

KENYATTA UNIVERSITY

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

Department of Music and Dance

THE ROLE OF TECHNOLOGY IN MUSIC EDUCATION: A SURVEY OF COMPUTER USAGE IN SECONDARY SCHOOLS IN NAIROBI PROVINCE, KENYA

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE DEGREE OF MASTER OF MUSIC EDUCATION, KENYATTA
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BY

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2007

DECLARATION

This Thesis is my original work and has not been submitted for a degree in any other university.

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ABSTRACT

Today's use of computer pervades all areas of our lives, including activities in institutions of learning. Beyond the very facility of computation, data management, word processing etc, computers have become essential in providing instructional effectiveness, planning, and generally challenging the learning environment. The application of computer technology in the field of education is rapidly gaining ground world over. The common modern technological tools available to music educators are computers and electronic keyboards among others. Computer technology is now an integral tool in all aspects of the musician's work be it composing, concert performing, teaching, recording, browsing the internet, researching, or managing a concert series.

This study sought to find out the role of computer technology usage for music education in Kenyan secondary schools. The study aimed at surveying the use of computer technology for music education, and specifically sought: to determine the status of technology usage in music education in schools; to explore and outline the instructional prospects for computer usage in music education and to establish the role of computer technology in the teaching of music.

The study employed descriptive survey research method. It targeted music teachers and students as respondents. A total of 14 schools (53%), 11 teachers (55%) and 155 students (62%) from the schools in Nairobi Province offering music participated in the study. Data was collected from the respondents using

questionnaires, interviews, and observation. The numerical data from questionnaires was subsequently coded and analysed using Statistical Package for Social Sciences (SPSS).

The major findings of the study revealed that computers and ICT are present and accessible to Kenyan schools but their use is not adequate for music education. Lack of competence among some music teachers and incoherent ICT policy hindered proper application of computer technology in the field of music education. In light of these findings, recommendations for application of computer technology in the field of education for improvement and further course action by appropriate authorities were made.

DEDICATION

I dedicate this study with immense joy and profound love to my entire family, both present and future, to whom this achievement will be a blessing.

and

My dear parents, *Japuonj* (Teacher) James Achola Apudo and *Sista* (Nurse) Perez Kiiza Achola.

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TABLE OF CONTENT

DECLARATION.....	ii
ABSTRACT.....	iii
DEDICATION.....	v
ACKNOWLEDGEMENTS	vi
TABLE OF CONTENT	vii
LIST OF TABLES	vii
LIST OF FIGURES	ix
OPERATIONAL DEFINITION OF TERMS	xi
LIST OF ABBREVIATIONS AND ACRONYMS	xii
CHAPTER ONE : INTRODUCTION.....	1
1.1 Background to the Study	1
1.2 Statement of the Problem	4
1.3 Objectives of the Study	5
1.4 Research Assumptions	5
1.5 Rationale and Significance of the Study	6
1.6 Scope and Limitation of the Study	8
CHAPTER TWO : LITERATURE REVIEW.....	9
2.0 Introduction	9
2.1 Current trends in the development of computer technology and it's application in music education.....	9
2.2 The status of computer application in music teaching in secondary schools in Kenya.....	11
2.3 Prospects for computer usage in music education in schools in Kenya.....	12
2.4 Theoretical Framework.....	16
CHAPTER THREE : METHODOLOGY.....	19
3.0 Introduction	19
3.1 Research Design	19
3.2 Population and Sampling.....	20
3.3 Research Instruments.....	21
3.4 Data Collection	21
3.5 Data Analysis	23

CHAPTER FOUR : DATA PRESENTATION AND ANALYSIS	24
4.0 Introduction	24
4.1 Return rate of music teachers and students respondents	24
4.2 Determination of the status of technology used in music education.....	30
4.3 The role of computer technology in teaching of music	34
4.4 Exploring and outlining the instructional prospects for computer usage in music education.....	38
4.5 Proposing user-friendly ways in which computer technology can enhance music instruction	40
CHAPTER FIVE : DISCUSSION OF FINDINGS	42
5.0 Introduction	42
5.1 The status of technology in music education in secondary schools.....	44
5.2 The role of computer technology in teaching of music	47
5.3 Exploring and outlining the instructional prospects for computer usage in music education.....	47
5.4 Exploration of user-friendly ways in which computer technology can enhance music instruction	51
CHAPTER SIX : SUMMARY, CONCLUSIONS AND RECOMMENDATION.....	53
6.0 Summary.	51
6.1 Conclusions.....	52
6.2 Recommendations	54
BIBLIOGRAPHY.....	56
APPENDICES.....	62

LIST OF TABLES

Table 4.1.1 Return rate of music teachers as respondents	25
Table 4.1.2 Response on music teachers' background and experience	27
Table 4.1.3 Return rate of music students as respondents	29
Table 4.2.1 Students' response regarding music technology equipments available in schools and their usage.....	30
Table 4.2.2 Music teachers' response regarding music technology equipments available in schools and their usage	30
Table 4.2.3 Music teachers' interview response on their formal training as music educators to handle music technology.....	32
Table 4.3.1 Teachers' responses on the type of technology and the curriculum areas supported through music technology.....	35
Table 4.3.2 Teachers' usage of technology when teaching music.	37
Table 4.3.3 Students' response on curriculum areas supported through music technology.	35
Table 4.3.4 Music curriculum areas (topics) where students experience difficulty.....	39
Table 4.4.1 Response by the music teachers on financial support by the school administration for music technology.....	39

LIST OF FIGURES

Figure 4.3.1	Students' response regarding the need for music instruction.....	technology for 37
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OPERATIONAL DEFINITION OF TERMS

In this study, the following terms assumed meanings as defined below:

Computer Music: A wide variety of compositional and performance activities, ranging from the generation of a conventionally notated score based on data calculated via the computer to the direct synthesis of sound in a digital form within the computer itself.

MIDI: An acronym for Musical Instrument Digital Interface: A serial communication protocol, whereby all commands and data are transmitted as a single sequential stream of bits down a data cable.

Music Technology: The use of technological tools in music activities. Inventions that help humans produce and understand the art of sound organised to express feeling.

Music Education: That part of the total education, which contributes to the development of an individual through the medium of various musical activities prescribed in the curriculum.

Technology: The use of applied scientific methods, expertise and technical skills for improvement of a particular domain, such as industry, education and arts.

Traditional Teaching methods: Approach to learning characterised by classroom recitation, teacher centred and use of conventional procedures and resources.

LIST OF ABBREVIATIONS AND ACRONYMS

8-4-4:	Kenyan system of education comprising: Eight years of primary, four years of secondary and a minimum of four years of university education
AMEEA:	Association of Music Educators of East Africa
CATL:	Computer Assisted Teaching and Learning
CD ROM:	A Compact Disc with Read Only Memory
ICT:	Information Communication Technology
KAMAE	Kenya Society for the Musical Arts Education
KCSE:	Kenya Certificate of Secondary Education
KEMUTA:	Kenya Music Teachers Association
K.I.E:	Kenya Institute of Education
KMF:	Kenya Music Festival Foundation
MENC:	Music Educators National Conference
SPSS:	Statistical Package for Social Sciences

CHAPTER ONE

1.0 INTRODUCTION

This chapter presents the background information to the study by providing an overview of the technological advancement in various aspects of development especially the application of computer technology in the field of music education. It also presents the statement of the problem, research questions, and objectives of the study, research assumptions, rationale and significance of the study, scope and limitation.

1.1 Background to the Study

The twenty-first century has seen a wave of new technology introduced in almost all activities of human life. The central role played by technology in our daily lives can be summarised by this scholar's statement:

*A society that argues against the need for
technology is like a body arguing with its head.*

(de Bono, 1971, p.23)

The application of computer technology in the field of education is rapidly gaining ground in various institutions world over. With the ever increasing changes in the global economy, Africa's educational sector has been challenged to enhance its instruction technology in order to participate effectively in the global technological age.

Technology is now an integral tool in all aspects of the musician's work be it

composing, concert performing, teaching, recording, browsing the internet, researching, or managing a concert series. The common modern technological tools available to music educators are computers and electronic keyboards among others. Over the past years in the Kenyan music curriculum, technology has been confined to the use of traditional music instruments such as the Luo lyre *nyatiti*, the Luhya drums *isikuti* and the Mijikenda xylophone *marimba*.

In Kenya, the government has made efforts to provide necessary planning for music education. Digolo (1997) points that various educational commissions set up by the government since post independence and the introduction of 8-4-4 system of education saw music education introduced in the curriculum of many secondary schools. Akuno (2001) maintains that education in music will equip the individual with the knowledge and skills that will enable one to handle the feelings that characterise human existence. Today, music education in Kenya begins in primary schools but remains a non-examinable subject under the revised 8-4-4 music education curriculum (K.I.E, 2002). Advanced music education is hence experienced in secondary schools and at the five universities that offer music courses namely: Kenyatta University, Maseno University, Daystar University, Kabarak University and University of Eastern Africa, Baraton.

Over two thousand of the candidates, who sit for the Kenya Certificate of Secondary Education (K.C.S.E) examination each year take music and are tested on music theory and practical. The Kenya National Examination Council

(KNEC) reports that music education is marred by poor performance in practical and sections of the theory paper such as harmony and melody writing (KNEC, 2001). Digolo (1997) attributes this failure to lack of competent music teachers in some of the schools that offer music, traditional approaches and methods of instruction and lack of music teaching facilities like piano, keyboards, and other relevant musical instruments.

This study was based on the writer's experience during postgraduate internship in a private school in Nairobi. The researcher was fascinated to discover that students were learning piano playing skills such as fingering, scales, and arpeggios on their own by simply using a MIDI keyboard connected to a computer. They also composed good melodies and harmonies using the music software packages such as Finale and Noteworthy Composer installed in the school's computer laboratory. Akuno and Digolo (2000) point that computers have become widespread technical tools in the teaching and learning process for the music curriculum. Music technology has challenged the traditional concepts of the art i.e. the demarcation of composer and performer and the very element of music making. The past few years have witnessed an explosion of new technologies for music instruction. Finding new ways of incorporating the existing and newly developed technology into the teaching of music may open up new methods for the learning and teaching of music, and hence the call for this study.

1.2 Statement of the Problem

Marcellino (1996) argues that as technology evolves so does music and the use of technology in music. Despite the availability of computers and ICT in Kenyan schools, there is little indication as to their usage for music education. The relevance of computers to the field of music education has not received sufficient attention. Music educators and learners alike may not be fully aware of the possibility, let alone effectiveness, of using computer for the dissemination of information and development of skills that facilitate learning in music. It was hence necessary that the attention of these key players in music education be drawn to this phenomenon. The study set out to find the place of ICT, and especially computers, in the teaching of music in secondary schools in Kenya.

The study was guided by the following research questions:

- i) What technologies are used for music education in secondary schools?
- ii) What is the role of computers in music instruction in secondary schools?
- iii) How accessible is computer technology to secondary schools?
- iv) What instructional prospects are there for use of computer in music education in secondary schools?
- v) What are some of the short term and long term implications of the incorporation of technology in music education.

1.3 Objectives of the Study

The general objective of the study was to find out the use of computer

technology in Music Education in Kenyan Secondary schools.

Specifically the study sought to fulfil the following objectives:

- a) To determine the status of technology usage in music education in secondary schools.
- b) To establish the role of computer technology in the teaching of music in secondary schools.
- c) To determine the accessibility of computer technology to secondary schools in Nairobi.
- d) To explore and outline the instructional prospects for computer usage in music education in secondary schools.
- e) To propose user-friendly ways in which computer technology could enhance music instruction in secondary schools.

1.4 Research Assumptions

The study was based on the assumptions that:

1. Students' motivation for learning can be greatly enhanced through availability and application of computer in teaching.
2. Music teachers' perception of the importance of technology would influence the extent to which they employed technology in music education.
3. Based on market trends for the last ten years, as computer technology

advanced, there was corresponding decrease in prices of computers and accessories hence increased accessibility to learning institutions.

1.5 Rationale and Significance of the Study

Studies have been carried out on the teaching of Music in Kenya (Mwangi, 1985; Makobi, 1984; Kimui, 1990; etc). However, little has been discussed on application of computer technology to improve the traditional approaches and methods of teaching. Marcellino (1996) argues that music technology has brought challenges to the traditional concepts of art, and the very elements of music making.

The study sought to address the necessity to draw the attention of music curriculum developers, designers and music teachers to this phenomenon. The study also derived its significance from the stated objectives of using technology to enhance the teaching of music in Kenyan secondary schools. Muro (1996) indicates that educators view the use of technology as motivational in learning since it captures the imagination of students. Students have a fascination for computer games and electronic musical instruments. For some students, the computer is regarded as a trusted friend. We can tap into this motivation and fascination by devising creative ways to use the same technology to teach musical concepts and skills that students will need to become good listeners and performers.

It is hoped that the findings of this study will sensitise music curriculum

developers, designers, music teachers and students on the importance of computer technology in music education. The study also hopes to assist policy makers and the ministry of education in the inclusion of music technology in the curriculum. Music education in Kenyan has scarce documented research. This study therefore hopes to contribute to the field as additional reference material for future researchers. Scholars interested in articulating issues on use of technology in music education should be able to source some useful information from the findings of this study. The study also provides an essential picture of the present situation on the status of computer technology usage in secondary schools in Kenya. Such information may be useful to music teachers, education planners and administrators in their effort to improve music education.

The study revealed certain shortcomings in the usage of computer technology by the music teachers, due to lack of competency. Consequently, the findings of this study will be of great benefit to the teacher trainers in colleges and universities in ensuring that skills related to computer technology are properly instilled in the trainees.

The study has generated a number of recommendations on procedure for acquisition of appropriate music technology facilities for teaching and learning such as software packages. Such suggestions may be of great use to music teachers, school administrators and policy makers as they strive to improve the music curriculum delivery in Kenyan secondary schools.

1.6 Scope and Limitation of the Study

The survey was conducted in secondary schools which teach music in Nairobi Province. The study targeted the following as respondents: music teachers and a sample of music students. Nairobi Province being the capital city of Kenya was selected because it is the centre of technological advancement, hence has a high concentration of computers and diverse categories of schools. These include a good number of national, provincial and private schools and those equivalent to district schools, with long established music departments and those in which music has been taught for just a few years. All these categories of schools provided a rich ground for conducting the survey. The study focused on the use of computers for teaching music hence the scope of music technology was on computer based facilities.

The following were limitations of the study: -

Having conducted archival research in Kenya, there was lack of previous researches dealing specifically with music technology and scarcity of relevant local literature in the same area; none of the Masters and Doctor of Philosophy theses in any of the Kenyan universities offering music courses deals with this area of study. However, related studies in other subject areas, foreign publications and information on music technology from the internet were reviewed to supplement the local literature. Time and financial constraints did not allow for the inclusion of more provinces in Kenya. However, it is hoped

that this study will stimulate more researches on related problems in other parts of the country.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section reviews the literature related to the study. It provides important information regarding what various educators have expressed concerning the use of computer technology in enhancing music education, and how that information relates to this study.

2.1 Current trends in the development of computer technology and its application in music education

The use of computers in music education is growing at exponential rate. Akuno and Digolo (2000) point that one of the major developments has been in the varieties of computerised programmes meant for various applications, both educational and commercial. Muro (1996) argues that Computers are ideal teaching tools for the music curriculum hence computer software packages for adoption and/or use must be carefully selected. Muro (*ibid*) asserts that content of music software can be divided into three areas: cognitive

(knowledge-based material), psychomotor (skill and perception-based material) and affective (values and experiential materials). The cognitive content software is by far the largest, dealing with facts, terms, historic information, theoretical analysis, pitch systems, and other information about music. The programs in this area teach through drill-and-practice, tutorial interaction, game techniques or problem solving. More advanced programmes combine several approaches. Examples of these programmes include Early Music Skills, Music Flash Cards or Keyboard Tutor. The software is colourful, fast moving and randomized for repeated usage. The content covers note reading, scales and music keyboard topography.

Lehman (2001, p.416) points out that:

The computer revolution in music education won't begin until we rethink what we want education to be. Only then can we clarify our goals and bring them into focus. Only then can we know how to use computer. Only then can we know what we want in educational software. At the very least we must have software that is genuinely interactive and genuinely individualised. There are hundreds of ways to misuse computers in education and only a few ways to use them properly.

Peters (2000) contends that the use of software designed to teach, tutor and sequence a student's learning has been available in music since the late 1980's. Many of the programmes were drill-and-practice programmes in ear-training and music theory. Software content ranges from note-names, to music history; from composer biographies to African instruments.

New opportunities in Computer Assisted Teaching And Learning (CATL) can be

foreseen in researches that have been conducted by various scholars. Their researches provide clear pictures of the success of computer Assisted Teaching and Learning in various parts of the world. One such research was conducted in a UK middle school by McCord (1993) who reported the effects of computer-assisted instruction on development of music fundamentals understanding in middle school instrumental students. From her findings, McCord created her own *HyperCard* interactive program with MIDI support in order to teach note name identification, key and time signature, rhythmic counting, and identification of symbols and scales. All 178 students in the instructional programme from three schools participated in individual exposure to the software for 45-50 minutes during class time. Prior to analysis, students were grouped into low, middle, or high-level groups according to their instrumental performance ability. Results showed significant gains in each of the groups' ability on written tests of music fundamentals.

The research findings demonstrated that the use of computer programme was more effective in teaching of music fundamentals than the traditional procedures. These findings were useful to this study as they helped in formulating it.

2.2 The status of computer application in music teaching in secondary schools in Kenya

Literature on computer application in music education in Kenya is scarce as there is no Masters or Doctor of Philosophy theses in Kenya that deal with this area. The current pace of development in computer technology and the

increasing availability of computers in education raise issues regarding the status of their application in specific subject areas. Consequently, this study concerned itself with the status of computer technology in music education in Kenya secondary schools.

Blocklehurst (1971, p.23) for instance maintains that:

Music continues to be one of the most neglected subjects of the school curriculum. Of all the practical subjects, it has the least satisfactory provisions.

This is further supported by the sentiments expressed by the Permanent Presidential Music Commission (Omondi Report, 1985), Makobi, (1984), and Kiama (1990) who indicate that the country suffers from inefficiency of teaching facilities, equipment and qualified and experienced teachers.

Literature indicates that there is need for technology use as an aid to learning. This literature review helped in shaping the study to carry out a survey on the status of technology in Kenyan secondary schools and to propose ways in which computer technology can be used to enhance music education.

2.3 Prospects for computer usage in music Education in schools in Kenya

Despite the importance attached to the use of computer technology in enhancing music education process, Marcellino (1996) maintains that there has been continuous outcry by various scholars that music education suffers from the traditional methods and approaches of instructions. The study addresses this outcry by suggesting ways in which computer technology can be integrated with the traditional methods to enhance music education. Akuno

and Digolo (2000) point that the growth in sophisticated facilities for computer music in recent years provides music educators and students with a wide range of resources from a number of educational applications. With correct software, a computer now provides the tools to manipulate sounds. The use of MIDI can be divided into a number of categories. These are composition and performance, music notation, sequencing, voice editing and other educational application such as aural training and music theory (Manning, 1993). It is such versatility that makes this study mandatory.

Peters (2000) argues that growing numbers of music programmes have emerged on the software market worldwide. Many are educationally sound and can be used at home or at school. The music teacher must determine whether the content supports systematic learning when selecting these programmes. Peters (*ibid*) observes that excellent game formats and interactive characters can be found in the Adventures in Musicland and Music Ace (Harmonic Vision) programmes. Professor Piccolo (Opcode) and Menlo the Frog (Windy Hill) are other game format programmes for classroom use. Programmes such as Audio Mirror and Band-in-a Box (PG Music) simulate musical environment and are very useful for guided practice. Such programmes are expensive to design and produce for publishers; consequently few examples exist. Band-in-a Box simulates a background-accompanying ensemble for the aspiring improvising student. Audio Mirror offers immediate pitch feedback to singers as would be given by an ever-present teacher. Webster (2001, p.416) observes that:

Regardless of ones view of the centrality of technology as part of the music experience, there is no denying that children today do not know a world without computers, electronic keyboards, MP3 files and players, compact discs, the internet and other digital devices.

It is therefore important to survey the new technology and its usage in order to propose a provision for a more effective learning environment, and hence the formulation of this study. As the entertainment industry expands the demand for computer music technology will also increase. Students are motivated to undertake music technology courses because of the lucrative nature of the industry in the city and the strange influence exerted by the entertainment industry through T.V. programmes and other presentations. With the right policy in place, this will mean more schools and institutions teaching computer music technology. This will only be realised if the policies on music technology aim at reducing the cost of acquiring computer hardware and software. It can therefore be said that computer based music technology can play an effective role only after formulating policy that allow the transfer of the technology at low cost so that institutions may have access to the technology at affordable prices. The review of this literature assisted the study in establishing prospective music programmes for application in computer usage in music education

2.4 Theoretical Framework

The study was based on diffusion theory by Rodgers and Rogers (1962) and supplemented by Operant conditioning theory by B. F. Skinner (1968) in establishing the role of technology in music education in Kenya.

The Theory of Diffusion advanced by Rodgers and Rogers (1962) states that diffusion is the spread of a new idea from its source of invention or creation to its ultimate users or adopters. Diffusion is the process by which an innovation is adopted and gains acceptance by members of a certain community. Within this context, "adoption" refers to the stage in which technology is selected for use by an individual or an organization. "Innovation" is similarly used with the nuance of a new technology being adopted. "Diffusion" refers to the stage in which the technology spreads to general use and application.

The theory of diffusion has been incorporated in a number of disciplines, from instructional technology, marketing to agricultural research carried in 1968 in Vihiga district, Kenya by Rogers. Professionals in these fields have used the theory of diffusion to increase the adoption of innovative products and practices. Rodgers (1962) found that a number of factors interacted to influence the diffusion of an innovation. The four major factors that influenced the diffusion process are the innovation (new information) itself, how information about the innovation is communicated, time and the nature of the social system into which the innovation is being introduced. Rogers and Rogers (1962) observe that diffusion innovation continuum acquires S-Curves and recognizes five categories of participants: innovators, early adopters, early majority, late majority and the laggards.

Each of these groups has distinct characteristics. *The Innovators* tend to be

experimentalists and "techies" interested in technology itself and are financially stable, well educated, risk undertakers and seen as peer by other groups; *Early adopters* may be technically sophisticated and interested in technology for solving professional and academic problems, *Early majority* are pragmatists and constitute the first part of the mainstream; *Late Majority* are less comfortable with technology and are the sceptical second half of the mainstream; *laggards* may never adopt technology and may be antagonistic and critical of its use by others. They are financially less stable, conservative, less educated and fear to undertake risky operations.

Over the years diffusion theory has been important in the study of the spread of modern technology. New educational technologies have been touted as the revolutionary pedagogical wave of the future. Classroom films, programmed learning devices, language laboratories, educational television, and computer-assisted instruction have been adopted and integrated into the curriculum with varying degrees of success. Each technology is widely perceived as meeting a need, and each gains a measure of initial commitment of resources from a high level administrative or legislative entity. Their adoption and diffusion process generally follows what has been termed the "traditional model," a "top-down" process in which administrative "mandate" introduces the technology and administrative perceptions, decisions and strategies determine the adoption. Successful adoption is therefore highly dependent on the degree, stability and wisdom of administrative sponsorship.

The use of computer technology in music in Kenya is not only a recent innovation in the music industry but very recent in secondary schools. As a result, very few schools are able to access, acquire and embrace this technology and therefore fall in the category of innovators. The distinctive characteristics of those schools that fall under the innovators are:

i) Secondary schools in the capital city that are exposed to music computer technology. Kenyan schools in Nairobi, the capital city are more exposed to new technologies as opposed to rural schools in other parts of the country.

ii) Schools that are well established in terms of qualified and well-trained music personnel, materials and finances. They can therefore venture into computer music technology which other schools ignore. National schools and private schools, for instance are better endowed with resources than most provincial and district schools. This category includes schools that are old and may be conceived superior to others e.g. Starehe Boys Centre and Alliance High School.

This theory shaped the study as it laid a strong case for surveying the usage of computer technology for adoption in music education. Surry and Farquhar (1997) assert that increased awareness of diffusion's importance and expanded use of diffusion theories are of potentially great benefit to instructional technology in the field of music education.

Operant Conditioning Theory advanced by B.F. Skinner (1968) stipulates that behaviour is learned as a result of reinforcement. The feedback (reinforcement) is immediately given according to whether the response is right or wrong. This theory assisted in guiding the study to justify the adoption of computers as educational tools. It is mainly through Skinner's (1968) operant conditioning theory that a behaviourist instructional technology began to develop (Anderson, 1998). It is the same kind of feedback that is stressed by behaviourism. It is believed, for instance, that the Computer Assisted Teaching and learning (CATL) has its origin in behaviourism. According to Akuno and Digolo (2000), in the CATL, a unit of material is presented to the learner, who is required to make a response that shows an understanding of the task. In particular, the principle of immediacy of feedback has been viewed as one of the most important advantages in the CATL process.

Kleifyen (1999) maintains that there are improved academic performances when computers are used to assist the learning process. The key concept here is the role of the technology being that of assisting the learning process. Akuno and Digolo (2000) point that certain justifications have propelled the adoption of computers as educational tools. The potential of computers as educational tools has thus been accepted by educators. Secondary schools are currently among the leading users of computer facilities. It is within such a background that the study assessed the place of computers in facilitating music education in Kenyan secondary schools

by focusing on Nairobi. The two theories supplemented each other in the study of information acquisition and transfer, aspects which can easily be applicable to music education.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the research method, target population, and sampling procedures employed in the study. It also explains the design used in data collection, instruments of data collection, the type of data collected and how it was analysed.

3.1 Research Design

The study employed survey method which, according to Mugenda and Mugenda (1999) determines and shows the status of a phenomenon. Gay (1987) asserts that descriptive survey method is a process of collecting data in

order to answer questions concerning the current status of a subject in the study. The study involved collecting data in order to answer questions on the status of the use of computer technology in music education in Kenya. The study was conducted in two phases. The preliminary phase was a pilot project to determine the feasibility of the study, while the research phase constituted the main study.

3.2 Population and Sampling

The survey was conducted in secondary schools in Nairobi Province which offer music. The study involved both music teachers and music students. Purposive sampling was used in identifying the schools that offer music ranging from national, provincial and private schools and schools equivalent to district schools. The data was obtained from music students in three national, five provincial, four district and three private schools. A total of 14 schools were used in the sample representing 53% of the schools which offer music within Nairobi Province. Students who participated in the study from provincial schools were 57, district schools were 46, and national schools were 38 with 14 from private schools. A total of 155 music students in form three and four which constitutes 62% of approximately 250 music students that were registered in the 14 secondary schools participated.

In each school, form three and form four music students were preferred because they have studied music longer and are academically mature. Random

sampling was employed in selecting the students to take part in the study in each school. Music students were asked to pick marked printed and folded papers one at a time. This procedure was carried out in all the schools until the required sample was obtained.

3.3 Research instruments

Data was obtained from both primary and secondary sources which included library research and soliciting responses from respondents through the use of:

- a) Questionnaires (appendices 2 and 3)
- b) Interviews (structured and unstructured) appendix 4
- c) Direct observation (appendix 5)

3.4 Data Collection

The study collected both primary and secondary data using the tools listed above and archival research.

3.4.1 Primary Data

Primary data was collected in the field from the selected schools in Nairobi province using the following research instruments.

3.4.1.2 Questionnaires

Two categories of questionnaires were developed to allow two categories of response. These self-administered questionnaires required the respondents to select one response from the given alternatives. Both open-ended and closed ended questions required respondents to express personal views about the

questions asked.

Questionnaire I: for the music teachers (QMT, Appendix 2), solicited general information on the availability of technological facilities in schools, teacher's professional qualification, teaching experience and attitudes towards use of technology in music education.

Questionnaire II for the music students (QMS, Appendix 3) was formulated to solicit responses intended to corroborate the information given by the teachers. It dealt mainly with the kinds of technological resources available for learning music and accessibility of the facilities to the music students. Questionnaires were used as part of the research instrument because they gave respondents adequate time to formulate answers, and they also made it possible for a large sample to be dealt with at a short time.

3.4.1.3 Interviews

There was an interview schedule for music teachers (Appendix 4), and the interviews were conducted informally through discussion. The informal strategy was preferred to other techniques, because the researcher felt that it would create a more relaxed atmosphere, and consequently encourage more complete and spontaneous responses from the interviewees. Notes on matters arising from the discussions were taken. The purpose of the interview was to clarify issues that could not be clearly established through the questionnaires and observation.

3.4.1.4 Observation

The researcher gathered information through observation (Appendix 5). This included taking stock of any music technological facilities and equipment available in each of the schools, and observing a number of music lessons taught by each of the music teachers, in order to ascertain whether the teachers used any technological facility to support the teaching and learning of music.

3.4.2 Secondary Data.

Secondary data was collected from Moi Library at Kenyatta University; Jomo Kenyatta Memorial Library at the University of Nairobi, The British Council Library, United Nations Environmental Programme Library (UNEP), Kenya National Library Services and The Kenya National Archives. Reference to and reviews of the following documents were made:

1. Books related to the research topic;
2. Relevant journals and Periodicals;
3. Dissertations and Theses related to the research topic;
4. Internet research.

3.5 Data Analysis

The researcher employed descriptive statistical methods where information collected was grouped into related themes for analysis. The information collected was tabulated in frequency tables and expressed in percentages for

the quantitative data interpretation and discussion. The information from the questionnaires was coded and analysed using the SPSS, while the data collected by observation was presented in prose from descriptions and analyses. Both qualitative and quantitative data were analysed and presented. Textual data from interviews were analysed for thematic areas using descriptive statistical methods.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter deals with presentation and analysis of data gathered from secondary school music teachers and music students. The data was collected using questionnaires and interviews. Observations were also made to complement instruments used to collect data. Coding of the data was done using SPSS. The chapter gives a systematic and comprehensive presentation of the data collected during the study.

4.1 Return rate of music teachers and students respondents

Primary data was obtained from music students in three National schools, five Provincial schools, four District schools and three Private schools. In total 14 schools participated in the study out of 26 schools which offer music within Nairobi Province. A total of 155 music students in form three and four from

various secondary schools participated out of 250 music students from the selected sample schools. Eleven out of the approximately 20 teachers from the sample schools participated.

4.1.1 Return rate of music teachers as respondents

Music teachers are expected to play an important part in the process of acquisition and utilisation of the music technological equipments. Because of their central role, the following sub-section of the study focuses on the data they provided and observation concerning the role of technology in music education in Kenyan secondary schools.

Table 4.1.1 Return rate of music teachers as respondents

Schools category	No. of schools	% Sample (n=14)	Teachers sampled	% Sample (n=11)
National Schools	3	21.43%	2	18.18%
Provincial schools	5	35.71%	5	45.46%
District schools	3	21.43%	3	27.27%
Private schools	3	21.43%	1	9.09%

Total	14	100 %	11	100 %
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As evident from table 4.1.1 provided, the researcher obtained responses from 11 music teachers out of the total 20 teachers in the 14 sample schools that offer music. This represents approximately 55% of the target group, which as Gay (1987) asserts, are sufficient for descriptive data.

4.1.2 Music teachers' background and experience

Below is the response by the music teachers on their level of training and teaching experience.

Table 4.1.2 Response on music teachers' background and experience

Level of Training			Teaching Experience		
Level	Frequency	% (n=11)	Duration	Frequency	% (n=11)
Master of Arts (Music)	1	9.09%	Over 10 years	1	9.09%
Bachelor of Arts(Music)	5	45.45%	5 - 9 years	5	45.45%
Bachelor of Education(music)	3	27.27%	3 - 4 years	3	27.27%
Diploma	2	18.18%	0 - 2 years	2	18.18%
Certificate	0	0%	-	-	-
Total	11	100%		11	100%

As evident from table 4.1.2, 45.45% and 27.27% were graduate teachers with

either Bachelor of Arts (Music) or Bachelor of Education Arts (Music) respectively while 18.18 % representing 2 teachers were diploma holders. One teacher was a Master of Arts (music) degree holder.

Considerable proportion of teachers 45.45% had taught between 5–9 years, while one teacher representing 9.09% had over 10 years experience in teaching. The rest 27.27% had taught for less than 3 years. The implication here is that the majority of teachers were in a good position to deliberate on the status of music technology in the schools.

4.1.3 Return rate of music students as respondents

The data collected from students focused on the role of technology in music education. In all sample schools, music was an optional subject.

Table 4.1.3 Return rates of music students as respondents

Schools category	Students sampled	% of sample (n=155)	Total No. Students in population	% of population
National Schools	38	24.51%	63	60.31%
Provincial schools	57	36.77%	91	63.62%
District Schools	46	29.67%	60	76.67%
Private schools	14	9.03%	36	38.89%

Total	155	100%	250	62%
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As evident from table 4.1.2 provided, the researcher obtained responses from 155 music students out of approximately 250 from three and four music students in 14 secondary schools in Nairobi Province. This provided approximately 62% of the target group which according to Gay (1987) are sufficient to be used. Provincial and district schools had the highest students' respondents at 57 (36.7%) and 46 (76.7%) respectively while the national and private schools had 38 (60%) and 14 (38.8) respondents respectively.

4.2 Determination of the status of technology used in music education in secondary schools

The first objective of the study examined the role of technology in music education particularly in secondary schools. The following parameters were considered in order to find out the status of technology usage in music education; the availability of music technological facilities and equipment (such as Computer, electronic keyboard, and others) and their respective use, formal training of music teachers to ascertain competency in handling music technology tools. The responses from the students and teachers through questionnaires, interviews and researcher's observations were then expressed in percentages using the formula;

$$\% = \frac{Y}{X} \times 100 \%$$

X

Y - Available music technology equipments in school

X - Total number of sample schools.

The result was then tabulated.

4.2.1 Students' response regarding availability of technological facilities and their usage

Observation indicated that in most schools sampled, students had to share the few music technology facilities available as they were inadequate. The implication here is that most schools did not purchase adequate music technology equipments and facilities. When students were asked to state the availability and usage of technology in their schools. The table below indicates their responses.

Table 4.2.1 Students' response regarding availability of technological facilities and their usage

Type Technology	Availability in schools		Usage	
	No. schools with tech. (n = 14)	%	No. schools Using tech. (n = 14)	%
Computer	7	50.0 %	3	21.4 %
Electronic Keyboard	9	64.28 %	8	57.14 %
Piano	8	57.14 %	6	42.85 %
Recorder	11	78.57 %	8	57.14 %

Others e.g. Radio,CDs	3	21.4 %	5	35.71 %
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NB: The student respondents felt that musical instruments and equipments such as piano, recorder and radio were music technology equipments hence mentioned them.

From the table above, out of the 14 sampled schools, 7 schools had computers available for various purposes giving computer availability at 50%. From these figures, only 3 schools indicated the use of computer for music teaching, giving computer usage at 21.4%. Other music technologies present were: piano in 8 schools giving 57.14%, electronic keyboard in 9 schools representing 64.28%, recorders in 11 schools giving its availability at 78.57% and others such as radio at 21.4 %.Students mentioning recorder as technology implies lack of exposure.

4.2.2 Music teachers’ response regarding music technology equipments available in schools and their usage

The table below shows music teachers’ response when they were asked to indicate the types of technology available in their school. The table below indicates their responses.

Table 4.2.2 Music teachers’ response regarding music technology equipments available in schools and their usage

Type of Technology	Available technology equipment and facilities		Technology usage	
	No. of schools frequency (n =14)	%	No. of schools frequency (n =14)	%

Computer	6	42.85 %	3	21.4%
Keyboard	9	64.28 %	8	57.14%
Others	5	35.71 %	5	35.71%

According to table 4.2.2, in all the sampled schools, music teachers revealed that there was at least music technology present. Six schools out of the 14 sampled schools responded as having computers giving computer availability at 42.85%, electronic keyboard in 9 schools representing 64.28% and other technologies in 5 schools giving their availability at 35.71%. Observation indicated that most of the pianos and keyboards in the schools were either out of tune or order. Schools only had one piano for the whole school which was inadequate to students.

4.2.3 Music teachers' interview response on their formal training as music educators to handle music technology

Below were the responses by the music teachers when asked to mention music technologies that they could competently handle when teaching.

Table 4.2.3 Music teachers' response on their formal training as music educators to handle music technology

Music Technology	No. of Teachers trained to handle		Teachers Not-trained to handle	
	(n = 11)	%	(n = 11)	%
Computer	2	18.18 %	9	81.81%
Piano	4	36.36 %	7	63.63 %
Electronic Keyboard	6	54.54 %	5	45.45 %
Others e.g. Radio,CDs	3	27.27%	-	-

Among the teachers interviewed, 81.81% had no computer training and 63.63% could not handle piano and keyboard. This implied that the majority of teachers were not competent enough to handle music technology facilities.

4.3 The role of computer technology in teaching of music

The above objective of the study was to establish the role of technology in the teaching of music. To solicit response from music teachers and students, the following parameters were considered: music curriculum areas supported through the use of technology, necessity of employing the use of technology in teaching music and the challenging topics for music teachers and students in music curriculum. The results were tabulated and expressed in percentages as indicated below.

4.3.1 Teachers' response on the types of technology and the curriculum areas supported through the use of technology.

Teachers were asked to mention the types of equipment available in their schools and the curriculum areas supported through the use of technology.

The table below indicate their responses:

Table 4.3.1 Types of technology and the curriculum areas supported through the use of technology.

Music Technology available	Music Curriculum areas supported through music technology	No. of schools N=14	%
Computer	Composition, piano skills, downloading history of music.	3	21.4 %
Electronic keyboard	Theory ; scales, melody writing playback, cadences	9	54.28 %
Others i.e. Recorder	Aurals, Sight singing, scales, melody writing.	4	24.32%
Total			100 %

From table 4.3.1, it is evident that curriculum areas where teachers use music technology facilities were: Piano playing skills, sight singing and aurals, harmony (composition) melody writing and history of music. Observation indicated that 9 schools (54.28%) used electronic keyboard and piano in

teaching various elements of music. 3 schools (21.4 %) indicated the use of computer while 4 schools (24.32%) indicated the use of other equipments.

Table4.3.2 Teachers’ usage of technology when teaching music

Music technology	Practical lessons Technology usage			Theory lessons Technology usage		
	Frequency	n=11	%	frequency	n=11	%
Computer	Very often	2	18.18%	Very often	1	9.09%
	Often	3	27.27%	Often	2	18.18%
	Rarely	6	54.54%	Rarely	9	81.81%
Electronic keyboard	Very often	5	45.45%	Very often	4	36.36%
	Often	6	54.54%	Often	5	45.45%
	Rarely	3	27.27%	Rarely	4	36.36%
Others	Very often	2	18.18%	Very often	3	27.27%
	Often	3	27.27%	Often	2	18.18%
	Rarely	1	9.09%	Rarely	-	-

KEY:

Very Often: At least 2 times a week in practical and theory lesson

Often: At least once a week in either practical or theory lesson

Rarely: Once or not all

Table 4.3.2 indicate teachers' responses when asked about use of technology in teaching. Majority of teachers used keyboard and piano in practical lessons. This is represented by 45.45% while computers were rarely used hence 18.18 % usage. Theory lessons were often taught using keyboard and piano. 9 teachers representing 81.81 % indicated that they rarely use computer in teaching music despite its availability.

Table 4.3.3 Students' response on curriculum areas supported through the use of music technology.

Music Curriculum areas supported through music technology.	Students Frequency	Percentage (n=155)
Theory ; harmony and counterpoint Melody writing and composition	58	37.4 %
Piano playing skills training	10	6.5 %
Practicals e.g. training choirs; Four part singing SATB, Solo voice	29	18.7 %
Aurals	10	6.5 %
Western History and analysis	9	5.8 %
Sight singing	13	8.4 %
None	26	16.8 %

Total	155	100 %
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Students were asked to state areas in music where their teachers employ the use of technology. From table 4.3.3, The study indicated that 58 students, 37.4% showed that their teachers employed the use of music technology in teaching music theory such as harmony and counterpoint, melody writing and composition, 10 students representing 6.5% experience their teachers using the technology in teaching piano playing skills, 29 students giving 18.7% see their teachers use the technology in practical voice training, while 13(8.4%) and 10 (6.5 %) of the students find the use of technology when being taught sight singing and aurals respectively. Twenty six (26) students representing 16.8% do not see their teachers use any music technology when teaching.

4.3.1 Students' response regarding the need for technology for music instruction

When the students were asked if they found it necessary for the teacher to use the mentioned technology when teaching them music, the figure below shows their response;

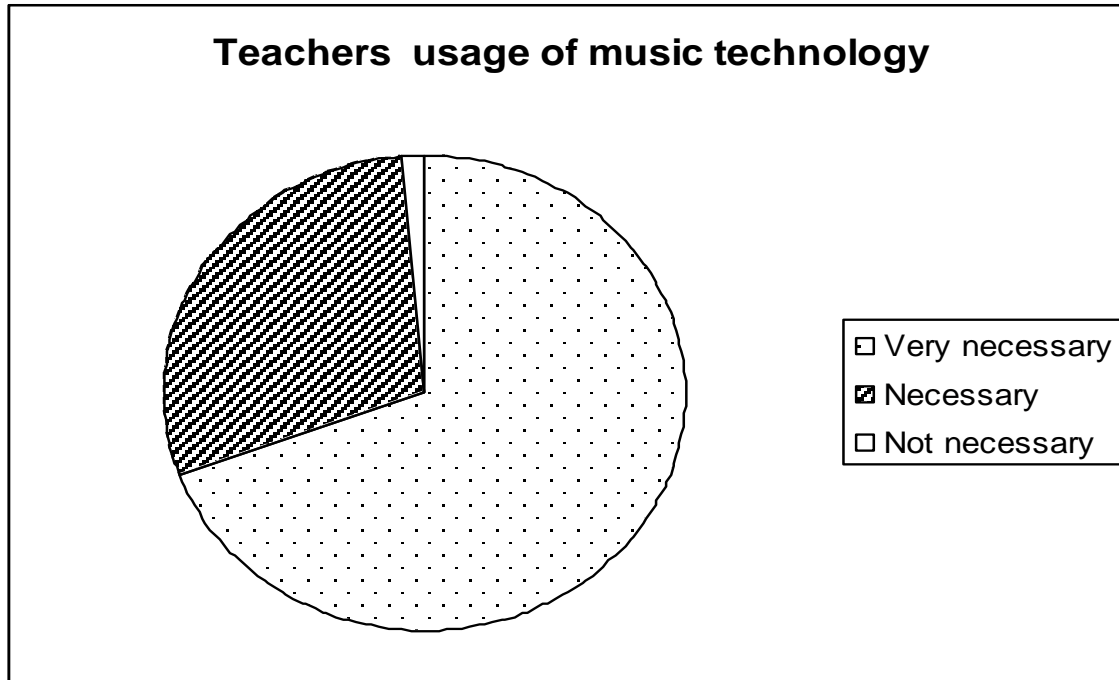


Figure 4.3.1 Students' view of the necessity to employ technology when being taught music.

When the students were asked if they found it necessary for the teacher to use the mentioned music technology facility, 107 (69.5%) felt that it is very necessary, 45 (29.2%) felt it is necessary and 2 (1.3%) students said it is not necessary to use the technology.

4.3.4 Music curriculum areas (topics) where students experience difficulty.

Students responded as follows when they were asked to mention topics they experience difficulty.

Table 4.3.4 Music curriculum areas (topics) where students experience difficulty

Difficult music topics	Students Frequency	%

	(n = 155)	
Theory of music	21	13.6 %
History of music	38	24.7 %
Composition	34	22.1 %
Practicals	45	29.2 %
Others	16	10.4 %
Total		100 %

As evident from Table 4.4 above, relatively more students experience difficulty in music practical and history of music. Forty five (45) students representing 29.2% and 38 students representing 24.7% respectively gave that information from the various schools. Music composition and Theory was also a problem, 22% and 13 % respectively mentioned them.

4.4 Exploring and outlining instructional prospects for computer usage in music education in secondary schools.

The above objective of the study focussed on exploring and outlining the instructional prospects for computer usage in music education in secondary schools by considering the following parameters: the financial support by the schools' administration in purchasing the necessary music facilities; and

equipment for music departments.

4.4.1 Response by the music teachers on financial support by the school administration for music technology.

Teachers were asked whether their school administration gave financial support in purchasing music facilities and equipments for their departments. Majority of the music teachers responded during the interviews that the school administration did not allocate funds to the music department but each need was met as it a rose depending on what the school administration considered to be most important. Teachers responded that they were compelled to devise ways of sharing the few music technology facilities and equipments available by allocating music students different times for using them, while in other schools students had to choose either to use piano, keyboard or recorder for their work.

Table 4.4.1 Response by the music teachers on financial support by the school administration for music technology

Music Technology equipment	Schools given financial support		Schools Not given financial support	
	n=14	%	(n=14)	%
Computer	4	36.36 %	6	54.54 %
Piano	4	36.36 %	7	63.63 %

Electronic Keyboard	8	72.72 %	3	27.27 %
Others	3	27.27 %	-	-

It is evident from table 4.4.1, that only 4 school administrators representing 36.36% were supportive of their music departments in purchasing mostly deemed expensive music technology facilities namely computers and piano. 6 (54.54 %) and 7(63.63 %) schools out of the 14 are not fully supported for computer and piano purchase respectively. Others form of technologies such as radio was given 3 (27.27%) financial support.

4.5 Proposing user-friendly ways in which computer technology can enhance music instruction in secondary schools.

The fourth objective of the study focussed on proposing user-friendly ways in which computer technology could enhance music instruction in secondary schools. The following suggestions came up from the music teachers and students through interviews and observations made by the researcher.

4.5.1 Music teachers’ and students’ advocacy for the introduction of computer music technology.

Music teachers and students, when interviewed, gave suggestions on the role of

technology in music education and its possible introduction into the music curriculum. 55% of the teachers advocated for the introduction of computer music technology into the music curriculum to enhance music teaching in areas like aural, music composition and piano skills teaching. On the use of computer technology in teaching music in Kenyan secondary schools:

- i) Both teachers and students acknowledged that computer technology is very important and can greatly enhance music education in schools. A teacher in one of the secondary school pointed that, “using music technology in teaching has greatly aided in playing back the students’ melodic and harmonic compositions hence saving time which would otherwise be wasted in singing the melodies and harmonies in parts.”
- ii) Music teachers suggested that they should be offered in-service training on computer music technology to update them with music technology skills; During an interview, a music teacher lamented that, “I never saw a computer during my university teacher training so unless I am offered an in-service training course, I may never employ the use of computers during my music lessons”
- iii) Teachers suggested that schools be equipped with computers by the school administration and through government sponsorship and the necessary music software be provide to enhance computer technology usage in music education;

- iv) Students responded that computer technology is very essential to learning music and should be included in the music curriculum syllabus and examined by the Kenya National Examination Council.
- v) 62% of the students said that computer technology would make music learning more interesting, easier and motivating.
- vi) Students advocated for the use of computer technology in music composition, harmony, piano training skills among others which they find challenging.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter discusses the findings that have been presented in chapter four of the study. Discussions of the data provided by the music teachers and students focus on the study objectives. Observation and interviews conducted by the researcher yielded important information that has been used in the discussion of the findings to corroborate the questionnaire responses. The discussion also draws upon other scholars' input on similar issues.

5.1 The status of technology in music education in secondary schools.

The following sub-section focused on the discussion of the data provided by music teachers and students on the status of technology in music education in

secondary schools. The analysis presented was concerned with the availability of music technological facilities and equipment (such as computer, electronic keyboard and others) and their respective usage in schools.

5.1.1 Availability of music technological equipment and facilities in secondary schools.

The data provided by the music teachers and students regarding availability of music technology facilities in schools indicated that there was music technology present and both groups were generally aware of this. Table 4.2.1 showed that 62% of students' respondents reported that music technology facilities were available in their schools. High percentage of the music teachers 70.0% confirmed this by reporting availability of certain music technology facilities such as computers, electronic keyboard among others. This was an indication that schools have access to technology facilities such as computers among others hence the need to advocate for its usage in music education would be easily implemented.

Observation revealed that there is at least one or more music technology type available in the respective schools but was inadequate to serve all the students. Music teachers also reported that they lacked pianos and electronic keyboard in their schools and as observations and interviews revealed, majority of the schools had only one piano that served all the music students, regardless of their numbers. In most cases the pianos were found to be completely out of tune or order. Lack of these vital facilities caused a serious constraint to the

learning of music in schools.

5.1.2 Use of music technological equipment and facilities in secondary schools.

From the table 4.2.2 (chapter 4), it is evident that high percentage of music teachers 70.0% reported availability of certain music technology facilities. However, they consistently mentioned that computers were available in their schools but mainly used for data management and IT based subjects such as computer studies and Aviation technology. This implies that music teachers only used them on minimal occasion due to inadequacy. This is an indication that most schools are financially capable of acquiring computers hence the need to advocate for its usage in music education other than computer studies.

It was interesting to note that while teachers reported that they normally used computer technology to aid in their music instruction, students denied its use but only acknowledged the availability of computers in their schools. However, it was clear that the availability of these equipments did not necessarily mean that they were used in supplementing music instructions. Most of the teachers interviewed revealed that they lacked competence to handle the music technology facilities such as computer. Some teachers, however, responded that although they were comfortable with using the music facilities and equipment, inaccessibility of the computers and music softwares to the music department and the demands placed by heavy teaching loads denied them both

chance and time to give exposure and individual attention to the students on music technology in music education. These findings implied that majority of the music students will hardly get chance to use the technology.

5.2 The role of computer technology in teaching of music in secondary schools

The discussion focused on data provided by music teachers and students on the role of computer technology in teaching of technology in secondary schools. The issues discussed were: music curriculum areas supported through the use of technology; necessity of employing the use of technology in teaching music; and the challenging topics for music teachers and students in music curriculum.

5.2.1 The types of technology and views on the curriculum areas supported through the use of technology in music.

Tables 4.3.1 and 4.3.3 in chapter 4 indicate that music teachers and students reported that the curriculum areas supported through music technology facilities were: theory, harmony (composition), melody writing, history of western music and practicals i.e. piano playing skills, sight singing and aural. Table 4.3.2 indicates that music teachers generally employed particular music technology facilities they could competently handle in teaching music. It may be concluded that curriculum areas where teachers use music technology facilities varied with individual schools depending on availability and the

individual teacher's awareness of the importance of music technology facilities such as computer in enhancing music education. This implied that majority of teachers were not in a good position to competently handle music technology facilities. Majority of the music students also reported that they feel motivated in learning music when their teachers employed technology in teaching music. They find it very necessary for their teachers to use them especially in handling difficult topics in music.

In order to bring the teaching and learning of music to complete fruition in Kenyan secondary schools, we must realize that some aspects of music education require the use of diversified teaching facilities that will supplement traditional approach to music instruction and not just a few resources used for drilling students for examination purposes. For instance, the computer has now become an indispensable tool for musicians. The practical aspects of the music curriculum especially, require the use of diversified music facilities and resources, without which the teaching and learning of the music will be completely hampered.

It is probable that Hoffer (1964, p.64) had this in mind when he stated that:

The nature of the music curriculum decrees that the students should explore every avenue of musical experience, in order to uncover its infinite variety and scope.

The teaching of music must be well catered for at all levels in terms of provisions for relevant instructional facilities. Finding new ways of

incorporating the existing and newly developed technology into the teaching of music may open up new methods for the learning and teaching of music. This is yet to be happening locally as expressed by the students, and hence the dismal performance, this attests to Digolo [1997] findings on the use of resources.

5.3 Exploring and outlining the instructional prospects for computer usage in music education in secondary schools

This sub-section focuses on the discussion of the data provided by music teachers and students in exploring and outlining the instructional prospects for computer usage in music education in secondary schools. The analysis presented concern the financial support by the schools administration in purchasing the necessary music technology for music departments.

5.3.1 Financial support the school administration.

It is evident from table 4.3.3 that only a few school administrators (36.36%) are supportive of their music departments in purchasing mostly deemed expensive music technology facilities such as computers, music software and electronic keyboards. In most schools involved in this study, the school administration did not fully support music departments in buying the necessary music technology facilities required in teaching. Observations confirmed that there is at least one or more music technology type available in the respective schools but they are inadequate to serve all the students. The implication here is that the school administration may not be aware of the possibility, let alone

effectiveness, of using computer for the dissemination of information and development of skills that facilitate learning in music.

Music teachers also reported that they lacked pianos and electronic keyboard in their schools, observation and interviews revealed that majority of the schools had only one piano that served all the music students, regardless of their numbers, in most cases the pianos were found to be completely out of tune or order.

Digolo (1997: p.23), for instance, points that:

Music continues to be one of the most neglected subjects of the school curriculum. Of all the practical subjects, it has the least satisfactory provisions. And is seen as non academic subject.

It may be deemed necessary that music departments in secondary schools be provided with instructional facilities such as well tuned piano, computers and electronic keyboard among others. Lack of these vital facilities serious constraints to the learning of music in schools.

5.3.2 Lack of financial resources

This adversely hindered the acquisition of music technology facilities for learning. The school administration did not allocate funds to music department for purchase of music equipment and facilities such as computers, music software.

5.3.3 ICT policy in learning institutions

There is no guidance on computer technology for schools particularly in the

transfer of the technology facilities such as hardware and software at low cost so that institutions may have access to the technologies at cheaper prices. This keeps vital facilities out of reach for education providers and consumers. Well-articulated ICT policies should make the same equipment accessible.

5.3.4 Music teachers' lack of interest

This was considered a major drawback to the acquisition and utilization of music technology facilities. Lack of proper training was named by 81.81% of the music teachers as a hindrance to the use of computer technology for instruction in music. This is an indication that music technology won't be fully realised unless the music teachers are exposed to in-service training on the importance in enhancing music education. Teachers' assertion regarding work load is a further hindrance yet personal interest should lead to exploration and subsequent utilisation. This may in turn make work lighter since ICT is a tool and a facilitator.

5.4 Exploration of user-friendly ways in which computer technology can enhance music instruction.

Secondary schools music teachers were required to suggest various user-friendly ways in which computer technology can enhance music instruction in secondary schools. Apart from the questionnaires responses, the respondents expressed their views through interviews.

Constraints that topped the list as mentioned by the music teachers were;

financial drawbacks, policies on ICT in education sector, teachers' attitude, lack of competency among others.

Majority of the music teachers and students advocated for the introduction of computer music technology into the current music curriculum to enhance music teaching in areas like aural, composition and piano skills teaching which they find difficult. This implied that such music topics are a challenge hence finding new ways of incorporating the existing and newly developed technology into the teaching of music may open up new methods for the learning and teaching of music.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATION

6.0 Summary

The study sought to find out the role of computer technology usage for music education in Kenyan secondary schools. It took place at a time when the application of computer technology in the field of education is rapidly gaining ground in various institutions world over. An attempt was made, not only to survey the status of the computer technology, but also its usage in music instruction process among secondary schools in Nairobi.

The study specifically aimed at surveying the use of computer technology for music education; to determine the status of technology usage in music education in secondary schools; to explore and outline the instructional prospects for computer usage in music education in secondary schools; and to establish the role of computer technology in the teaching of music.

The study employed descriptive survey method. It targeted music teachers and students as respondents. A total of 14 (53%) of the schools offering music education in Nairobi Province, 55% teachers, 62% of music students participated in the study. Data was collected through questionnaires, interviews, and observation. After co-ordinated collection, data from the questionnaires was subsequently coded and analysed using SPSS.

6.1 Conclusions

Many curious issues were raised by both teachers and students, some of which were outside the scope of the current study. As insinuated from the discussions in the previous chapter the study revealed a number of findings. In summary, the following are the key conclusions drawn from the study.

The major findings of the study revealed that computers and ICT are present and accessible to Kenyan schools. 62% students' respondents reported that music technology facilities were available in their schools. High percentage of the music teachers 70.0% confirmed this by reporting availability of certain music technology facilities such as computers, electronic keyboard among others. This was an indication that schools have access to technology facilities such as computers among others, hence the need to advocate for their usage in music education would be easily implemented.

The study revealed that there is at least one or more music technology types available in the respective secondary schools in Nairobi Province, but their application is often undefined. In most schools involved in this study, the school administration did not fully support music departments in acquiring necessary music technology facilities such as computers, music softwares and electronic keyboard that enhance teaching of music. The reason for this apparent lack of co-operation varied among individual administrators and schools.

It can be firmly concluded that technology plays a significant role in music instruction by supporting music curriculum areas such as music theory; harmony (composition) melody writing, history of western music and practicals; piano playing skills, sight singing and aural. The study findings confirm that teachers' use of music technology facilities varied with the individual teacher's awareness on the importance of music technology in enhancing music teaching.

Proper policies on ICT in school is lacking, There is no guidance on computer technology for schools particularly in the transfer of technology facilities such as hardware and softwares at low cost so that institutions may have access to the technology at cheaper rates. Lack of training on music technology at higher institutions was named by music teachers as a major short coming in the advancement of technology usage for instruction in music. Majority of the teachers interviewed, for instance, reported that they were unable to use the computer music software and that they only had basic computer knowledge.

The study also revealed that the long term and short term implications of incorporating technology in music education are dependant on key factors. These are namely: formulation and implementation of ICT policy on education by the ministry of education, attainment of the millennium development goals by the country's economy in order to ensure rural electrification that will see the rural schools acquire computers and training of music teachers on the use

of music technology.

6.2 Recommendations

From the findings of the study, the following key recommendations were made:

1. Educational curriculum, training and policy
 - i) Call for curriculum review advocating for the introduction of music technology into the current music curriculum. This could be achieved by introducing review process in parts of music curriculum areas such as composition, harmony, learning piano skills among others to supplement the traditional approaches and methods of instruction employed by the majority of music teachers.
 - ii) Teacher training institutions should redesign and structure their music courses to include music technology courses. This will ensure incorporation of existing and newly developed technology into the teaching of music that may open up new methods for the learning and teaching in the field of music education, especially the application of music technology in music education.
 - iii) Capacity building through seminars, workshops and in service courses geared towards updating teachers' competence in skills related to application of newly developed technology in the field of music education. Organisation whose goals are to promote music education such as Association of Music Educators of East African (AMEEA), Kenya Society for the Musical Arts Education (KAMAE), Kenya Music Teachers Association

(KEMUTA) and Kenya Music Festival Foundation, (KMF) should be encouraged and supported, as such forums give teachers opportunity for developing and sharing resources, besides providing professional experience.

- iv) Formulation and implementation of ICT policy on education by the government through Ministry of Education and other stake holders. With the right policy in place aimed at reducing the cost of acquiring the computer hardware and the software, more schools and institutions may have access to the technology at affordable prices.
- v) School Administrations must make arrangements to avail computers to music departments and purchase the necessary music software to enable music teachers to explore areas of music such as practicals and theory which as mentioned before computer facilities can aid in learning to supplement the piano and keyboards.

2. Further research

In the course of the study, very many gaps emerged that the researcher felt needed to be filled. The following are such areas that needed further research:

- i) Design of a suitable in-service course to lift the teachers' skills in the role of technology and the appropriate use of music technology for music education.

- ii) Determination of the relationship between the availability and use of music technology facilities the computer and performance in music in secondary schools.
- iii) Determination of the types of music technology facilities (such as computer genres, sequencing software packages and programs, midi cables) which would be appropriate for application in music education curriculum in Kenyan secondary schools.
- iv) Gender perspectives in use of music technology in schools, institutions and industries.

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APPENDICES

APPENDIX 1: INTRODUCTORY LETTER TO THE RESPONDENTS

Malachi D. Apudo Achola
C/oDepartment of Music and Dance
Kenyatta University,
P. O. Box 43844,
Nairobi.

Dear Respondent(s),

The purpose of this letter is to inform you that I am carrying out a research study on: *The role of technology in Music Education: A survey of Computer usage*

in Secondary schools in Nairobi province, Kenya. This study is a requirement for fulfilment of masters degree in Music Education (MME) of Kenyatta University, Department of Music and Dance.

I will appreciate if you kindly answer the attached questions as truthfully as possible. The information you give will be treated with strict confidentiality and will be used solely for the purpose of study.

Sincerely yours,

Apudo M. A.

APPENDIX 2: MUSIC TEACHERS' QUESTIONNAIRE (MTQ)

Please answer the following questions to the best of your knowledge. Tick [] appropriate answer(s) or fill in your opinion where applicable.

1. Name of the school _____
2. Name of the Teacher (Optional) _____
3. What is your professional qualification?
 1. Master of Arts (Music) []
 2. Trained graduate - B.Ed Arts (Music), B.A (Music) []
 3. Diploma []
 4. Certificate []
4. What is your teaching experience?

- 1. Between 0 - 2 years []
- 2. Between 3 - 4 years []
- 3. Between 5 - 9 years []
- 4. Over 10 years []

5. Does your school have any technological equipment?

If available is it used in supplementing music instruction?

- i) Yes, []
- ii) No []

5. Which of the following music technological equipment are available in your school?

- | | Yes | No |
|--------------------------|--------|--------|
| a) Computer | [] | [] |
| b) Electronic Keyboard. | [] | [] |
| c) Music software | [] | [] |
| d) Others, specify _____ | | |

7. If any of the technology tools in question 5 are available in your school, specify in which area of music you normally use it.

- a) Computer
- b) Electronic keyboard
- d) Music software
- e) Others, specify _____

8. Did your formal training as a music teacher give you the competence to handle the music technology tools?

1) Yes []

2) No []

9. Which **one** of the following music topics do you find most challenging in your teaching profession?

a) Theory of Music []

b) History of Music []

c) Composition []

d) Practicals []

Others, specify _____

10. Does the use of technology in teaching motivate your students to music learning?

1) Yes []

2) No []

11. Does your school administration support your department in buying the necessary music technology facilities you require in teaching?

1) Yes []

2) No, []

If no, give reasons why? _____

13. Would you advocate for the introduction of computer music technology into the current music curriculum to enhance music teaching areas like

aurals, music composition and piano skills teaching?

1) Yes []

2) No []

Why?

Thank you

APPENDIX 3: MUSIC STUDENTS QUESTIONNAIRE (MSQ)

Please answer the following questions to the best of your knowledge. Tick[√] appropriate answer(s) or fill in your opinion where applicable.

1. Name of the student (optional) _____

2. Name of the school _____

3. Year of study _____

4. Is music an optional subject in your school?

1) Yes []

2) No []

5. If yes, what motivates you to choose it and not the other options?

6. Which one of the following music topic(s) do you find difficult

a) Theory of music []

b) History of music []

c) Composition []

d) Practicals []

Others, specify _____

7. Which of the following music technology are available in your school?

a) Computer []

b) Electronic Keyboard []

d) Others, specify

8. Specify the area(s) in music where your teacher uses the mentioned music technology to teach in class.

9. Are you motivated in learning when the teacher uses music technology facilities to teach you?

1). Yes []

2.) No []

10. Would you advocate for the introduction of computer music technology into the current secondary school music curriculum to enhance learning in areas like aural, music composition and piano skills teaching?

Thank you

APPENDIX 4: INTERVIEW SCHEDULE FOR TEACHERS

1. What is your name?
2. Where did you train as a music educator?
3. For how long have you taught music?
4. Did your formal training as a music teacher give you the competence to handle the specific technology tools? Mention any of them.
5.
 - a) Does your school have any music technological equipment?
 - b) Please show me any of them in your school.
 - c) Do you normally use these music technological facilities in supplementing music instruction? Are the equipments adequate to cater for all music students in your music class? What do you do to ensure all students use the facilities?
6. Does the school administration support your department in buying the necessary music technology facilities you require in teaching? How often do you purchase the relevant equipment?

7. Would you advocate for integration of computer music technology into the current music curriculum to enhance music teaching. Why?
6. Do you think music teachers are well equipped to handle music technology especially computers in the teaching of music education?

APPENDIX 5: OBSERVATION SCHEDULE

Observations on the status of music technological facilities in the sampled secondary schools were obtained through on-site visits by the researcher and open discussion with teachers during music lessons for two periods within a term. These included;

- a) Examining and recording of all the music technology facilities and equipment available in each of the schools.
- b) Observing a number of music lessons taught by the music teachers.
- c) Observing the extent to which the teachers made use of available music technology facilities.

APPENDIX 6: LIST OF SCHOOLS SURVEYED IN THE STUDY

SCHOOLS CATEGORY

DIVISIONAL ADMINISTRATION

NATIONAL SCHOOLS

- | | | |
|----|----------------------------|------------|
| 1. | STAREHE BOYS CENTRE SCHOOL | -PUMWANI |
| 2. | NAIROBI SCHOOL | -WESTLANDS |
| 3. | KENYA HIGH GIRLS SCHOOL | -WESTLANDS |

PROVINCIAL SCHOOLS

- | | | |
|----|-------------------------------|------------|
| 4. | PRECIOUS BLOOD GIRLS SEC | -DAGORETTI |
| 5. | BURUBURU GIRLS SEC. SCHOOL | -MAKADARA |
| 6. | ST. GEORGES GIRLS SEC. SCHOOL | -STAREHE |
| 7. | DAGORETI HIGH SCHOOL | -DAGORETI |

DISTRICT SCHOOLS

- | | | |
|----|-----------------------------|-----------|
| 8. | LANGATA HIGH SCHOOL | -KIBERA |
| 9. | HURUMA GIRLS SEC. SCHOOL | -PUMWANI |
| 10 | NGARA GIRLS SEC SCHOOL | -STAREHE |
| 11 | KAHAWA GARRISON SEC. SCHOOL | -KASARANI |

PRIVATE SCHOOLS

- | | | |
|-----|---------------------------------|-----------|
| 12. | RIARA SPRINGS GIRLS SEC. SCHOOL | -EMBAKASI |
| 13. | ST. EDWARDS HIGH SCHOOL | -STAREHE |
| 14. | HILLCREST SCHOOL | -KIBER |

APPENDIX 5: INTRODUCTORY LETTER

APPENDIX 7: LETTER OF AUTHORIZATION

APPENDIX 6: RESEARCH PERMIT