8	Reasons for introducing computers in public secondary schools	156
5.3.9	The role of computers in secondary schools	157
5.3.10	Financial implications of the government's policy on computers in secondary schools	158
5.4	Kenya Institute of Education	158
5.4.1	Reasons for the computer curriculum guidelines	159
5.4.2	Pedagogical theory that underpins computer education in schools	160
5.4.3	Goals of computer education in secondary schools	161
5.4.4	The role of the curriculum developer in computer education	162
5.4.5	Reasons for establishing the computer education committee	162
5.4.6	Integration of computers into traditional subject teaching	163
5.4.7	Production and supply of computer support materials	163
5.4.8	In-service course organized by KIE for computer teachers	164
5.4.9	Evaluation report on the use of computers in secondary schools	166

5.4.10	General comments on the obstacles to integration of computers into subjects	167
5.5	Summary	167

## **CHAPTER 6 THE ROLE OF THE PRINCIPALS AND HEADS OF DEPARTMENT IN COMPUTER INTEGRATED EDUCATION: POLICY AND PRACTICE**

6.1	Introduction	170
6.2	Research findings	171
6.2.1	Information about responding institutions	171
6.2.2	Category of schools that participated in the investigation	173
6.2.3	The number of students in the schools that participated in the investigation	174
6.3	Personal details of the participants in the investigation	176
6.3.1	Population of the teaching staff in responding institutions	177
6.3.2	Age distribution of Principals and Heads of Department who participated in the investigation	179
6.3.3	Participants' years of teaching experience	180
6.3.4	Principals and HODs' experience with the use of computers	182
6.3.5	Principals and HODs years of service in computer education in the schools that were investigated	183
6.3.6	Highest academic qualification attained by the Principals and HODs in the schools that participated in the investigation	184
6.3.7	Principals' professional training	184
6.4	The introduction of computers in schools: policy and practice in the schools that participated in the investigation	185
6.4.1	Priority given to computer integrated education in study schools	189
6.4.2	The implementation of school policy for the use of computer in teaching and learning	191
6.4.3	Priority given to implementation of school departmental computer policy	193
6.4.4	Guidelines for the implementation of computer education in schools that	

	that participated in the investigation	194
6.5	Finance and resources allocation for the use of computer education in schools	195
6.5.1	The cost of purchasing computer equipment	197
6.5.2	Amount of money allocated to departments for computer equipment	198
6.6	Availability of computers and support materials in schools that participated in the investigation	199
6.6.1	The present conditions of computers available in study schools	203
6.6.2	Number of computers used by the staff in schools that participated in the investigation	204
6.6.3	Accessibility of computer equipment to teachers	204
6.6.4	Principals' general comments on the use of computers in their schools	205
6.7	Principals' responses on teachers' use of computers in teaching and learning	207
6.7.1	Current use of computers by teachers in schools that participated in the investigation	207
6.7.2	Kinds of computer programs used in schools that participated in the investigation	209
6.7.3	Computer skills learnt by students	211
6.7.4	The role of computers in departmental teaching and learning	212
6.7.5	Advantages of using computers during facilitation of learning in the classroom	214
6.7.6	Availability of computer education timetable in schools investigated	215
6.7.6.1	Departmental computer timetable in schools investigated	217
6.7.6.2	Frequent use of the computers by departmental staff	218
6.7.7	Principals' comments on the integration of computers in subjects teaching	219
6.7.8	Principals' comments on the value of computer programs in teaching and learning in their schools	221
6.7.9	HODs' views about the values of computers as tools for teaching and learning	223
6.7.10	Implementation of computer integrated education in secondary schools	224
6.7.11	HODs evaluation of CIE in departmental subjects teaching	226
6.7.12	Parents' and Board of Governors support for computer education in	

	schools	228
	6.7.13 Principals' comments on the use of computers to enhance learning	229
6.8	Training of Principals and Heads of Department in the use of computers	229
	6.8.1 Types of computer training Principals and HODs received	231
	6.8.2 The importance of training to the Principals	233
	6.8.3 Other courses attended by Principals on the use of computers	236
	6.8.4 Percentage of teachers who are computer literate in the schools investigated	237
	6.8.5 The role of the school in staff development for computer education	238
6.9	Technical and physical problems regarding the use of CIE in schools	239
	6.9.1 Steps taken by the participants to solve the problems	241
	6.9.2 Suitable facilities for the use of computers in schools	242
	6.9.3 Technical supports for effective use of computers in schools	243
	6.9.4 Number of classrooms in schools that participated in the investigation	247
	6.9.5 Availability of electricity in schools that participated in the investigation	248
6.10	Principals views and attitudes about the value of computers in education	249
	6.10.1 Heads of Department attitudes towards the CIE in their schools	249
	6.10.2 HODs comments on disadvantages of the use of computers in education	250
	6.10.3 Views about the use of computers to introduce new ideas to teaching and learning	251
6.11	Suggestions for further improvement of CIE in schools	251
6.12	Summary	252

## **CHAPTER 7 THE USE OF COMPUTERS TO TEACH COMPUTER EDUCATION INTERVIEWS WITH COMPUTER TEACHERS**

7.1	Introduction	256
7.2	Background information about teachers who participated in the investigation	257
	7.2.1 Characteristics of schools from which the interviews were conducted	257
	7.2.2 Age and gender distribution of computer teachers	258
	7.2.3 Academic qualification of teachers who participated in the investigation	259

7.2.4	Number of students taught by computer teachers	260
7.2.5	Teachers' years of teaching experience	262
7.2.6	Teachers' length of service in teaching and learning with computers	263
7.2.7	Participants' rating of experience with computers in teaching and learning	264
7.2.8	Types of software packages used by the computer teachers in schools	264
7.2.9	The role of computers in schools that participated in the investigation	265
7.3	Teachers report on the use of computers in teaching and learning in the classroom	266
7.3.1	Why teachers use computers in teaching and learning	267
7.3.2	How teachers use computers in schools that participated in the investigation	270
7.3.3	Teachers' preparation to teach with computers	271
7.3.4	Pattern of using computers in teaching	272
7.3.5	Software used by students in schools that participated in the investigation	273
7.3.6	Reasons for integration and use of computers in teaching and learning	275
7.3.7	Students' knowledge of computer literacy skills	276
7.3.8	Classroom teachers' level of computer literacy skills	276
7.4	How students learn with computers	278
7.4.1	Number of times teachers use computers per week	279
7.4.2	Integration of computers into teaching subjects topics	280
7.4.3	Value of using computers in teaching and learning	281
7.4.4	Benefits of using computers in teaching and learning	282
7.4.5	Limitations of computers as a tool for teaching and learning	284
7.5	The impact of computers on students' learning	285
7.5.1	The impact of computers on students learning of skills and concepts	286
7.5.2	Recall of what students have learnt	287
7.5.3	Students' attention and interest to learn	288
7.5.4	Developing confidence in the use of computers	288
7.6	Problems and difficulties experienced by teachers with the use of computers	289
7.6.1	Factors affecting effective use of computers in the classroom	290
7.6.2	Factors encouraging teachers' decision to use computers in teaching	291
7.7	Teachers views and attitudes towards the use of computers in teaching and Learning.	292

7.7.1	Views about computers motivating students to learn	294
7.7.2	Views about the use of computers to increase students' knowledge	295
7.7.3	Views about the use of computers to widen access to education	296
7.7.4	Teachers' beliefs on computers to introduce new ideas	297
7.7.5	Teachers' views about computers improving learning traditional subjects	298
7.7.6	Teachers' views about computers increasing students' attention to learning	300
7.7.7	Teachers' views about computers to improve communication skills	301
7.7.8	Teachers views about computers facilitating learning	302
7.8	Teacher training in the use of computers	303
7.8.1	In-service course attended by teachers on the use of computers	304
7.8.2	Workshops and seminars attended by computer teachers	305
7.8.3	Induction course for teachers on the use of computers in their schools	306
7.9	Selection of computer software for use in schools	307
7.10	Teachers suggestions on integrating computers into their teaching subjects	308
7.11	Teachers recommendations for improvements to computer education in secondary schools	310
7.12	Summary	311

## **CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS**

8.1	Introduction	316
8.2	Summary of the results of the field investigations	320
8.3	The main research findings and discussions	323
8.3.1	The Government policy	323
8.3.2	The Government's financial support for computer integrated education in secondary schools	325
8.3.3	The role of the Principals and HODs in the integration and use of computers in their schools	327
8.3.4	Implementation of the school policy on the use of computers	328
8.3.5	Funding of computer integrated education in secondary schools	329
8.3.6	Availability of computers in schools that participated in the investigation	329

8.3.7	Availability of curriculum study guides and texts for the use of computers	330
8.3.8	Access to computers in schools for teachers to use in teaching and learning	331
8.3.9	The use of computers in the schools that participated in the investigation	331
8.3.10	Integration of computers into the teaching and learning of traditional subjects	333
8.4	How computers are used and reasons for using computers in the classroom	334
8.5	Training teachers to integrate and use computers in teaching and learning	337
8.6	Technical and physical facilities, and problems with the use of computers in the classroom	338
8.7	Views and attitudes of the participants about the value of computers in education	339
8.8	Suggestions and recommendations regarding the use of computers in the Classroom	341
8.8.1	Government policy	341
8.8.2	Role of Kenya Institute of Education in developing CIE support materials	343
8.8.3	Provision of computers in public secondary schools	344
8.8.4	The role of the Principal/school in the integration and use of computers in teaching and learning	345
8.8.5	The role of Heads of Department in the implementation of CIE	347
8.8.6	Teachers' use of computers in the classroom	348
8.8.7	Need for specific pre-service teacher training in CIE	350
8.9	Re-training model for serving teachers in computer integrated education	352
8.10	Limitations of the study	357
8.11	Suggestions for further research	360
8.12	Conclusion	362

## LIST OF TABLES

		Page
Table 1.1	Secondary schools in which the study was conducted and respondents	21
Table 4.1	The main research questions and sources of information	116
Table 4.2	Number of respondents representing the study schools	128
Table 4.3	Total number of respondents who participated in the investigation	129
Table 4.4	Methods of collecting data for the study	130
Table 5.1	Cost estimate of running a computer seminar at KIE	165
Table 6.1	Age (Years) of schools that participated in the investigation	172
Table 6.2	Location of the schools that participated in the investigation	173
Table 6.3	Category of schools that participated in the investigation	173
Table 6.4	Number of students in schools that participated in the investigation	174
Table 6.5	Participants in the study by gender and location	176
Table 6.6	Percentage of teachers by gender in the investigation schools	178
Table 6.7	Subjects taught by HODs in schools investigated	181
Table 6.8	Principals and HODs experience with the use of computers	182
Table 6.9	Number of years Principals and HODs have used computers in their Schools	183
Table 6.10	Principals and HODs academic qualifications	184
Table 6.11	Number of participants who are trained teachers	185
Table 6.12	Departmental policy on the use of computers	187
Table 6.13	HODs' reasons for having a policy for the use of computers	188
Table 6.14	HODs' reasons for not having a policy for the use of computers	188
Table 6.15	Priority of CIE in the schools that participated in the investigation	189
Table 6.16	Principals' reasons for giving high priority to the use of computers	190
Table 6.17	Principals' reasons for not having a policy for CIE	190
Table 6.18	Steps taken by Principals to implement a computer policy in their schools	191
Table 6.19	Principals' response on teachers' implementing computer policy	192
Table 6.20	Rating of effective implementation of computer policy by the Principals	192
Table 6.21	Rating of computer policy implementation by the departments	193

Table 6.22	Response from HODs on teachers implementing computer policy	194
Table 6.23	Types of teaching materials teachers use to implement computer policy	194
Table 6.24	Who should finance CIE in secondary schools	195
Table 6.25	Principals' justification to responses in question one in section D	195
Table 6.26	Why the Ministry of Education should provide funds for CIE in schools	196
Table 6.27	Departments' reasons for not having funds for computer equipment	198
Table 6. 28	Number of computers and other resources available in each school	200
Table 6.29	Schools with computers and number of students per computer	201
Table 6.30	Conditions of computers in the study schools	203
Table 6.31	Level of computer usage in study schools	206
Table 6.32	Principals and HODs report on the use of computers in teaching and learning	208
Table 6.33	Departmental reasons for using computers in teaching and learning	209
Table 6.34	Heads' of Department comment on how teachers use computers	210
Table 6.35	HODs comments on useful software for students in study schools	211
Table 6.36	Computer programs that students learn during computer lessons	212
Table 6.37	The role of computers in teaching and learning in schools that participated in the investigation	213
Table 6.38	The impact of computer programs in departmental teaching and learning	214
Table 6.39	Advantages of using computers in teaching and learning	214
Table 6.40	How the use of computers contributes to students' learning	215
Table 6.41	Availability of computer timetable in the schools	216
Table 6.42	Principals' rating of how often teachers use types of computer software	217
Table 6.43	Number of HODs who included CIE in their departmental timetable	218
Table 6.44	HODs comments on frequent use of computers by departmental staff	219
Table 6.45	Principals' report on the use of CIE in schools	220
Table 6.46	Principals' reasons for teachers' use of computers in teaching and learning	220
Table 6.47	Principals rating of the value of computer programs to teaching and learning	221
Table 6.48	Principals reasons for rating computer programs used in schools	222
Table 6.49	Steps taken by Principals for CIE implementation in study schools	224

Table 6.50	Specific measures Principals would take to ensure CIE is implemented	225
Table 6.51	Steps taken by HODs to integrate computers into subjects	226
Table 6.52	The results of HODs evaluation of CIE in their departments	226
Table 6.53	HODs reasons for the integration of computers into subjects	227
Table 6.54	Parents Teachers Association and Board of Governors' support for CIE	228
Table 6.55	Response from Principals not supported by PTA and BOGs on CIE	228
Table 6.56	Principals comments on the use of computers to enhance learning	229
Table 6.57	Principals and HODs training in computer skills	230
Table 6.58	Heads of Departments' training in the use of computers	230
Table 6.59	Computer courses attended by Principals	231
Table 6.60	Computer courses attended by Heads of Departments	232
Table 6.61	Training period of computer courses attended by Principals	232
Table 6.62	Training periods of computer courses attended by HODs	233
Table 6.63	Importance of computer training to Principals	233
Table 6.64	The usefulness of computer training to Heads of Department	234
Table 6.65	Heads of Department competency with the use of computers	235
Table 6.66	Other computer courses attended by Principals in the study schools	236
Table 6.67	Other computer courses attended by Heads of Departments	237
Table 6.68	The role of the school in the re-training of teachers in computer education	238
Table 6.69	The role of the departments in the re-training of departmental staff in CIE	239
Table 6.70	Barriers to effective implementation of CIE in schools	240
Table 6.71	HODs response to factors affecting integration and use of computers	240
Table 6.72	Steps taken by Principals to solve the factors affecting the use of CIE	241
Table 6.73	Steps taken by HODs to solve problems of CIE in their departments	242
Table 6.74	Facilities for the use of computers in the study schools	243
Table 6.75	Availability of a technician in school to assist teachers to use computers	243
Table 6.76	Rating of the services of a technician in the study schools	244
Table 6.77	Responses from HODs on technical services	245
Table 6.78	Principals recommendations of how to keep computers in good conditions	246
Table 6.79	Number of classrooms available for implementation of CIE in schools	247
Table 6.80	Principals' views about the value of computers in their schools	249

Table 6.81	Attitudes of HODs towards the integration of computers into subjects	250
Table 6.82	Disadvantages of computers in teaching and learning	250
Table 6.83	HODs views about computers introducing new ideas to teaching and learning	251
Table 7.1	Types of schools by location in which the interviews were conducted	257
Table 7.2	Age (Years) and gender distribution of the interviewees	259
Table 7.3	Total number of students in computer classes	260
Table 7.4	Computer classes taught by the interviewees in study schools	261
Table 7.5	Other subjects taught by computer teachers in study schools	262
Table 7.6	Teachers experience in teaching and classes taught	262
Table 7.7	Teachers years of experience with computers by location of schools	263
Table 7.8	Teachers' rating of experience with the use of computers	264
Table 7.9	Types of software packages used by teachers in study schools	265
Table 7.10	The role of computers in schools that participated in the investigation	266
Table 7.11	Response from teachers regarding being encouraged to teach computers	267
Table 7.12	Why do you use computers in teaching and learning	268
Table 7.13	Teachers use of computers in teaching and learning	269
Table 7.14	How teachers use computers in teaching and learning	270
Table 7.15	Planning for teaching with computers	271
Table 7.16	Pattern of using computers in teaching and learning	272
Table 7.17	Software that students learn in the study schools	273
Table 7.18	Reasons for integration of computers by teachers	275
Table 7.19	Computer teachers' level of computer literacy skills	277
Table 7.20	How often do you use computers in teaching and learning?	279
Table 7.21	How teachers integrate computers into subject teaching	280
Table 7.22	Teachers' rating of computer education by location of the schools	282
Table 7.23	Benefits of using computers in teaching and learning	284
Table 7.24	Limitations of computers in teaching and learning	286
Table 7.25	Impact of computers on students learning	289
Table 7.26	Problems and difficulties that prevent teachers to use computers	289
Table 7.27	Factors affecting use of computers in the classroom	290

Table 7.28	Factors that encourage teachers to use computers	292
Table 7.29	Responses on computers widening access to education	297
Table 7.30	Teachers' views about computers improving learning traditional subjects	300
Table 7.31	Teachers' views about computers increasing students' attention to learn	301
Table 7.32	Number of teachers trained in the use of computers	304
Table 7.33	Teachers' responses on selection of computer software	308
Table 7.34	Teachers' suggestions of subjects for computer integrated education	309

## LIST OF FIGURES

		Page
Figure 1.1	Conceptual Framework	15
Figure 1.2	Research Project Plan for this study	27
Figure 6.1	Age (Years) of respondents who participated in the study	179
Figure 6.2	Participants experience in the teaching profession	180
Figure 6.3	Schools with policy for computer education	186
Figure 6.4	Accessibility of computer equipment to teachers who participated in the investigation	205
Figure 6.5	Principal's opinion on the impact of computers on students learning	222
Figure 6.6	HODs views about the value of computers as a tool for instruction	223
Figure 6.7	Rating of facilities for using computers by departments	246
Figure 7.1	Value of using computers in teaching and learning	281
Figure 7.2	Attitudes of teachers towards computer education in schools	293
Figure 7.3	Rating of computers motivating students to learn	294
Figure 7.4	Teachers' rating of computers increasing students' subject knowledge	296
Figure 7.5	Views about computers introducing new ideas	298
Figure 7.6	Views about computers improving leaning traditional subjects	299
Figure 7.7	Views about computers facilitating learning	302
Figure 7.8	In-service course attended by computer teachers	305
Figure 7.9	Workshops and seminars attended by computer teachers	306
Figure 7.10	Induction courses attended by computer teachers	307

## LIST OF ABBREVIATIONS

ACCE	-	Australian Council for computer Education
ACE	-	Advanced Certificate in Education
BA	-	Bachelor of Arts
BEd	-	Bachelor of Education
BSc	-	Bachelor of Science
BOG	-	Board of Governors
CAD	-	Computer Aided Design
CAL	-	Computer Assisted Learning
CBI	-	Computer-Based Instruction
CD	-	Curriculum Development
CIA	-	Computer Assisted Education
CIE	-	Computer Integrated Education
COL	-	Commonwealth of Learning
DEO	-	District Education Officer
DfEE	-	Department for Education and Employment
ERIC	-	Educational Research Information Center
HOD	-	Heads of Department
ICT	-	Information Communication Technology
IMF	-	International Monetary Fund
IT	-	Information Technology
KCSE	-	Kenya Certificate of Secondary Education
KIE	-	Kenya Institute of Education
MBL	-	Micro-computer-based Laboratory
MOE	-	Ministry of Education
NCES	-	National Center for Education statistics
NCET	-	National Council for educational Technology
NGO	-	Non Governmental Organization
OTA	-	Office of Technology Assessment

PDE	-	Provincial Director of Education
PTA	-	Parents Teachers Association
SAP	-	Structural Adjustment Programme
TLTC	-	Teachers Learning Technology Competencies
TTM	-	Teachers as Trainers Model
UK	-	United Kingdom
UNESCO	-	United Nations Educational Scientific and Cultural Organization
USA	-	United States of America