

**AN INVESTIGATION OF THE IMPACT OF DIGITISATION OF
CURRICULUM SUPPORT MATERIALS ON PUBLISHING INDUSTRY IN
KENYA: THE CASE OF KENYA LITERATURE BUREAU (KLB) AND
LONGHORN PUBLISHERS**

By:

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DECLARATION

This research project is my original work and all sources have been accurately reported and acknowledged. This document has not been previously, in its entirety or in part, submitted at any university in order to obtain any academic qualifications.

SIGN-----

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K50/74686/2014

This research project report has been submitted for examination with my approval as the university supervisor.

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LIST OF ABBREVIATIONS AND ACRONYMS

AAP:	Association of American Publishers
BISG:	Book Industry Study Group
BPA:	British Publishers Association
CD:	Compact Disc
CD-ROM:	Compact Disc Read Only Memory
DDD:	Digital Divide Data
DRM:	Digital Rights Management
EAEP:	East African Educational Publishers
GoK:	Government of Kenya
HTML:	Hypertext Markup Language
ICT:	Information and Communication Technology
JKF:	Jomo Kenyatta Foundation
KICD:	Kenya Institute of Curriculum Development
KLB:	Kenya Literature Bureau
KPA:	Kenya Publishers Association
MoE:	Ministry of Education
PDF:	Portable Document Format
PoD:	Print on Demand
TAM:	Technology Acceptance Model
ToTs:	Trainer of Trainers
TRA:	Theory of Reasoned Action

ABSTRACT

This study investigated the impact of digitisation of curriculum support materials on local publishers with special reference to Kenya Literature Bureau and Longhorn Publishers. The objectives of the study were: to examine Information Communication Technology policy and its impact on book publishers in Kenya, to examine whether there were technical, capacity and marketing challenges faced by publishers in digitising curriculum support materials, and, lastly, to establish the relationship between Kenya Institute of Curriculum Development and publishers in regard to digitisation of curriculum support materials. The study adopted a qualitative method approach in which eighteen respondents were interviewed. Qualitative research methods used to collect data were semi-structured interview and desk review. Data was analysed using qualitative methods including categorisation, comparison and descriptive statistics. Data was presented using simple tables, simple bar graphs and texts. The study was founded on the Theory of Technology Acceptance Model to explain the usefulness of Information Communication Technology to publishers. The research found out that the Information Communication Technology Policy had led to restructuring of human resource and change in operations in publishing industry. However, the same Information Communication Technology Policy had little impact on the overall sales turnover among publishers. The study found out that Kenya Institute of Curriculum Development and book publishers work in liaison with each other towards digitisation and approval of curriculum support materials although there were problems in availing content to schools due to conflicting interests. This research also found out a number of challenges encountered in digitising curriculum support materials. They include: digital rights management concerns, lack of proper policies, piracy, high costs, technological changes, lack of expertise and pricing model issues. The study recommends that the Ministry of Education formulate policies to address issues of concern to publishers like formats of the digital content, pricing, Digital Rights Management, procurement and distribution structures. The government should also provide equipment and support devices to schools to enable learners to access digital content from publishers.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter delves into the concept of digitisation from a global perspective. It highlights the origin of digital publishing and its spread from USA to Europe, to Africa and to Kenya. It further explains reasons for digitisation of curriculum support materials in Kenya. The chapter also specifies the problem of the study and further justifies reason for carrying out this research. Lastly, the chapter outlines the main aim and objectives of carrying out this study.

1.2 Background to the Study

The history of digital publishing is not as old as traditional print publishing. Marie Lebert (2009) points out that digital publishing was born in 1971 when Michael Hart founded project Gutenberg. The first document to be digitised was a copy of the American Declaration of Independence (Lebert, 2009). Philip Albatch (2008), credits Gutenberg for the invention, which has made modern printing possible.

The first digitised materials were in form of CDs. CDs are storage devices that are designed to store computer data in the form of text and graphics, as well as hi-fi stereo sound (Rouse, 2005). The first CD-ROM became commercially available in 1982 and not only music and video companies saw the potential of CDs, but also publishers found a way to use them. The first e-books were developed in 1990s and it is at this time that many publishers and authors decided to start selling their books online (Lebert, 2009).

Amazon, which is an electronic commerce and cloud computing company for selling products online, was the first online bookstore to be established in 1995. It later spread to Europe from 1998 with the creation of two subsidiaries in Germany (Amazon.de) and in United Kingdom (Lebert, 2009). By 2013, e-book market in the US was dominated by two companies (Amazon and Barnes & Noble) that together accounted for 85% of all consumer e-book sales, (Walters, 2013).

Digital publishing spread from US to Europe and Northern America. Rudiger Wischenbart (2011), while looking at scope and distribution of e-book markets across the globe, gives an account of the distribution of e-books across the globe. She postulates that in the US, e-books are very popular. A survey done by the Association of American Publishers (AAP) and the Book Industry Study Group (BISG) indicated that the total share of e-books in the trade market had increased from 0.6% in 2008 to 6.4% in 2010, (Wischenbart, 2011). In Europe, Germany e-books accounted for about 1% of the book market by 2011. In France, the market share of e-books was estimated at 0.5 by 2011. In the United Kingdom, the British Publishers Association (BPA) disclosed growing digital sales figures, demonstrating the acceleration of the digital market in the UK. The overall size of the digital market stood at £180 million (British pounds), increasing by 38 percent from 2009. Most striking was the rapid growth of the total consumer digital sales, which increased by 318 percent from £4 million to £16 million between 2009 and 2010 (Wischenbart, 2011).

In Africa, digital publishing has picked up very well and there is likelihood of significant growth in the next few years because of great potential shown by publishers. The availability of e-book reading devices has served as catalyst to foster a new culture of

reading books in digital formats (Zell, 2013). Many organisations are now partnering with local publishers to convert existing content into digital formats and also avail to readers. Worldreader for example, through its project founded in 2008 by former Amazon senior executive David Risher, has focused on bringing e-reading devices to classrooms in Africa primarily in three African countries namely; Ghana, Kenya and Uganda. Using these devices Worldreader has reportedly brought over 200,000 e-books to children in these three countries including access to about 500 African-published textbooks and storybooks (Zell, 2013). However, publishers in Africa are still skeptical about the whole idea of digitising curriculum support materials. There is uncertainty and hesitance among African publishers to venture into digital publishing. Zell (2013) points out that there is still apprehension among African publishers about the digital environment. The fear of piracy also remains a major issue. Many publishers are hesitant to digitise their books until digital and online content are seen to be secure from piracy and illegal distribution. Some African publishers are still not sufficiently conversant with encryption tools, digital assets and rights management, and the access control technologies and security systems that could assist them – albeit with some caveats – to control access to their digital content, and prevent unauthorised uses (Zell, 2013). For both KLB and Longhorn publishers, the biggest problem is the market value for the digitised materials. There is very little return for digitised curriculum support materials as compared to print curriculum support materials.

1.3 History of Digitisation of Curriculum Support Materials in Kenya

Digitisation of curriculum support materials is not a well-developed venture in Kenya. The digitisation started when multinational digital companies such as Digital Divide Data started partnering with local publishers to digitise content. Several companies have since

come in and also offered publishers to convert their books to e-formats to become available in major e-book retail outlets such as Amazon/Kindle or Kobo (Zell, 2013). A promising venture in Kenya was a pilot project initiated by technology start-up eLimu in 2013. The technology enabled children to use the interactive devices loaded with multimedia version of Kenya's syllabus. It incorporated content correlating to the national curriculum, enriched with animations, videos, songs, music, games and quizzes, thus aiming to make the learning process more interactive, interesting, and engaging for children (eLimu, 2013).

Digitisation of curriculum support materials in Kenya is derived from Kenya Education Sector Support Program (KESSP), a Ministry of Education framework developed in 2005. KESSP singled out ICT as a priority program to be mainstreamed in teaching and learning process (Farrell, 2007). To actualise this, in 2006, the government through the Ministry of Information and Communication Technology formulated the ICT Policy. This was in recognition of the role of ICT in the social and economic development of the nation based on the Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (ICT Policy, 2006). The ICT Policy of 2006 informed the process of digitization of curriculum support materials. The objectives of the policy included: promoting ICT in education at primary, secondary and tertiary levels through developing ICT curricula, developing strategies to support research and innovation in ICT, integrate e-learning resources with other existing resources, promote the development of digital content to address educational needs of all schools, create awareness of the opportunities offered by ICT as an educational tool, provide affordable infrastructure to facilitate dissemination of knowledge and skill through e-learning platforms and finally, to facilitate sharing of e-learning resources between institutions (ICT Policy, 2006). The

revised ICT Policy of 2016 also emphasizes importance of applying ICT to enhance education, through curriculum development, teaching methodologies, simulation laboratories, life-long learning and distance education and for teaching of not only ICT, but of all subjects and specialisations (ICT Policy, 2016).

Despite these milestone made in development of ICT policy framework, publishers in Kenya are yet to fully embrace the policy of digitisation of curriculum support materials. Among the first publishers to digitise their content are Jomo Kenyatta Foundation (JKF), Longhorn Publishers, East African Educational Publishers (EAEP) and Kenya Literature Bureau (MOE, 2016). Longhorn Publishers and KLB are the leading local publishers in digitising curriculum support materials. Longhorn Publishers has 64 titles from ECDE, Primary to Secondary levels approved by KICD. KLB has 27 titles from ECDE, Primary to Secondary levels also approved by KICD (MOE, 2017). A study by Digital Divide Data outlines operational challenges publishers face while digitising curriculum support materials. The high cost implications lead to digitisation of only low quality formats such as ePubs and PDFs, which are affordable but less interactive. The platform also relies on metadata and keywords, which introduce a level of subjectivity to the quality analysis, (Steinberg, 2014). This study therefore, investigated the impact of digitising curriculum support materials on publishers with the aim of identifying problems in digitisation of content in publishing industry.

1.4 Problem Statement

Curriculum support materials in Kenya are largely produced in print formats. These include books, flash cards, charts, and some models. These print curriculum support

materials account for 95 % of the entire total market share. Digital content accounts for about 5% of total market share of curriculum support materials (MOE, 2017).

Publishers in Kenya play a major role in review and implementation of curriculum reforms. They develop content and submit to KICD for vetting and subsequent approval for schools and colleges (KICD Act, 2012). The ICT policy adopted by KICD requires publishers to develop digital curriculum support materials aside from traditional print curriculum support materials. This venture has called for a paradigm shift from traditional print curriculum support materials to digital curriculum support materials in line with the policies of Ministry of Education on ICT integration in education (ICT Policy, 2016). Publishers are therefore required to develop digital content and submit to KICD for vetting apart from the print content. The publishers that have so far managed to develop digital content include; KLB, Longhorn, EAEP, Moran, Mountain Tops, JKF, Oxford University Press and Africa Digital Learning Academy Limited (MOE, 2017). Many of these publishers use intermediaries such as Digital Divide Data to convert content into digital formats because they lack capacity to digitise content on their own (Zell, 2013). This study therefore investigated the impact of digitisation of curriculum support material on local publishers with special focus on KLB and Longhorn Publishers. The main aim was to establish how and whether publishers were being affected by the ICT policy of digitising curriculum support materials.

1.5 Objectives of the Study

This research was guided by the following specific objectives:

- i. To investigate the impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.

- ii. To find out the technical, capacity and marketing related challenges faced by publishers in digitisation of curriculum support materials.
- iii. To investigate the relationship between KICD and publishers in regard to digitisation of curriculum support materials.

1.6 Research Questions

From the specific objectives, the following research questions were formulated:

- i. What is the impact of the 2016 ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials?
- ii. What are the technical, capacities and marketing related challenges faced by publishers in digitisation of curriculum support materials?
- iii. How does the KICD and publishers relate in regard to digitisation of curriculum support materials?

1.7 Rationale

This study focused on digital publishing in Kenya because digitisation of curriculum support materials is a government policy under Ministry of Education. The objective of ICT Policy 2016 in education is to promote ICT at primary, secondary and tertiary levels through developing ICT curriculum support materials in digital formats. The ICT Policy informed digitisation of schools curriculum support materials by publishers. By focusing on digital publishing, the study sought to establish whether implementing ICT policy of digitisation would have any profound impact on book publishers.

The study singled out two publishers namely: Kenya Literature Bureau and Longhorn Publishers because they are the market leaders in digitising curriculum support materials

in Kenya (MOE, 2017). The two publishers develop curriculum support materials and submit to KICD for vetting and subsequent approval (KICD Act, 2012). The study also selected only the two publishers because of the qualitative nature of the research involved. The research was interested in exploring the subjective patterns of the organisational experiences and not statistical representations of organisations (Davies, 2007). Kenya Literature Bureau was selected by virtue of being a parastatal body established under the act of parliament to publish curriculum support materials for schools (KLB Act, 2012). In this study, KLB was chosen to represent interests of the government. KLB has made tremendous steps in digitising several e-books on Worldreader, Amazon and e-Kitabu, (KLB ICT Editor, 2016). Longhorn Publishers was selected to represent and capture the findings from private owned publishers. Longhorn is a pioneer digital publisher in Kenya that has managed to avail its content in the kindle device in partnership with Worldreader (Longhorn ICT Editor, 2016).

The study focused on curriculum support materials for schools. This was because under new submission guidelines by KICD, publishers are required to submit digital content aside from print content for vetting and subsequent approval. Traditionally, curriculum support materials were produced only in print formats. However, the ICT Policies of 2006 and 2016 informed the decision to digitise curriculum support materials to supplement print support materials.

1.8 Significance of the Study

The findings of this study will help publishers to establish economic value of digitisation of curriculum support materials. The findings will also help in identifying the challenges publishers face in digitising curriculum support materials. This will help in identifying

necessary practices and procedures that are productive and efficient to publishers. The findings of the study will provide an insight to the Ministry of Education and KICD on the need to establish digitisation policies to handle issues of piracy, digital rights management, pricing and standardisation of content supplied by publishers for vetting.

1.9 Operational Definition of Terms

Publishing: Publishing involves the creation, compilation, and mass reproduction of graphic and text images (acs.edu.au, 2018)

In this study, publishing is referred to as the profession of production and issuance of literature materials such as books, magazines, newsletters and even journals; to bring to the attention of the public.

Curriculum: A means of achieving specific educational goals and objectives (Su Shao-Wen, 2012). In this study, curriculum was used to refer to the courses offered by a school, the learning objectives, units and lessons, assignments and projects, the books and materials, tests and assessments and any other method used to evaluate learners.

Curriculum Support Materials: These are textbooks, teacher's guides, and other printed materials that describe the curriculum and how to communicate it to students and have the potential to support new teachers with their instructional decisions (Kauffman, 2005). Curriculum support materials in this study include textbooks, teacher guides, syllabuses, and schemes of work, models, charts, flash cards and any other teaching resource.

Digitisation: Refers to the process of making an electronic version of a ‘real world’ object or event, enabling the object to be stored, displayed and manipulated on a computer, and disseminated over networks and/or the world wide web (Bandi, Angadi, and Shivarama (2015).

This study defines digitisation as the process of conversion of analog information in any form (text, photographs, voice etc) to digital formats with suitable electronic devices (such as a scanner or specialised computer chips) so that the information can be processed, stored, and transmitted through digital circuits, equipment, and networks.

1.10 Scope and Limitations of the Study

Due to the qualitative nature of this study, the sample population involved was small. As Davies (2007) observed, “with qualitative research, your aim is not to emerge with findings that are statistically representative of a given population but rather to explore subjective patterns of personal, group or organisational experience.” Therefore, the information obtained from the respondents is not in any way representative of the entire views of all publishers in Kenya. Another limitation of the study was that, it only adopted semi-structured interview method to collect information. The main reason for using this method was to focus only on target respondents who were knowledgeable on the subject being investigated. The primary objective of the study was to access the views, perspectives and feelings of these respondents hence it was more appropriate to focus on semi-structured interviews.

1.11 Chapter Summary

This chapter has highlighted the background of digital publishing by delving into the history of digital publishing from global perspective and development of curriculum support materials. It has outlined the spread of digital publishing from the US, Europe, Africa and in Kenya. The chapter has further explained how digital publishing came into Kenya and how local publishers came to embrace it. This chapter has also brought out the problem statement by underscoring the main issue of study. The chapter has also established the main research objectives of the study and pointed out the significance of carrying out this research. In general, this chapter has given background understanding of the entire research study, the purpose of carrying out the research, and the importance of this study. The next chapter will look at the developments in trends of digitisation of curriculum support materials and specific studies that have been undertaken about digitisation of curriculum support materials.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This section seeks to review relevant literature that exists from various studies that have been conducted about digitisation of curriculum support materials. It highlights the background understanding of development of curriculum support materials in Kenya and how digitisation of curriculum support materials came to be. It analyses comparative studies of challenges of digitisation to publishers in Kenya vis-a-vis the rest of the world. The chapter finally identifies knowledge gap that exist from various studies done with aim of filling it.

2.2 Development of Curriculum Support Materials in Kenya

Curriculum Support Materials are educational resources that provide curriculum and instructional experiences for learners. These materials are used by educators to develop curricula and lesson plans and may also be used in actual instructional situations. These materials also provide information for those conducting research (Carr, 2001). Curriculum support materials are one of the major components of curriculum development cycle. Other components include needs assessment, formulation of a curriculum development project, curriculum designing, personnel training, implementation, and project evaluation (Oluoch, 2014).

Studies have been conducted about development of curriculum support materials in Kenya. Callaghan (1997) gives an account of the history of development of curriculum support materials in Kenya. According to Callaghan, Church Missionary Society published the first print books, which were largely hymnbooks and Bible translations.

When the 7-4-2-3 System of Education came into being in 1964 (Ominde, 1964), there was surge for demand of curriculum support materials. Multinational publishers such as Longman Green, Oxford University Press, Thomas Nelson, Evans Brothers, Heinemann, Macmillan, Pitman and Cambridge University Press came in and started publishing curriculum support materials to meet the high demands (Ogechi & Ogechi, 2002). In the period after Kenya attained independence many Africans were going to school and there was high demand for quality educational materials with local content (Callaghan, 1997). This called for establishment of local publishers to focus on development of curriculum support materials with local content. The Kenya Education Commission recommended establishment of Jomo Kenyatta Foundation (JKF) to work alongside East African Literature Bureau, (later KLB), in producing curriculum support materials for the Kenya Institute of Education, (later KICD) (Ominde, 1964). Since that time, many other private publishers have established themselves and at the same time, many multinationals have exited the market while others merged with local publishers (Ogechi & Ogechi, 2002). Today, there are 100 registered publishers operating in Kenya (KPA Report, 2016).

Generally, there is very little research that has been carried out about development of curriculum support materials in Kenya. Most studies focus on the general curriculum. A study by Watamba (2009) while evaluating the factors affecting implementation of curriculum for early childhood in Kisumu, cites teaching and learning materials as major factor that affect curriculum implementation. Anampiu (2011) while examining implementation of the integrated Business Studies curriculum in secondary schools in Tigania West District affirms that availability of curricular resources determine the implementation of Business Studies curriculum in the district. A study by Mosoti, Gathumbi and Anthony (2015) on the influence of resources and materials

implementation of the Non-Formal Basic Education Curriculum (NFBEC) in Nairobi, Mombasa and Kisumu urban centers, revealed that the implementation of the non-formal education curriculum was hampered by unavailability, inadequacy and inappropriateness of the resources and materials in the centres. Grace (2008) while studying the factors influencing implementation of adult education curriculum in Mwala Division, Machakos District, established that teaching/learning materials are a necessary tool to facilitate Adult Education curriculum. It was also noted that the curriculum support materials should be written in the learner's language to help interpretation and make it easy to understand the content. From the above studies, it is evident that there is knowledge gap that exist in the field of curriculum support materials. This study sought to fill that gap.

Publishers develop curriculum support materials and submit them to KICD for vetting. The subsequent vetted and approved materials are listed on the Orange Book as appropriate curriculum support materials to be used in schools (KICD Act, 2012). The developments of curriculum support materials have since taken new dynamics. The MoE has identified ICT, as a major pillar in reforming the current curriculum to suit the social and economic needs of the country. ICT is embedded in economic pillar as one of the priority sector for Kenya's economic transformation (GRK, 2007). KICD has developed a framework for publishers that require them to submit digital contents aside of traditional print formats for vetting and subsequent approval. This is in line with government policy of digitisation of content to primary and secondary schools (ICT Policy, 2016). It is against this backdrop that this study sought to investigate the impact of digitising curriculum support materials to publishers in Kenya.

2.3 Digitisation of Schools' Curriculum Support Materials in Kenya

Mattison (2002) defines digital curriculum support materials as monographs akin to printed books that are made available in digital formats to be read online or downloaded to handheld devices. Abbott and Kelly (2004) explains that while digital curriculum support materials can be as simple as scanned versions of printed publications, inherent in digital publications is the ability to make available a number of features to the reader which include multimedia, hyperlinks and other interactive components, search features, and ability to be customised to meet the needs of readers. Digitisation of schools' curriculum support materials in Kenya is drawn from the ICT Policy of Kenya. The policy identifies ICT as a driving factor in the social and economic development of the nation (ICT Policy, 2016). ICT policy was formulated to facilitate sustainable economic growth and poverty reduction, promote social justice and equity, mainstream gender in national development, empower the youth and disadvantaged groups, stimulate investment and innovation in ICT and achieve universal access (ICT Policy 2016). The fundamental objective of the policy is to ensure that everyone has necessary skills to benefit fully from the fruits of the information society, (ICT Policy 2016). KICD has already rolled out a framework for developing digital curriculum support materials to publishers in line with the ICT Policy. The broader goal of the project is to design and develop curriculum support materials in digital formats for all the subjects offered in the Kenyan early childhood education, secondary schools, primary schools, non-formal and tertiary institutions (Manani, 2007). This study therefore investigated how the ICT Policy of digitisation of curriculum support materials affects the publishing industry in Kenya.

The actual process of digitisation of curriculum support materials in Kenya was fast initiated by KICD with support from USAID (through Mind-Set of South Africa) in a

project known as '*Tafakari*' a Kiswahili word, which means think. KICD developed digital curriculum support materials in Science and Mathematics for Standards 4 and 5, (Manani, 2007). Other publishers such as KLB, Moran, Longhorn, JKF and EAEP have since followed suit by designing and producing digital curriculum support materials for schools at different levels of learning (MOE, 2017). Currently, there are only 42 digital curriculum support materials out of 1,144 curriculum support materials for secondary school level. This represents 3.7% of total market share. For ECDE, primary schools and teacher training colleges, there are 175 curriculum support materials out of 4,050 of the total number curriculum support materials. This represents 4.3% of the total market share. In general, there are 5,194 curriculum support materials that are approved by KICD. Out of this, only 217 curriculum support materials have been digitised and approved for use in schools. This represents 4.1% of the market share against 95.9% of print books (MOE, 2017).

Digitisation of school's curriculum support materials is a subject that has not been widely researched on in Kenya. Most studies have focused on integration of ICT in education and e-books. A study by Wendo (2016) investigated the importance of e-Books in improving access to scholarly materials by university students in Kenya. The study found out that majority of the students was computer literate as a whole and had a clear understanding of e-books. The results further established that students encountered problems when carrying out searches in e-Books and that there was lack of knowledge of the e-books subscribed by the university library. This research focuses on uptake of digitised content (e-books) but does not address issues to do with digitisation of curriculum support materials by the publishers.

Another study by Ogutu (2008) investigated the impact of ICT integration in the six Nepad e-schools in Kenya. The study found out that there was limited penetration of the physical telecommunication infrastructure into rural and low-income areas. The study also found out that there was limited digital equipment at virtually all levels of education. Support from the university management on the introduction of e-books by financing its subscription was one of the factors enhancing the access and use of e-books. This study also does not outline specific issues to do with digitisation of curriculum support materials but rather focuses only on issues of challenges of adoption of digital curriculum support content in schools.

Kitoo, Obae, Kanori and Odundo (2015) researched about the adoption of ICT on management of secondary schools in Kenya by addressing the constraints and policy implications. The study established that majority of the schools did not have adequate ICT infrastructure to support ICT adoption in management. The study also established that ICT skills were inadequate for ICT integration. Again, this study outlines the challenges of adopting integration of ICT and digital teaching and learning materials in schools. The study does not focus on digitisation of curriculum support materials for schools.

Luhombo (2015) also carried out another study about teacher factors influencing integration of information communication technology in teaching of English in public secondary schools in Mumias Sub-County. In her findings, she established that majority of the teachers of English, head teachers and even students all have a positive attitude towards the use of ICT. It was established that majority of the teachers did not receive adequate training on ICT. It was also established that many teachers had many lessons to

teach in a week thus had inadequate time to prepare for ICT related lessons. This study focuses on integration of ICT into teaching and learning process. It does not focus on digitisation of curriculum support materials.

It is evident from the above researches that there is very little studies that have been done about digital curriculum support materials in Kenya. As such, development of digital curriculum support materials has been hampered with due to uncertainties and hesitance by publishers (Zell, 2013). This study therefore investigated the impact of digitising curriculum support materials to local publishers in Kenya to fill the knowledge gap that exist.

2.4 Challenges of Digitisation of Schools' Curriculum Support Materials

2.4.1 Global Challenges

Various studies have been conducted about challenges of digitisation of curriculum support materials by publishers from global perspective. A study by Tian (2008) presents various aspects of digitisation in Australia. Tian investigated the attitudes of publishers and end users towards book publishing trends in Australia with regard to digitisation of content. Publishers interviewed over prospects of e-books expressed reservations to digitise content because of limited market availability. They argued that the marketplace for e-books was still very immature in Australia. Despite offering some books through their website, sales were very minimal. Tian further argues that most of the companies earn more from printed copies compared to e-books. He cites company X whose most important income stream was from POD service provided at the university bookshop. The company began their POD centre in 2001, and by 2008, it had sold 8 million pages a year (@8 cents per page, \$640,000 per annum) through its internal channel (297). Tian

study only examined profitability as a factor that hindered digitisation of content. He did not explore all other possible challenges that publishers would have faced as a result of digitising curriculum support materials.

Clark and Philips (2014) while studying digitisation of publishing in United States pointed out marketing and advertising as the main problems in digital publishing. Most of the distributing networks either have only hardware or software capability and therefore unable to fully meet customers' needs. Apple for example, which is primarily a hardware firm, has to outsource software support systems from other firms to help sell its varied products. This makes cost of selling e-books to shoot up. Facebook and Google platforms provide only advertising space for e-books. Their business models support advertising and social networking but are not suitable for selling e-books.

In China, a number of problems have been identified as having a direct hindrance to the digitisation of books. Poon (2014), while investigating consumer behavioural intention in using e-books, points out a number of challenges in e publishing. First, Poon observes that, the market for e-books in China is in its developmental process and as such, there is low uptake of e-books across China. In 2009 for example, the sales of e-books constituted only 3% to 5% of total sales revenue. Another challenge is the quality of e-books being published. Due to complexity of designing quality e-books and cost implication factors, many e-book publishers have adopted models that simply translate textbooks into digital files, and made available via the Internet in the form of PDF or HTML (Poon, 2014). A good e-book should be customised to meet the multi ability needs of the learners.

The above studies have largely focused on very few and specific challenges of digitising curriculum support materials from different parts of the world. The studies do not address

the varied challenges in digitising curriculum support materials especially from third world countries. This study therefore investigated the impact of digitising curriculum support materials to local publishers and hence established various challenges of digitising curriculum support materials in Kenya.

2.4.2 Challenges of Digitisation of Curriculum Support Materials in Africa

Africa experiences its fair share of challenges as far as digitisation of curriculum support materials is concerned. The first and major challenge, which has hindered many publishers in Africa from venturing into digital publishing, is the lack of research in digital publishing. While there is a lot of data on the uptake of e-books in the UK, US and other countries, very little has been written about e-book market in Africa (Maepa and Nkosi, 2013). The challenges of digitisation of curriculum support materials in Africa are far much extensive and varied compared to US and Europe. Wischenbart (2011) observes that, emerging e-book markets in Africa won't necessarily follow an identical path such as that followed by the American and European Markets, but they will instead follow a delayed path to widespread e-book adoption.

In Nigeria for example, the major challenge to digitisation of curriculum support materials is the unwillingness of the publishers to venture into digital publishing. Most publishers venturing into the Nigerian e-book market become preoccupied with piracy, security issues and high start-up costs instead of focusing on the opportunities opened up by the digital revolution (Cornford, 2011). A study by Susan Gaigher about digital publishing in South African Trade sub-sector: Lessons to Learn from Disruptive Technology, identifies various challenges facing digital publishing in South Africa book industry. They include; small market niche for digital content, lack of software and compatibility issues making publishers to digitise only PDF and EPUB content and lastly,

Digital Rights Management (DRM) concerns whereby publishers fear losing their content online (Gaigher, 2012). Maepa and Nkosi (2013) posit that high comfort levels with print sources and fear of the unknown make it difficult for publishers to venture into digital publishing. The high cost of e-readers makes it almost impossible for publishers to venture into digital publishing. The average price of for an e-reader in South Africa is ZAR 800 about the equivalent of USD 100.

In Tanzania and Somalia, technology still represents a considerable challenge in digitising curriculum support materials. Internet infrastructure is inadequate and unreliable (Maepa and Nkosi, 2013). The French speaking countries of Africa experience language barrier problem. Data on French-speaking countries such as The Democratic Republic of Congo, Burundi and Rwanda is difficult to retrieve and digitise as a result of language barriers (Maepa and Nkosi, 2013). Botswana, Lesotho, Namibia and Swaziland have a very small market size for digital content materials in comparison to print materials (Maepa and Nkosi, 2013). This makes it difficult for publishers to venture into digital publishing. It is apparent that every African country experiences different challenges in digitising curriculum support materials. This calls for tailored researches in specific countries to establish specific challenges publishers face in digitising curriculum support materials. This study therefore investigated the impact of digitisation of curriculum support materials by focusing on challenges faced by publishers in the course of digitising content.

2.4.3 Challenges of Digitisation of Curriculum Support Materials in Kenya

In Kenya, just like most African countries, very few studies have been undertaken to understand the challenges of digitisation of curriculum support materials by publishers. Earliest studies focused so much on print publications only. A study by Philomena

Mwirigi and Mary Kinyanjui about digitisation and preservation of local content for the national library, points out at a number of factors that hinder digitisation of content. They include lack of proper policy guidelines on digitisation of curriculum content, lack of capital by publishers to acquire hardware and software resources and untrained personnel to handle digital technology (Mwirigi & Kinyanjui, 2012). Another study by Tay (2015) investigates factors affecting data migration in the Kenya government ministries. The study identifies specific challenges of digitisation of content in Kenya. These challenges include lack of quality assurance and quality control of digital copies, lack of necessary technical infrastructure and expertise to digitise content and lastly, financial constraints.

Some studies have focused on e-books uptake so as to measure market base of digital curriculum support materials in Kenya. Neyole (2014) assess e-books and c-books utilisation by university students in Kenya. The research showed that the level of c-book use within the university library was decreasing as the students progressed in their studies. In first years, out 75 students sampled, the percentage decrease in e-book utilisation was 26.67%. In second years, out 75 students sampled, the percentage decrease in e-book utilisation was 16%. In third years, out 75 students sampled, the percentage decrease in e-book utilisation was 6.67%. In fourth years, out 75 students sampled, the percentage decrease in e-book utilisation was 2.67%. From the study, it is apparent that the market opportunities for digital curriculum support materials are small.

A study by Kiilu (2012) focuses on e-learning approaches to secondary school education in Kenya. The study identifies various technical and technological challenges in integrating ICT in secondary schools. ICT infrastructure includes computers, e-readers, Internet, kindle devices and projectors. This equipment is necessary for actual utilisations

of digital curriculum support materials. Kiilu points out that the lack of adequate ICT infrastructure due to lack of preparedness among the institutions and implementers is a major setback in ICT integration in teaching and learning. From publishers point, this is a factor that affects implementation of digital curriculum support materials since schools have no facilities to absorb and utilise the digital content.

The above studies, explore some of the few challenges faced by publishers in Kenya. Digitisation of curriculum support materials is a new venture to publishers in Kenya. Most publishers are yet to embrace this new phenomenon fully. It is evident from the literature above that there is a knowledge gap that exists in the publishing industry, especially on prospects of developing digital curriculum support materials. As such, there is need for more research to be done to give local publishers an assurance before they can fully venture into digital publishing. This study therefore, sought to fill that void by investigating the impact of digitising curriculum support materials to local publishers in Kenya. One of the specific objectives was to investigate the challenges of digitisation of curriculum support materials to book publishers in Kenya.

2.5 Theoretical Framework

Grant and Osanloo (2014) define theoretical framework as the blueprint for the entire dissertation inquiry. It is the guide on which to build and support a research study. Pajares (2007) underscores that theoretical framework in a study informs the statement of the problem, rationale, research questions, selection of instruments and choice of methods to be used. The theoretical framework provides a grounding base, or an anchor, for the literature review, and most importantly, the methodology and analysis, (Grant & Osanloo, 2014). A thorough literature review on impact of digitisation of curriculum

support materials on local publishers based on the Theory of Technology Acceptance Model (TAM), investigated the three objectives of the study:

- i. The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.
- ii. The technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials.
- iii. The relationship between KICD and publishers in regard to digitisation of curriculum support materials.

2.5.1 Technology Acceptance Model (TAM)

Technology Acceptance Theory or Model (TAM) is a theory of information systems that shapes how users come to accept and use a given technology. This theory was originally proposed by Davis, (1986). TAM is based on the Theory of Reasoned Action (TRA) advanced by Ajzen and Fishbein (1980). According to TRA, there is a direct link between beliefs, attitudes, norms, intentions, and behaviours of individuals. Individual will behave based on their attitudes, and intentions. Therefore, an individual's decision to engage in a particular behaviour will be dependent on the outcomes the individual expects will get as a result of performing the behaviour.

TAM explains why a user accepts or rejects information technology by adapting to principles of TRA, Davis (1989) and Davis, Bagozzi, and Warshaw (1989). TAM provides a basis upon which one traces how external variables influence belief, attitude, and intention to use. Two cognitive beliefs are posited by TAM: perceived usefulness and perceived ease of use. According to TAM, one's actual use of a technology system is influenced directly or indirectly by the user's behavioural intentions, attitude, perceived usefulness of the system, and perceived ease of the system. TAM also proposes that,

external factors affect intention and actual use through mediated effects on perceived usefulness and perceived ease of use.

In relation to this study, TAM guided investigation on impact of digitisation of curriculum support materials to local publishers. Digitisation of curriculum support materials is important to publishers in as far as its usefulness is perceived. If the usefulness of digitising curriculum support materials has perceived gainful value, then the impact of what would be positive, thus publisher's willingness and drive to embrace digitisation of content. In the same way, if perceived gainful value for adopting digital curriculum support materials by publishers is insignificant, then the impact of the technology would be negative, thus publishers' unwillingness to embrace digitisation of curriculum support materials.

Another factor as posited by TAM is the ease of use of technology. Adoption of digitisation of curriculum support materials is dependent on the ease of use of the technology. If the technology is complex, the uptake by publishers would be low. If the technology is less complex, the uptake levels by publishers would be higher. Therefore depending on the complexity in terms of infrastructure, preparedness and knowhow, the impact of digitising curriculum support materials to publishers could be positive or negative. TAM therefore informed the basis upon which select publishers in this study viewed the appropriateness or otherwise of digitisation of curriculum support materials to their business models. Further, TAM formed the basis upon which investigation about ease of use and acceptance of technology by publishers was carried out.

2.6 Chapter Summary

This chapter has examined relevant literatures from various studies about digitisation of curriculum support materials. The chapter has explored global perspectives vis-à-vis Kenya's scenarios. The main purpose was to establish the knowledge gap with the aim of filling it through this study. The chapter has established that there is a lot that need to be researched about in regard to digital publishing. Very few researches have been conducted about digital publishing in Africa and in Kenya. Compared to developed countries like US, Canada, UK, Australia, China and the larger Europe, Africa has very little development in terms of digital publishing. The few studies done have also not explored critical issues touching on digital publishing. The literature review has indicated that most studies in Kenya have largely focused on the e-books and integration of ICT in teaching and learning. By investigating the impact of digitisation of curriculum support materials to publishers in Kenya, this study aims at filling the void that exist in digital publishing. The next chapter, highlights various research methods that were used to investigate the subject of research as founded by the literature review.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter provides an overview of the nature of research undertaken, sample size and sampling techniques adopted. In addition, the chapter describes the research tools used and how the data was gathered, and analysed. Furthermore, it also explains issues of ethics to give the respondents total confidence and surety against any reprisals as a result of participating in the research.

3.2 Research Design

The research design used various qualitative methods to collect and analyse data from the respondents. They included descriptive, exploratory and explanatory. Descriptive technique was used to explore the development of digital publishing from the global perspective, Africa and its adoption in Kenya. This was necessary in addressing research objective (i):

- (i) The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.

Exploratory and explanatory techniques were used to establish challenges in digital publishing. They were also used to investigate the relationship between KICD and book publishers in Kenya. The two methods were significant in meeting research objective (ii) and (iii):

- (ii) To find out technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials.
- (iii) To assess the relationship between KICD and publishers in regard to digitisation of curriculum support materials.

3.3 Research Approach

This study used qualitative research approach. Qualitative approach generally deals with people's perceptions or meanings (Denscombe, 2007). Qualitative approach was used to explore the subjective experiences of all the respondents involved in this study. All respondents and key informants were interviewed directly and the information they gave was based on their personal experiences and knowledge about the subject that was being investigated. Publishers were interviewed about their general experiences in digitising curriculum support materials. Booksellers were interviewed about challenges and prospects of selling digital curriculum support materials.

3.4 Research Method

The research used case study method because of its suitability to investigate the subjective opinions of respondents involved in the study. Case study method is defined as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984). Case study method enables a researcher to closely examine the data within a specific context. In most cases, a case study method selects a small geographical area or a very limited number of individuals as the subjects of study (Zainal, 2007). In this research, case study method was used to explore experiences of the two select publishers namely Kenya Literature Bureau and Longhorn Publishers. The two select publishers represented the entire publishing industry in Kenya. The purpose of using case study method was to identify a specific geographical area with specific subjects of interests.

3.5 Target Population

The study targeted 100 publishers in Kenya. This is because all publishers are required to digitise curriculum support materials aside from traditional print materials. There are 100

registered publishers in Kenya (KPA Report, 2016). However due to the qualitative research design used in this study, only two publishers were selected to represent the entire population. As Davies (2007) points out, qualitative approach explores the subjective patterns of the population experiences and not statistical representations of population. This study sought to investigate publishers with prior experience in digitising curriculum support materials. Kenya Literature Bureau and Longhorn Publishers were selected as the most experienced publishers in digitising content and as market leaders in digitising curriculum support materials in Kenya (MOE, 2017). KLB has 287 digital curriculum support material titles out of which 27 have been approved by KICD to be used in schools. Longhorn has 485 digital curriculum support materials out of which 64 have been approved by KICD to be used in schools (MOE, 2017), (KLB ICT Editor), (Longhorn ICT Editor).

3.6 Study Area

The study focused on entire publishing industry in Kenya. However, most of the respondents and key informants were drawn from Nairobi County. This was because the two publishers selected, KLB and Longhorn are located in Nairobi. KICD and KPA are also located in Nairobi. The Ministry of Education officials interviewed were drawn from Nairobi County at Jogoo House where education policy formulation takes place. Respondents interviewed from e-Kitabu were also from Nairobi where their head office is located. The booksellers selected for this study were also from Nairobi. The four booksellers; Text Book Centre, University of Nairobi Bookshop, Savanis and Vaghela, were specifically selected because they had stock for digital curriculum support materials.

3.7 Sample Size

Sample size is the number of observations in a sample (Evans, Hastings and Peacock, 2000). The size of the sample is completely dependent on the nature and design of the study, the aims and research questions, and underlying philosophical position, (Edwards

& Holland, 2013). Due to the qualitative nature of this study, the sample population involved was small. In qualitative research, the major aim is to explore subjective patterns of personal, group or organisational experiences and not statistical representations of a given population, (Davies, 2007). The study therefore interviewed only a few respondents with knowledge and understanding about digitisation of curriculum support materials.

The sample size comprised of key informants and respondents in publishing industry in Kenya. A total of 18 respondents were picked using purposive sampling technique. Purposive sampling is the deliberate choice of informants due to the qualities the informants possess. It is a non-random technique that does not need underlying theories or a set number of informants (Bernard, 2002). The respondents and informants selected included; 2 publishing managers, 2 marketing managers and e-books and e-learning editors. These were drawn from the two publishing houses; KLB and Longhorn Publishers. The 4 booksellers were Text Book Center, University of Nairobi Bookshop, Savanis, and Vaghela. The four booksellers were selected because they had stock for digital curriculum support materials. The 2 KICD officials were the deputy director, and the curriculum specialist for primary, secondary and tertiary levels. The 2 KPA officials were executive officers. The 2 Ministry of Education officials were Assistant Director Policy and the Senior Officer Quality Assurance and Standards. The 2 officers from e-Kitabu were the Chief Executive Officer and the Publishing Account Manager. Table 3.1 shows a summary of the sample size that was used in this study.

Table 3.1: Sample Size

Respondents/Informants	No. Respondents
Publishing Managers	2
Marketing Managers	2
E-books and e-learning editors	2
Booksellers (Text Book Centre, University of Nairobi Bookshop, Savanis and Vaghela)	4
KICD officials	2
KPA officials	2
MoE officials	2
E-Kitabu officials	2
Total	18

Source: Research Data, 2018

3.8 Sampling Technique

The non-probability sampling based on the purposive sampling method was used for this study. This is because the study only required those respondents and key informants with prior knowledge and understanding of the digitisation of curriculum support materials in Kenya. Burton (2000) affirms that, the purposive sampling approach is an ideal method to only select individuals who are directly involved in the field of research study. Key informants are observant, reflective members of the community of interest who know much about the culture and are both able and willing to share their knowledge (Campbell, 1955). Purposive sampling technique was used to single out the two publishing firms namely: Kenya Literature Bureau and Longhorn Publishers. Purposive sampling was also used to the select key informants and respondents in publishing industry, policy formulation, and actual digitisation of curriculum support materials and marketing of content. Purposive sampling was ideal for this study because the sample size

involved was small. Purposive sampling approach is preferred over random sampling due to the category and the small number of the research participants (Burton, 2000; Denscombe, 2007).

3.9 Data Collection

Data from key informants and respondents was collected using the following methods:

3.9.1 Semi-Structured Interview

Semi-structured interviews are informal or conversational and flexible form of interviews that allow new ideas to be brought up during the interview as a result of what the interviewee says (Fontana and Frey, 2000). Semi-structured interview was chosen for this study because it allowed the interviewer to be flexible in terms of the order in which the issues were considered. Denscombe (2007) asserts that a semi-structured interview lets the interviewee develop ideas and speak more widely on the issues raised by the researcher. Semi-structured interviews also allow for an in-depth provision of information especially that which relates to the individual's opinions, feelings, emotions and experiences (Holliday, 2007; Wilkinson, 2000). The interviews were administered to all selected respondents on different dates so as to get ample time for appropriate responses.

The participants were given some advance notice of the areas to be discussed during the interview, but not specific questions. This allowed the participants to reflect and not to be caught off-guard during the interview sessions. Issues like definitions of terms were clarified at the outset (Homan, 1991). The questions included in the interview were based on the main research questions. The questions centered on the three objectives of the study: (i), (ii) and (iii)

- (i) The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.

- (ii) The technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials.
- (iii) The relationship between KICD and publishers in regard to digitisation of curriculum support materials

This was important so as not to deviate from the main objectives of the study.

3.9.2 Desk Review

Desk research or review is defined as the collection of secondary data from internal sources, the Internet, libraries, trade associations, government agencies, and published reports. This is data that has already been collected by other researchers and can be accessed from archives (Hox & Boeije, 2005). The purpose of desk review is to allow the researcher explore other researches that have been conducted and related to the main topic of study. Desk review also allows the researcher time and the opportunity to identify gaps and specific research questions, and to think about whether the methodology may have to be adapted for subsequent phases of research (Operario, 2008). This study reviewed existing relevant secondary data relating to various study topics such as incorporation of ICT in education, digitisation of curriculum, challenges in book publishing industry and e-commerce. Desk review helped to identify the gaps that exist in digital publishing. From the literature reviewed, it was established that very little research has been conducted about digital publishing and digitisation of curriculum support materials in Kenya. It was from this backdrop that the study about investigation of the impact of digitisation of curriculum support material on local publisher was founded.

3.10 Validity and Reliability

Joppe (2000) defines reliability as, “the extent to which results are consistent over time and an accurate representation of the total population under study.” Validity determines

whether the research truly measures that which it was intended to measure or how truthful the research results are (Joppe, 2000). Validity and reliability answer the question of credibility of the entire research study.

To check on validity and reliability of this research, a pilot study was conducted with two (2) respondents from the two publishers. A pilot study helps to check on ambiguity of the questions, omissions and errors that are likely to be encountered during the actual study. A pilot study also helps to determine the time frame and cost estimates and other unforeseen situations that can affect the outcome of the study. The rationale is to minimize avoidable errors so as to achieve maximum credibility during the actual study. In this study, a pilot study conducted helped in restructuring research questions. Some respondents were unwilling to answer sensitive questions relating to financial performance and marketing of digital curriculum support materials. Through pilot study, such critical questions were framed to appeal to individual respondents.

3.11 Data Analysis

Data analysis refers to the process of simplifying data to make it comprehensive and to give meaning to the data which was collected by use of the research instruments involved (Gioko, 2011). The procedures used in analysing data in this study were categorisation, comparisons and descriptive statistics.

Categorisation was used in analysing clustered data. Spiggle (1994) defines categorisation as the coding or identifying units of data like a passage of text as an example of a more general phenomenon. In this study, data from booksellers, KLB and Longhorn Publishers was grouped together for ease of identification of responses about

challenges of digitisation of curriculum support materials in Kenya. Categorisation was useful in attaining research objective (ii)

- (ii) The technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials.

Comparison was used in analysis of different variables in this study. Comparison explores differences and similarities in the data currently collected and provide guidelines for collecting of additional data (Spiggle, 1994). Data from responses by booksellers, ministry of education officials and the two publishers, Longhorn and KLB, was analysed by comparing the varied responses on the question of impact of ICT policy to book publishers in Kenya in regard to digitisation of curriculum support materials. This was useful in meeting research objective (i):

- (i) The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.

Descriptive statistics was also used in analysis of this study. This involved use of matrix displays and percentages. A data matrix (matrix display) is a two-dimensional tabular representation of data in which data fields can be organised by rows and columns (Miles and Huberman, 1994). The purpose is to display and compare data for different units of analysis or cases in the data. In this study, data from different respondents was keyed in a table to give a comparative analysis of the findings. Each matrix was presented on the same page so that all the relevant data can be seen at the same time. The use of percentages was useful when analysing data relating to comparison between print and digital curriculum support materials for early childhood development education, primary, and secondary levels. The two descriptive statistical methods were relevant in meeting objectives (i) and (ii):

- (i) The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.
- (ii) The technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials.

3.12 Data Presentation

The data was simplified and presented using different qualitative methods. These included texts, simple tables and simple bar graph.

3.12.1 Simple Tables

A table is an orderly classification of facts arranged in vertical columns and horizontal rows which groups related numbers into classes (Shambaugh, 1991). In this study, the data that was collected about status of digital publishing was presented in a tabular format to give a comparison of the books digitised by KLB and Longhorn publishers. Simple tables were also used to give a summary of responses about technical, capacity and marketing related challenges faced by publishers in digitising curriculum support materials.

3.12.2 Texts

In textual presentation, data is fundamentally presented in paragraphs or sentences. Text can be used to provide interpretation or emphasise certain data (In and Lee, 2017). In and Lee further posits that text is the main method of conveying information as it is used to explain results and trends, and provide contextual information. Textual data presentation is useful when supplementing qualitative statements with some data. In this study, quotations from key respondents and informants were used to present the findings. Textual statements and explanations were used largely to stress the excerpts from

interviews conducted about impact of ICT Policy of digitisation, challenges of digitization and the relationship between KICD and publishers.

3.12.3 Simple Bar Graphs

In and Lee (2017) posits that bar graph is used to indicate and compare values in a discrete category or group, and the frequency or other measurement parameters. By comparing the endpoints of bars, one can identify the largest and the smallest categories, and understand gradual differences between each category. In this study, simple bar graph was used to present a comparison of print and digital publications.

3.13 Ethical Considerations

Creswell (2003) and Tian (2008) posit that ethical considerations must apply to all research designs because they are vital part of a research study. In this study, the following ethical guidelines were observed during the research:

First, the research area was explained to the target respondents both through letters and verbally. The study outlined clearly that the main purpose of conducting the research was purely academic and therefore the information gathered was going to be used as such. Issues of confidentiality, anonymity and privacy were spelt out and respected at all times.

The information collected was held in the strictest confidence, and the participating respondents were only assigned codes (no identifying information was used). Written consent was required from all the participating respondents (Appendix 1). Flick (2007) indicates that at the time of accessing the participants with the view to gather information, it is very important to have some kind of an agreed contract that should be signed by both the respondent and the researcher. Flick further states that the consent

form should clearly spell out the topic, purpose of the research and expectations from the participants. The whole idea of having ethical considerations was to give the respondent total confidence and surety against any reprisals from their employers as a result of participating in this research study. Ethical considerations also ensure that the researcher adheres to norms and promote the aims of research such as knowledge, truth and avoidance of error (Resnik, 2011).

The researcher obtained a certificate of fieldwork (See Appendix IX) after conducting research about impact of digitisation of curriculum support materials on publishing industry in Kenya: the case of Kenya Literature Bureau and Longhorn Publishers. The researcher interviewed different respondents and key informants for this study. The researcher was also issued with a certificate of originality (See Appendix X) after the research passed the plagiarism test. This was a confirmation that this research work was original and that had never been published by anyone else. Finally, the researcher was issued with certificate of correction after undertaking all corrections emerged from the defense panel (See Appendix XI).

3.14 Chapter Summary

This chapter has delved into research methodologies that were used in this study. Because of the qualitative approach nature of the study, the chapter has outlined specific qualitative methods that were used in carrying out the research. The chapter has explained how different qualitative methods such as semi-structured interviews and desk review were used in collecting data relating to respondents and informants from KLB and Longhorn Publishers, KICD, MoE, e-Kitabu and booksellers. The chapter has also explained how data was analysed using different methods such as comparison, categorisation, and descriptive statistical methods (percentages and data matrix displays). The purpose of analysing data is to simplify and give it meaning. This chapter has

provided instruments necessary for meeting the three objectives of this research, objectives (i), (ii) and (iii):

- (i) The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials.
- (ii) The technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials.
- (iii) The relationship between KICD and publishers in regard to digitisation of curriculum support materials.

The next chapter presents the results and findings from interviews conducted on different respondents.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Overview

The purpose of this study was to investigate the impact of digitisation of curriculum support materials in Kenya, focusing on Kenya Literature Bureau and Longhorn Publishers. This chapter presents the findings from interviews conducted on two case publishers. The interviews were guided by three objectives of the study which were; to investigate the impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials, to determine whether there are technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials and, lastly, to assess the relationship between KICD and publishers in regard to digitisation of curriculum support materials.

4.2 General Information

The researcher targeted specific persons of interest that included publishing managers, marketing managers, e-books and e-learning editors, KICD officials, KPA officials Ministry of Education officials and the e-Kitabu officials. The interviewees were given respondent identification codes for purpose of confidentiality as stated in appendix I. Kaiser (2009) states that if data cannot be collected anonymously without any identifying information, researchers must collect analyse and report data without compromising the identities of their respondents. Therefore in order to achieve these principles of anonymity and confidentiality, the study assigned the following identification codes to the respective respondents. KLB respondents; publishing manager, marketing manager, e-books and e-learning editors were denoted **B1, B2 & B3** respectively. Longhorn Publishers respondents; publishing manager, marketing manager, e-books and e-learning editors were denoted **N1, N2 & N3** respectively. The booksellers; Text Book Centre,

University of Nairobi Bookshop, Savanis and Vaghela were denoted **L1, L2, L3 & L4** respectively. The two KPA executive officers were denoted as **P1& P2**. The two KICD officials, the deputy director and the curriculum specialist for primary, secondary and tertiary levels were denoted **D1 & D2**. The Ministry of Education officials were denoted **E1 & E2** and, lastly, e-Kitabu officials were denoted **T1 & T2**. Table 4.1 shows a summary of respondents and their identification codes as used in this research.

Table 4.1: A Summary of Respondents and their Identification Codes

Respondents	Code
KLB	B1, B2 & B3
Longhorn	N1, N2 & N3
Booksellers	L1, L2, L3 & L4
KPA Officials	P1& P2
KICD Officials	D1 & D2
MoE Officials	E1 & E2
e-Kitabu Officials	T1 & T2

Source: Researcher 2018

Out of 18 respondents expected, 17 were interviewed giving a response rate of 93%. According to Mugenda & Mugenda (2003), the minimum threshold for the response rate in a qualitative research is 70%. Mugenda & Mugenda further recommends that a 50% response rate is adequate, 60% good and above 70% very good. A high response rate is important to achieve validity of the study. A low response rate leads to non-response bias

because the results of the study are non-representative (AAPOR, 2015). Because of the higher response rate, this study achieved validity test.

4.2.1 The Status of Digital Publishing in Kenya

The study investigated the two case studies to understand the status of digital publishing in Kenya. The select respondents included; respondents B1, B2 and B3 and respondents N1, N2 and N3. Table 4.2 provides the findings of the status of digital publishing at KLB and Longhorn Publishers.

Table 4.2: Status of Digital Publishing at KLB and Longhorn Publishers

Question	KLB	Longhorn Publishers
<i>How many book titles have you digitised?</i>	287	485
<i>How many titles have been approved by KICD?</i>	27	64
<i>Do you digitise your content yourself?</i>	Outsource from Worldreader.	Outsource from India and UK
<i>In what formats do you present your digital content?</i>	e-pubs and PDFs.	e-pubs, HTMLS, PDFs, Audio books, MP3, MP4, flash files, mobile apps, desktop apps, web dependent files, web supplemented files.
<i>Do you have trained personnel to digitise content? How many?</i>	None.	2 editors and 6 designers partially trained. Not able to digitise content.
<i>Which is your target market?</i>	Primary schools.	Primary schools, Secondary schools, general market.
<i>How do you market your content?</i>	Through Amazon and CDs	Amazon, CDs, mobile apps and desktop apps

Source: Researcher 2018

As shown in table 4.2, KLB had made much progress in digitising curriculum support materials for schools. KLB had managed to digitise 287 titles in form of e-pubs, and

PDFs. Out of these, 28 titles had been approved by KICD to be used in schools. The titles approved include 1 CRE reference material for Lower Primary, 8 English reader titles for Lower and Upper Primary, 1 English Workbook, 3 Kiswahili Workbooks for Upper Primary, 5 Mathematics reference materials for Upper Primary, 7 Science reference materials for Lower and Upper Primary and 2 Social Studies Workbooks for Lower Primary (MOE, 2017). At Longhorn Publishers, the company had managed to digitise 485 digital titles in form of e-pubs, HTMLS, PDFs, Audio books, MP3, MP4, flash files, mobile apps, desktop apps, web dependent files and web supplemented files. Out of these, 64 titles had been approved by KICD to be used in schools. The digital titles approved include, 30 English readers for Lower Primary, 1 English Workbook for Lower Primary, 30 Kiswahili titles for Lower Primary, 1 Kiswahili Workbook for Lower Primary, 2 Kiswahili Workbooks for Upper Primary and 8 Kiswahili dictionaries for Secondary Schools (MOE, 2017).

Table 4.2 also shows that at KLB, digitisation was done in partnership with Worldreader, an international organisation that digitises and avails content to readers in developing nations. KLB in collaboration with Worldreader, had made these content available for downloading on amazon.com. The target market for their digital content was largely in primary schools. B1 pointed out that the free laptop project by Government of Kenya for Standard One Pupils in public schools was a driving force towards realization of digitization of content at KLB. The digital content was availed to customers through Compact Discs (CDs) and also on Amazon.com, an electronic commerce company that sales books and other products online. At Longhorn Publishers, the company had partnered with private entities from India and UK to digitize its content. The in house team was only dealing with generating ideas and maintenance of platform.

“The two editors and six designers are only trained through exposure and experience in seminars and workshops. The company cannot handle actual digitisation process of content on its own.” (NI).

The target market for digital content was largely in primary and secondary schools as well as the general market. The digital content was availed to customers through amazon.com, CDs, mobile apps and desktop apps.

4.3 The Impact of ICT Policy of Digitisation to Book Publishers in Kenya

To investigate this objective, the research interviewed respondents drawn from KLB, Longhorn Publishers, MoE, KPA, e-Kitabu and KICD. First, the study established that the Ministry of Education indeed had ICT Policy, which was being driven by the Digital Learning Programme (DLP). DLP was one of the key flagship programmes highlighted in the government manifesto in 2013. The main aim of the project was to integrate ICT into teaching and learning for standard one pupils in primary schools. This was to be realised through development of ICT infrastructure, development of digital content, capacity building of the teachers and procurement of ICT devices. By 2017 over 89.2 % of all the public primary schools had been supplied with the DLP devices. These devices included braille embosser, projectors, teacher digital devices, digital content servers and wireless routers and digital learning devices. At the same time, over 91,000 teachers had also been trained on device utilisation. Over 95% of schools had been connected with power to help. Because of these developments, there was an improved number of pupils enrolment in public primary schools and learning in public primary schools was now more fun (Digital Literacy Program, 2016).

4.3.1 Impact on the Human Resource Restructuring

The study established that the policy of digitisation of curriculum support materials had affected human resource structures in different ways. To some publishers, the policy of digitisation had led to restructuring of human resource while to others; the policy had not affected them at all.

“The company had established a digital department headed by Chief Digital Officer. Further, the company had employed two additional personnel namely: e-learning editor and systems administrator” (N1).

This means that digitization policy had a positive impact. B1 however noted that the policy of digitisation of curriculum support materials had not affected their human resources setups. This was because the company was still in the process of aligning itself to the ICT Policy of digitisation in terms of human resource structures.

From the findings of the two respondents, it is clear that the policy of digitisation is in the process of transforming the human resource structures in publishing industry. To a small extend, the transformation is noticeable because publishers now have e-sections that deal with digitisation of content. With time, the entire publishing industry will have to reorganise and align with the new ICT Policy.

4.3.2 Impact on the Operations

The study established that the ICT policy of digitisation had varying degree impact on the operations in publishing industry. On one hand there was no impact felt on publishers in as far as operations were concerned. B1 reported that in terms of operations, there was no major shakeup in the operational structure and the day-to-day operations. However, the company was in the process of aligning itself to the ICT Policy of digitisation in terms of operations. *“In the near future, the editors, designers and illustrators would have to adjust their mode of operations to fit in the new digital dispensation” (B1).*

On the other hand, the study established that the ICT policy had changed the business model and operations significantly in publishing industry. *“For every print copy produced, there were subsequent productions of digital editions” (N1).*

This had helped to increase the number of digital copies available for downloads. The digital copies produced were right- protected from online theft through DRM agreement. It is therefore important to note that the ICT Policy of digitisation of curriculum support materials has affected publishing operations quite significantly. The book development model is changing and companies are readjusting their operational model in line with ICT Policy of digitisation. For every print book published, publishers are now required to digitise the e-book edition to supplement the print edition of the same. P2 pointed out that, “in this modern world, publishers need to move with the e-developments. Digitisation of content will enhance availability and access of books will be made easier and flexible. Currently MoE does not have an ICT Policy that is appropriate to the book publishing industry.” The existing ICT Policy 2016 should be improved to factor in specific issues of concern to publishers such as digital copyright protection and pricing before any meaningful gain can be realised on the side of publishers.

4.3.3 Impact on the Sales Turnover

The extent to which the ICT Policy of digitisation of curriculum support materials affects the sales turnover, the study established that there was no meaningful contribution on the overall sales returns to the publishers.

“So far the publishers have not benefited from the policy of digitisation. However, the whole idea of digitising curriculum support materials is fully embraced by many publishers” (P1).

B2 underscored that the sales turnover for digital curriculum support materials was very low hence negative impact on the overall sales. This was attributed to the fact that the market had not embraced digital books and as such, a huge percentage of the sales turnover was still being generated from print editions. The existing policy of ICT for digitisation of content was not relevant to the industry since it was drawn from Ministry of Information and Communication as opposed to the Ministry of Education through KICD. N2 also noted that the ICT Policy of digitisation had no impact on the overall sales returns of the company. Digital content accounted for only 1% of the total annual turnover. This means that customers still prefer print materials to digital materials. *“The market still embraces print copies a lot” (N2)*. Print books take almost 95% of the total book share approved by KICD to be used in schools (MOE, 2017).

The success of digitisation of curriculum support materials is largely dependent on the sales turnover. No publisher will want to invest in a project that is going to give zero returns. The market for digital product is still young in Kenya and it requires a lot of sensitisation and investment in technology before it can pick up. However, there is growing potential and expansion in the marketing of the digital content. The ICT Policy has led to the increase in the market potential for digital content. N3 pointed out that, the DLP initiated by GoK about one-laptop-per child will increase the market size for digital products. The market potential for digital content was rising steadily. B3 cited The GoK’s Digital Literacy Programme (DLP) of One Laptop Per Child for Standard One, as an opportunity that would open up market for digital products once implemented fully. However, the impact of the program was yet to be felt by publishers since it was too early.

4.3.4 The Success of the ICT Policy of Digitisation

To understand the impact of the ICT Policy of digitisation of curriculum support materials, the study also examined the success of ICT Policy in publishing industry. The questions were framed to align with objective (i): the impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials. It was established that publishers were working closely with third party entities to digitised content. E-Kitabu is one of the third party entities that are widely involved in digitisation of curriculum support materials. The company is partnering with both local and international publishers to digitise and avail content to readers across East Africa.

“e-Kitabu had over 500,000 collections of books by 2017 and had reached 1000 schools in Kenya. The digitisation of content for schools by e-Kitabu is in line with the ICT Policy of 2006 and revised ICT Policy of 2016” (T1).

T1 affirmed that e-Kitabu was working closely with MoE through the Kenya Institute of Curriculum Development to ensure quality materials are converted and meet the required digital standards.

On the question of whether digitisation of curriculum support materials had affected publishers in any way, it was revealed that digitisation of content had changed the book publishing industry’s business model. Publishers were willing to digitise their content because of competitive advantages associated with digital content. T1 offered,

“Marketing digital content is easier in terms of costs involved and also easy to sell. One can be able to market digital content online and sale the book at the same time. Whoever orders the book can get it in real time basis, which can be convenient too many” (T1).

These competitive advantages of digital books had offered many opportunities to publishers to sell their books far and beyond their borders rather than being restricted to

the local market only. Small publishers had also gained opportunities to sell their content to the outside world. T1 further stressed that publishers were keen to digitise their content to increase their product base alongside the print products. It was also established that digital materials offered better alternatives since they had a higher profit margin per copy compared to what print copies could offer. Going by these trends in digital world, it is worth noting that digitisation of curriculum support materials is going to revolutionise the book publishing industry in the near future.

The study also established that digital content materials had gained much competitive advantage in recent past. According to B3, the major advantage of digital publishing established was reduced production costs. Digital content was considered to incur lower costs of production compared to print content. This was because the costs of warehouse and printing were eliminated because digital content does not require storage facilities. One only needs to have Internet connectivity and reading devices such as kindles, laptops and computers and be able to access the content. Another advantage of digital material was accessibility. The study established that digital materials were considered to be easily accessible upon uploading on online platforms such as Amazon without requiring storage space or printing paper. Print content on the other hand was limited in access because of challenges of warehouse and distribution. Revision and release of new editions for digital content was also considered to be very convenient and less costly compared to print materials. B3 affirmed that revision and release of new print editions is a tedious and expensive process. The existing old stock of print would be rendered obsolete once new edition was released.

N3 also pointed out at the two competitive advantages associated with digitisation of content. One was that the digital content could incorporate multimedia interfaces making it a better quality that was more interactive and useful to learners than print content. Interactive content appeals to learners more making them to discover knowledge and apply it in day-to-day activities. Another advantage was the distribution of digital content. Distribution of digital content was considered to be faster and easy as compared to print content which was limited in access. Digital content can use online platforms and devices such as kindles and mobile support apps, making the users to access content from any part of the world.

The study also established that the ministry of education was driving the full implementation of ICT Policy of digitisation of curriculum support materials. Through DLP, the ministry of education had made strides towards full implementation of digital learning in schools.

“The Digital Learning Programme (DLP), which, apart from improvement of ICT infrastructure, has a component on development of digital content. This is at Standard One in primary level. National ICT policy was promulgated in January 2006 and one of its strategies is to promote the development of an integrated e-learning curriculum to support ICT in education” (E2).

Publishers are required to implement the ICT Policy in line with Ministry of Educations Digital Learning Programme. This is through digitisation content to be used in schools. Table 4.3 shows status of the growth of digital content approved by KICD from 2015 to 2017.

Table 4.3: Distribution of Digital Publications Approvals for 2015 and 2017

Year	ECDE	Primary	Secondary	Total
2015	14	115	20	180
2017	16	171	42	229

Source: MOE 2015, 2017

From table 4.3, the number of digital curriculum support materials approved by KICD in 2015 for use in ECDE was 14. This included 10 readers titles approved for Day Care, PP1 and PP2 and 4 ECDE Activity Areas Workbooks and Reference Materials. At Primary level, the number of digital curriculum support materials approved was 115 titles. They included 50 English readers, for Lower and Upper Primary, 7 English workbooks for Lower and Upper Primary, 28 Kiswahili readers for Lower and Upper Primary, 6 Kiswahili Workbooks for Lower and Upper Primary, 7 Mathematics reference materials for Lower and Upper Primary, 16 Science reference materials for Lower and Upper Primary 1 Kiswahili Dictionary for Lower Primary, 1 Social Studies Atlas for Upper Primary and 1 CRE reference material for Lower Primary (MOE, 2015).

In 2017, the number of digital materials approved for ECDE was 16. This included, 9 Language Activities titles for PP1 and PP2; 3 Mathematics Activities for Day Care, PP 1 and PP2; 3 Science Activities for Day Care, PP1 and PP2 and 1 Social Activities for PP2. In Primary Levels, the number of titles approved was 171. This included, 60 English Readers titles, 17 English Workbooks, 30 Kiswahili Readers, 9 Kiswahili Workbooks, 2 Kiswahili Dictionary, 20 Mathematics Reference Materials, 26 Science Reference Materials, 3 Social Studies Work Book and Atlas, 2 CRE Reference Material and 4 Contemporary and Emerging Issues Reference Materials. In Secondary Levels, 42 titles

were approved to be used in Form 1 to Form 4. This included 12 Mathematics, 9 Physics Reference Materials, 9 Chemistry Reference Materials, 10 Biology, 1 Geography Atlas, 2 Kiswahili Dictionaries and 1 Contemporary (MOE, 2017). As shown in table 4.3, the number of digital titles approved by KICD to be used in schools continues to grow year after year. Although print publications still holds the upper hand in terms of market share, digital publications are growing marginally.

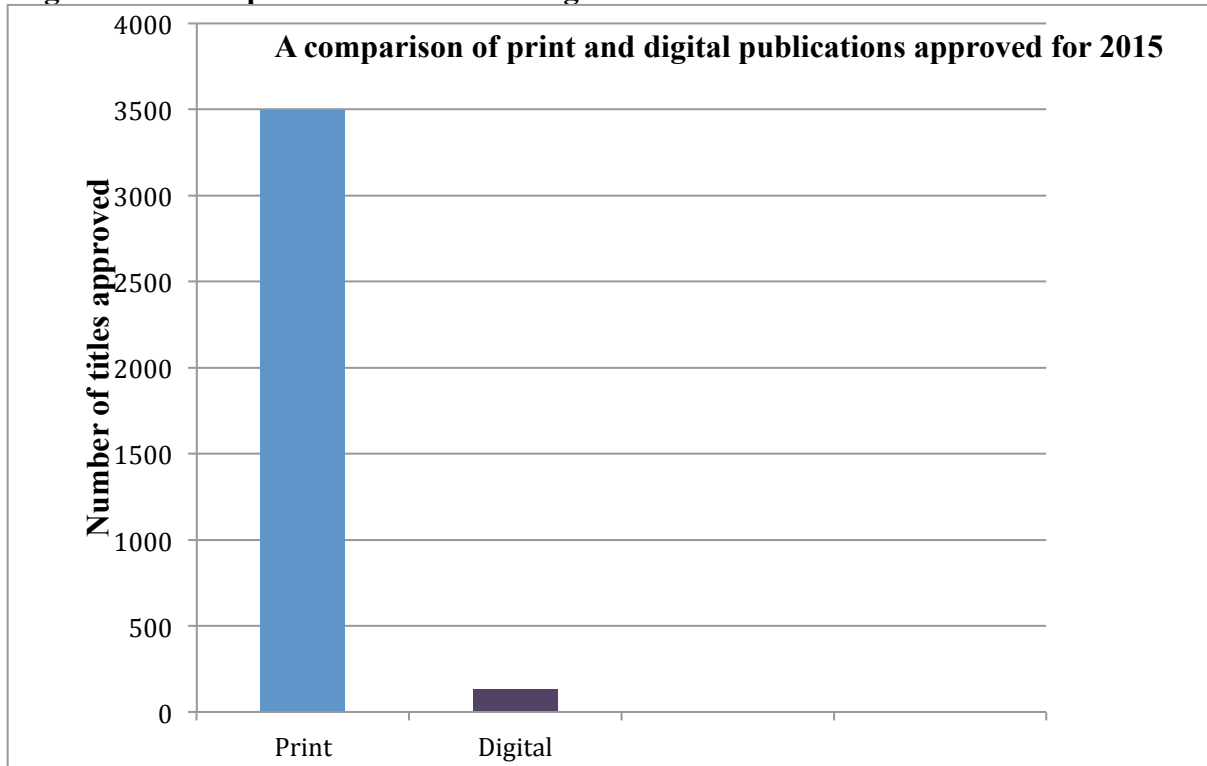
4.3.5 The Failures of the ICT Policy of Digitisation

To understand how ICT Policy of digitisation of curriculum support materials affect publishers, the study sought to establish the downfall side of the ICT Policy of digitisation. It was established that despite efforts being made to implement the ICT Policy, digital content had not been fully embraced by publishers and other industry players. Publishers still view print materials as the market leaders.

“The print materials will continue to exist alongside the digital because they (print) have qualities and features that are lacking in digital materials” (D1).

It was also established that digital content was disadvantaged in so many ways. Very few schools have the capacity to buy digital content. The Standard One laptop project by GoK although was viewed as a progressive initiative towards realisation of digital content, the laptops were configured with inbuilt content already. This means that the publishers have nowhere to sell their content. The small market niche for digital materials hinder publishers to produce more of the digital content to avoid making losses. Another disadvantage of digital content pointed out was lack of reading devices. B3 noted that, learners were incapacitated due to lack of necessary devices to allow them access and read digital publications. N2 noted that customers still preferred print. Figure 4.1 shows a comparison of digital curriculum support materials vis-à-vis print curriculum support materials approved by KICD to be used in schools for the year 2015.

Figure 4.1: Comparison of Print and Digital Publications for 2015



From figure 4.1 it can be established that print publications still command the largest market share of book publishing industry in Kenya. KICD receives less number of digital publications from publishers for vetting compared to print publications. It can therefore be deduced that the ICT Policy of digitisation of curriculum support materials has a lesser significant impact in book publishing industry.

4.4 The Technical, Capacity and Marketing-Related Challenges Faced by Publishers in Digitisation of Curriculum Support Materials

This is the second objective of this study. The research sought to determine whether there were technical, capacity and marketing related challenges faced by publishers in digitising curriculum support materials. To meet this objective, the research interviewed key informants and respondents drawn from KLB (B1, B2 & B3), Longhorn Publishers

(N1, N2 & N3), KPA (P1& P2), Booksellers (L1, L2, L3 & L4), MoE (E1 & E2) KICD (D1 & D2) and e-Kitabu (T1).

4.4.1 Technical Challenges

In principles of leadership and management, Heifetz (1994) defines technical challenges as those challenges that are easy to identify and often can be solved by authority or experts or management. Various technical challenges were revealed to be the major impediments towards implementation of ICT Policy of digitisation of curriculum support materials by publishers. The first and major challenge established was lack of infrastructure. These include Internet services, reading devices such as kindles and computers for schools and learning centers.

“Learners and teachers had no access to digital support materials for teaching and learning through online services” (D2).

“Very few schools across the country were well equipped to fully utilize digital content. “Most schools have no resources” (D1).

Because of lack of this technological infrastructure in schools across the country, publishers are reluctant to digitise their content.

Security and maintenance of digital content was also established to be another technical challenge to publishers in regard to digitisation of content. Although KICD had established Kenya Education Cloud (www.kec.ac.ke), a digital platform where publishers would upload their content, D2 revealed that publishers were non-committal to digitisation process due to fear of losing their content. Maintenance of systems was also revealed to be expensive venture to publishers and as such, they were reluctant to digitise their content.

Technological change was also established as another technical challenge facing publishers in digitising content.

“There has been a lot of experimentation with different consultants and service providers. Sometimes it has worked; sometimes it has not. We are not even sure whether we the players really know what we want or what is required. We all seem to be groping in darkness!” (B3).

The format for presenting digital content was changing with the development of new technological reading devices.

“Technology is changing everyday and we have to adjust our existing platforms to fit the needs of our customers. The company had developed mobile and desktop apps. This was in response to the diversification and need to respond to customers’ needs” (N3).

“The apps have made it easier for customers to access various digital products online through their gadgets” (N1).

The technological changes and the development of new media mean that publishers have to adapt very fast with these changes lest which they will be left stagnated. Publishers that are unable to cope with these technological dynamics are forced to develop only content that is deemed to be cost effective and easy to sell (E-pubs and PDF).

Another technical challenge established was in relation to the policy framework. The existing ICT Policy adopted from Ministry of Information and Communication was revealed to be generic and did not address specific issues of concern to publishers like copyrights, sales and distribution of digital content. Publishers had not developed their own digital policy programmes to guide in the development of digital content.

“We are still in the process of developing a policy on digitisation for our publishing operations” (B1).

“There is no policy that guides procurement of digital content by government from publishers” (N1).

The ICT Policies of 2006 and 2016 were adopted from the Ministry of Information and Communication Technology. The two policies do not address specific issues of concerns to publishers such as distribution models, procurement of content and copyrights protection. The lacuna in the law (ICT Policy 2016) has made KICD to continue producing digital content and supply to schools directly rather than restrict itself to development of curriculum and vetting of materials as stipulated in the KICD Act. This has further contributed to shrinkage of the available market space for digital content. Without proper policy framework in place, it is difficult to convince publishers to develop content whose market and safety is not guaranteed. Table 4.6 provides a summary of the technical challenges faced by publishers in the course of digitising curriculum support materials.

Table 4.6 Summary of the Technical Challenges Faced by Publishers

Question	Respondent	Response
<i>What are the technical challenges faced by publishers in digitisation of curriculum support materials?</i>	B1	Lack of proper policy framework.
	B3	Technological change and dynamics.
	N3	Technological changes in the industry
	N1	Lack of proper policies to support digitization.
	D1	Lack of the technological infrastructure in schools.
	D2	Lack of digital support materials for teaching and learning

Source: Research 2018

4.4.2 Capacity-Related Challenges

In the concept of development, capacity can be defined as the ability of individuals and organizations or organisational units to perform functions effectively, efficiently and sustainably (UNDP, 1998). One of the major capacity challenges in digitisation of

curriculum support materials is the capital investment. D1 revealed that capital investment for the whole program was a huge burden to many publishers and the institute as well.

“The process of digitisation is expensive since it requires a lot of resource mobilisation for trainings, seminars and carrying out monitoring and evaluation” (D1).

Digitisation and maintenance of content is expensive. That is why most publishers rely on third parties to digitise content on their behalf. In most cases, those who digitise it as opposed to the main publishers determine the pricing of digital content.

Another prevalent capacity related challenge reported was lack of technical expertise and trained personnel to digitise and handle digital content.

“KICD partners with digital development companies such as e-Kitabu and Mind-Set from South Africa to develop digital content for prototype publications and in areas and subjects where publishers do not publish. Most of these companies are foreign based and only provide expert support services to KICD and publishers. Actual digitisation of content is done outside publishing houses.” (D1).

N1 noted that the two editors and six designers had been trained partially through experiential knowledge in workshops and seminars. These personnel had no technical skills to digitise content on their own. As such, the company was outsourcing digital conversion services from foreign-based digital conversion companies in India and the United Kingdom. Because of lack of technical expertise, publishers who intend to digitize their content have to contend with the terms stipulated by the digital companies.

Inadequate teacher-capacity to implement digitisation program was also established as a challenge to publishers. *“Most teachers across the country had not been trained to use digital content” (D2).*

Although the government of Kenya had made steps in training teachers on the use of digital content, the number of trained teachers was very small. According to Digital Literacy Programme (2016), the MoE had trained only 150 teachers through training as Master Trainers and other 2,555 trained as Trainer of Trainers (ToTs) from all the 47 counties. By 2017, only 91,000 teachers had been trained on device utilisation.

Inadequate funding, lack of ICT infrastructures and low competence in ICT amongst teachers was also established to be a real challenge in digitisation of curriculum support materials. E2 highlighted five aspects as the major challenges of implementing the ICT Policy of digitisation of curriculum support materials in Kenya. These include:

- (i) Low teacher competence in ICT and lack of proper attitude.
- (ii) Low interest among publishers on developing e-content.
- (iii) Inadequate funds to run some of the programmes.
- (iv) Inadequate power supply to some schools.

Publishers shy off from developing digital content because schools are not enabled to handle digital materials. Publishers are demotivated to develop digital content because the learning environment currently does not support digital leaning.

Another capacity related challenge established was the cost of production of digital curriculum support materials. It was revealed that most publishers did not have extra budgets to digitise content. T1 revealed that some publishers did not have funding at all for the entire digitisation process. B3 pointed out at that because of high cost of production, the company was producing low quality digital content (e-Pubs and PDFs) that were non interactive. This was attributed to lack of capacity in terms of cost and personnel to digitise high quality interactive content. *“The cost of production is still very high” (N3)*

Generating quality digital contents that use multimedia interfaces requires a lot of investment in the technology itself and training of personnel to handle it. Most publishers lack the capacity to invest heavily and because of that, they end up developing low quality non-interactive content that cost cheaper. Without proper budgetary allocation and stable funding, it is difficult for publishers to digitise content.

The study also revealed that inadequate and lack of human resource to handle digitisation of curriculum support materials was affecting publishers in digitising content.

“Most publishers did not have trained personnel to handle digital content at all” (T1).

“Those publishers that had trained personnel, such personnel had only been partially trained through seminars and induction workshops rather than skilled training” (T1).

“The company was still in the process of building its internal capacity to digitise content” (B3).

“None of the editors and designers had been trained and equipped with technological knowhow to digitise the content” (B1).

The lack of trained personnel to digitise content in-house means that publishers have to rely on the digital development companies to digitise content. The solely dependence on these foreign companies to digitise content make local publishers lose exclusive rights of pricing the digital books as well as increase in cost of production.

Lack of distribution structures for digital content was another hindrance to the digitisation of curriculum support materials. It was revealed that publishers did not have distribution platforms for digital content. Neither did the publishers have the capacity to develop distribution models that could reach a bigger customer base. N3 affirmed that the company could only avail its products through its website where customers would download the content or make orders online. The company also availed its products through Amazon. The lack of proper distribution structures makes it difficult for publishers with digital content to reach the wider market base. Table 4.7 presents a

summary of the findings of capacity related challenges faced by publishers in the course of digitising curriculum support materials.

Table 4.7 Summary of the Capacity-Related Challenges Faced by Publishers

Question	Respondent	Response
<i>What are the capacity-related challenges faced by publishers in digitisation of curriculum support materials?</i>	N1	<ul style="list-style-type: none"> Lack of trained personnel to handle digital content.
	N3	<ul style="list-style-type: none"> High costs incurred in digitising quality interactive content. Lack of distribution structure for digital content.
	B1	<ul style="list-style-type: none"> None of the editors and designers had been trained.
	B3	<ul style="list-style-type: none"> Lack of trained personnel. Lack of capacity to produce high quality interactive content.
	E2	<ul style="list-style-type: none"> Inadequate funding. Lack of ICT infrastructure in schools. Low competence in ICT amongst teachers.
	D1	<ul style="list-style-type: none"> Lack of capital investment. Lack of technical expertise to digitise content.
	D2	<ul style="list-style-type: none"> Inadequate teacher capacity.
	T1	<ul style="list-style-type: none"> High costs of production. Lack of human resource to handle digitisation of curriculum support materials.

Source: Research 2018

4.4.3 Marketing-Related Challenges

Bajaj, Denis, Ferris & Sarin (2001) define marketability as the degree to which an asset can be converted to cash quickly without incurring large transaction costs or price concessions. The more marketable an asset is, the higher the price an investor will be willing to pay for the asset. To understand the marketing related challenges facing digitisation of curriculum support materials, the study first interviewed booksellers to understand the scope of digital content currently in the market. Four booksellers in Nairobi County were interviewed about availability of e-books and the chain of supply

from local as well as foreign publishers. Table 4.8 provides responses as provided by the four booksellers.

Table 4.8: Summary of the Responses by Booksellers

Question	L1	L2	L3	L4
<i>Do you have stock for digital curriculum support materials?</i>	Yes but limited quantity.	None.	Yes but very few.	None.
<i>What is the market potential of digital curriculum support materials?</i>	Low.	Potential is there but limited.	Poor.	Low intake.
<i>Is there significant effect on the sales turnover?</i>	No effect.	Not yet.	No effect.	Not yet.
<i>What is the effect of digital materials on the sales of print materials?</i>	No felt impact.	None.	0.01% impact.	None.
<i>What are the challenges of selling digital curriculum support materials?</i>	Very few customers.	Fear of piracy. Poor market.	Very low sales. Piracy.	Lack of distribution channels. Low sales.

Source: Research 2018

From table 4.8, the research first established that those booksellers that had digital curriculum support materials, did stock them in limited quantity. The main reason for this as pointed out by L1, “lack of devices” such as kindles for reading the digital content. For those that did not stock at all, they attributed this to different factors. “*Print materials are preferred over digital because print materials are easily available and highly sought after*” (L3). Print materials were preferred over digital materials due to the fact that printed materials were highly popular because they were easier to use compared to digital. “*Printed can be accessed at any place compared to digital*” (L4).

Respondents were also asked whether the digital curriculum support materials had any significant effect or alterations on the overall sales turnover. All the four respondents, L1, L2, L3 and L4 pointed out that the digital support materials had no significant effect on their sales margins. On the question of whether digital materials affected the sales of print materials, L1, L2 and L4 pointed out that, there was no any effect that could be felt on the sales of print curriculum support materials whatsoever.

*“Customers prefer printed materials over digital materials” (L2).
“Digital materials are sold in small quantities and as such, they have very little significant effect on their sales of print materials and overall sales turnover” (L3).*

On the question of challenges of selling digital content in Kenya, the four respondents gave various challenges. Most outstanding reason highlighted by all of them was the low market uptake of the digital content in Kenya. L1 and L3 had small stock for digital content because they lacked marketing channels to reach out to customers.

In view of the findings provided by respondents L1, L2, L3 and L4, the study established the following marketing related challenges in regard to digitisation of curriculum support materials. One was the low market potential for the digital content. *“Readers have not fully embraced digital publications” (B2).*

Compared to print content, digital content has a small market share of books approved by MoE to be used in schools.

*“Print curriculum support materials have the largest market share compared to digital because print has been in the market for longest time” (P2).
“There is no customer base for digital content and that practically, the market is not there” (L3).*

L3 further stated that they had never received any order from customers and that neither have they ever received orders from any publisher for supply. The small market margin offers very little hope for many publishers willing to digitise their content. Publishers have to contend with the smaller market niche for digital content, which is not sustainable.

Another marketing challenge identified as a threat to publishers was pricing and licensing models. *“There is no standard for pricing and licensing of digital content” (B2)*. In most cases, online shops such as Amazon dictates the prices of the e-books and this make publishers vulnerable (Clark and Philips, 2014). Lack of awareness about availability of digital content was also reported to be a challenge in marketing digital content. N2 pointed out that the target market had little knowledge about digital content. The market lacks general knowledge about digital content and its significance. Marketers have to spend a lot of time to explain to customers about the digital content because the information has not been disseminated to the wider customer base.

Piracy was another marketing challenge and concern that was identified. Security of digital publications was not guaranteed especially those ones sold in CDs.

“The fear of piracy resulted into very low sales which had made it difficult for publishers to continue digitising content which could easily be pirated” (L3).

“Pirated copies in the market had affected negatively on the overall sales margins of original copies” (N2).

Publishers were incurring losses through cyber theft and piracy of digital materials especially those ones sold in CD formats. One copy of the content can be reproduced into thousands of copies, which can be sold cheaply to the disadvantage of the publisher. Most of the digital content however are protected under DRM policy.

Digital Rights Management (DRM) concerns were also identified as a marketing challenge in digitising curriculum support materials by publishers. DRM refers to the set of technologies used by publishers of digital content to control the ways in which content consumers like library users are able to use information (Puckett, 2010).

“Digital Rights Management (DRM) concerns are the major drawback in digitising content. Publishers are unwilling to digitise their content for fear of losing their copyright through cyber space”(P1).

This means that in the absence of reliable DRM, publishers are at risk of losing their digital content online and as such, they are unwilling to digitise their content.

The continued dominance of print books over digital books was also revealed to be a hindrance to digitisation of curriculum support materials.

“Print books will always be here. A case in point is the digital newspaper that was started some time back but research has indicated that no substantial decline has been witnessed on the print newspaper. I believe the same will apply to print curriculum support materials. Countries that also had earlier on embraced digital learning exclusively have been forced to revert back to 50% print publishing” (P1).
“Marketing digital content is a challenge as the target market for now is still slow to embrace the idea” (N2).

The market niche for digital curriculum support materials is still very small. The publishers have to make with the small available market, which is not sustainable. Based on the number of approved curriculum support materials for schools, print materials still dominates the book market in Kenya (MOE, 2017). The rich history and attachment to print books by many customers was revealed to be a big hindrance to resurgence of digital publishing. The print books should not be entirely eliminated but instead should be

used alongside digital materials. This will help to bridge the huge gap between digital and print publishing.

Despite the challenges identified as a hindrance to the development of digital content, many publishers are now venturing into digital publishing.

“Nearly all publishing houses have an ICT department majorly dealing with digitisation of curriculum support materials” (P1).
“KPA was conducting trainings on digitisation of curriculum support materials” (P2).

The involvement of KPA in training and conducting of workshops for digitisation of content will steer the full implementation of ICT Policy of digitisation of curriculum support materials. KICD in partnership with publishers are also addressing the problem of piracy. KICD has developed a platform called Kenya Education Cloud where publishers can submit their content for distribution. The platform has security features to curb piracy of content. Companies involved in digitisation of content such as Digital Divide Data and Snapplify also provide security of content through DRM protection. Table 4.9 provides summary of marketing related challenges faced by publishers in digitisation of curriculum support materials established in this study.

Table 4.9 Summary of the Marketing-Related Challenges Faced by Publishers

Question	Respondent	Response
<i>What are the marketing-related challenges faced by publishers in digitisation of curriculum support materials?</i>	P1	<ul style="list-style-type: none"> • Digital Rights Management (DRM) concerns. • Continued dominance of print books over digital books.
	P2	<ul style="list-style-type: none"> • Low market share of digital curriculum support materials.
	B2	<ul style="list-style-type: none"> • Low market potential. • Poor pricing model. • Piracy.
	N2	<ul style="list-style-type: none"> • Piracy of digital content. • Low uptake of digital products. • Lack of awareness about availability of digital content.
	L1	<ul style="list-style-type: none"> • Very few customers.
	L2	<ul style="list-style-type: none"> • Fear of piracy. • Poor market. • Customers prefer printed materials.
	L3	<ul style="list-style-type: none"> • Very low sales. • Piracy. • No customer base.
	L4	<ul style="list-style-type: none"> • Lack of distribution channels. • Low sales.

Source: Research 2018

4.5 The Relationship Between KICD and Publishers in Regard to Digitisation of Curriculum Support Materials

In order to meet this objective, the research interviewed respondents drawn from KPA, KLB, MoE, Longhorn Publishers and KICD. The aim was to establish how different agencies were working to implement the ICT Policy of digitisation of curriculum support materials. The research first established that KICD and publishers were partners in implementing the ICT Policy of digitisation of content. Publishers were working together

with KICD to implement the digital policy program. P2 pointed out that KICD and publishers were partners in implementing the Ministry of Education Policies. Publishers develop content and submit to KICD for vetting and subsequent approval (KICD Act, 2012). This means that KICD and publishers are mutually dependent. Therefore like all other teaching and learning support materials, publishers develop digital content and submit to KICD for vetting. The approved materials are then listed on the Orange Book as approved list of materials to be used in schools.

On the question of nature of cooperation in implementing the ICT Policy of digitisation of curriculum support materials, it was established that publishers were working together with KICD mutually at policy implementation levels. *“Publishers are represented by the KPA chairperson at the stakeholders committee that comprises of KICD, MOE, ICT and KPA” (P1)*. This committee ensures that the publishers adhere to the guidelines on the implementation of policy of digitisation of the curriculum support materials.

It was also revealed that the nature of cooperation between KICD and publishers was a continuous process. D1 pointed out that the guiding principles of digitisation of content were anchored under the National ICT Policy of 2006 and reaffirmed in the ICT Policy of 2016. The Ministry of Education formulated an ICT strategy to operationalise the vision of National ICT Policy. Amongst many strategies formulated, development of digital content was identified as a critical element that would transform the National Curricula through integration of ICT in education, (ICT SET, 2006). KICD supported publishers by preparing guidelines on the development of digital content. *“The Institute prepares guidelines on the nature of digital content to be made available to schools” (D2)*.

The guidelines cover relevance of content to the curriculum, accuracy of the content, appropriateness to the target learner/user, promotion of values, multimedia elements and their quality.

D2 further noted that, “sensitisation and training has been done and is done yearly preceding any evaluation to remind publishers of the requirements and update them on new developments.” However, it was also established that sensitisation on the changes in the curriculum reviews was not being conducted on a regular basis. *We need KICD to organise more trainings and workshops where publishers are involved in the whole exercise*”(NI). Publishers are key role stakeholders in implementing MoE Policies regarding development of curriculum support materials. It is important therefore that KICD partners with publishers at all levels of policy implementation.

The study further established that the Ministry of Education was supporting both KICD and publishers in implementing ICT policy of digitisation of curriculum support materials. E2 stated that the Ministry of Education was supporting KICD through the following ways:

- (i) By formulating policies, guidelines and strategies.
- (ii) By establishing inter ministerial committee on ICT which is chaired by the Principal Secretary and which brings together all stakeholders including publishers.
- (iii) By mobilising resources for delivery of ICT infrastructure to schools.
- (iv) By allocating funds to KICD to implement the digital program.
- (v) Initiating projects for the development of e-learning content for delivery to schools.

To actualise the implementation of ICT Policy of digitisation of curriculum support materials, E2 further stated that the ministry of education was undertaking several steps including:

- (i) Capacity building of teachers in ICT.
- (ii) Provision of ICT infrastructure in schools.
- (iii) Providing guidelines for vetting of digital content by KICD.
- (iv) Developing e-learning content through the KICD for delivery to schools.

The Ministry of Education supports KICD, which in turn works in partnership with publishers to implement the ICT Policy of digitisation of curriculum support materials. The nature of relationship is mutually dependent since publishers develop content and submit to KICD for vetting and approval.

The research also established that the nature of relationship between publishers and KICD was cordial and interdependent. B1 emphasised that KICD related with publishers through KPA. In regard to digitisation of curriculum support materials, KICD offered publishers proper guidelines for the preparation of digital content. *“In terms of evaluation, KICD is doing excellent job” (N3)*. The role of KICD is regulatory in nature and as such, publishers follow specific guidelines as provided by KICD when developing curriculum support materials.

The major concern established however, was the direct procurement of digital content for the Digital Literacy Program (DLP) for standard one laptop program. The study established that KICD had developed its own content materials for this project and supplied to schools directly (DLP, 2017). The publishers viewed this practice as a

contravention of KICD Act, which mandates KICD to develop curriculum and vet and approve materials (KICD Act, 2012).

“KICD materials are being delivered to schools for one-laptop-per child program. The schools should be given chance to access our KICD approved content” (L1).

The practice of KICD developing content rather than restricting itself to curriculum development and vetting raises queries about conflict of interest. KICD should restrict itself to its core mandate of developing curriculum and vetting content.

Overall, the nature of cooperation between publishers and KICD was cordial at policy level. However, the publishers felt that KICD was infringing into their market space by developing content and supplying directly to schools.

4.6 Discussions

4.6.1 Comparison with Theory of TAM

From the interviews conducted across the key informants and respondents, the study established that the ICT Policy of 2006 and 2016 in regard to digitisation of curriculum support materials had affected publishers’ operations and business model at varying degrees. To some publishers, the policy had neither affected their operations nor their human resource structures. Further, there was no tangible impact on the overall sales turnover resulting from digital content. This was attributed to the fact that such publishers were still in the process of developing their in-house digital policy in line with the ICT policy of digitisation of curriculum support materials. To other publishers, the ICT Policy 2006 and ICT Policy 2016 had led to the restructuring of human resources and changes in their operations. The ICT Policies had necessitated changes in the business model for publishers in that aside from print copies produced, publishers were required to digitise

the same content as well. For every print copy produced, there was a digital version that was being produced. The challenges established in regard to digitisation of curriculum support materials included, DRM concerns, lack of trained personnel, high costs of production, low market potential, technological changes, piracy and lack of capital. These challenges were impediments to the progress of digitisation by publishers. The relationship between KICD and book publishers was established to be cordial since they mutually depended on each other. Publishers develop content whereas KICD vets and approve the content.

4.6.2 Relationship with Theory of TAM

The findings of this study were in line with the theory of Technology Acceptance Model (TAM) that formed the basis of this study. TAM explains why users may adopt a technology depending on perceived usefulness and perceived ease of use of that technology. Perceived usefulness in this case implies the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease of use implies the degree to which using a particular system would be free effort (Davis, 1989). Publishers were skeptical of the digitisation of curriculum support materials because they were not getting immediate returns on their huge investments in the projects. The challenges of digitisation as pointed out in this study also made it difficult for publishers to fully adopt the ICT Policy of digitisation of curriculum support materials. A lot need to be done to guarantee publishers of value for their money since the market niche for digital content is still small. Unlike print publishing, which has established systems of operations from production to distributions, digital publishing is still a new venture that has not been developed in the country. Investing heavily in such projects would require proper planning. The perceptions of usability are also still very

low since the number of digital content approved by KICD is also low compared to the print content (MOE, 2017).

4.6.3 Comparison with Other Studies

The research established that ICT policy had altered operations and human resource restructuring at some publishers but the same was not reported at other publishers. Some publishers had employed personnel to manage digital content. The publishing operations had also changed quite significantly. To some publishers, there was no change in the business operations as well as in the human resource restructuring. It was also revealed that the digitisation of curriculum support materials had no effect on the overall financial growth of all publishers. Digital content generated lesser revenue compared to print content.

The relationship between KICD and book publishers was established to be cordial. The two entities were partners and depended on each other. Publishers developed content and submitted to KICD for vetting and subsequent approval. It was also established that publishers related with KICD through KPA representation at policy levels. The issues of concern raised by publishers however, involved the conflict of interest by KICD. Publishers expressed disapproval in the manner in which KICD was being involved in development of digital content at the same time vetting the content from publishers. It was also established that the publishing industry was facing a lot of challenges in digitizing curriculum support materials. These challenges include; small market niche for digital content, inappropriate digital policies, Digital Rights Management issues, lack of distribution mechanism, lack of technical skills to digitise content, high costs of digitising content, rapid technological changes, and lack of pricing and standardisation of digital content.

The findings of this study are in line with findings of other studies that have been conducted in line with book publishing industry and digitisation of content. A study by Hamisi (2011) explored the factors that influence new product development decisions in the textbook publishing industry. His study focused on KLB by trying to understand how decisions were arrived at before deciding to venture into new markets or develop a new product. In his findings, Hamisi points out at government policy as a major determining factor in product development in publishing industry. Book publishing industry is regulated by Ministry of Education policy guidelines. The government through ministry of education oversees implementation of all policies pertaining to the running of education sector in the country. The digitisation of curriculum support materials is a policy that emanated from the Ministry of Education through ICT Policy 2006 and ICT Policy 2016. Publishers are key stakeholders in implementing policies under the Ministry of Education. This study investigated how implementation of the government policy of digitisation of curriculum support materials in Kenya affects publishing industry.

Another study by Ogola (2013) examined the relationship between outsourcing and organisational performance in the book publishing industry. In his findings, Ogola affirmed that outsourcing of services might result into piracy, leakage of confidential information, plagiarism and disclosure of commercial secrets. Publishing industry relies heavily on external service providers such as typesetting and layout, development of illustrations and sometimes book design. In the case of digital publishing, publishers also rely on external service providers to digitise content. Objective (ii) of this study investigated the challenges faced by publishers in digitisation of curriculum support materials. One of the challenges established was Digital Rights Management concern,

which may lead to piracy. Other factors established were lack of standard pricing model, and high costs of digitisation. These risks emanates from the partnership between publishers and external service providers (digital companies) who digitise the content.

An investigation into the process and challenges of digitisation by Wangui (2011) assessed the road transport department of KRA. Her study evaluated digitisation processes undertaken by KRA to digitise documents such as scanning of documents like logbooks as well as having information available electronically as opposed to paper records. In her findings, Wangui points at a number of factors that hinder digitisation. They include; rapid change in technology, unwillingness to adopt new systems, high costs of digitisation and lack of trained personnel in IT. The research about impact of digitization of curriculum support materials in Kenya also investigated the challenges faced by publishers in digitising content. The challenges identified include technological changes, high costs, and lack of awareness about availability of digital content among other challenges.

4.7 Chapter Summary

This chapter has presented all the findings of the study according to the three research objectives: the impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials; the technical, capacity and marketing-related challenges faced by publishers in digitisation of curriculum support materials and lastly, the relationship between KICD and publishers in regard to digitisation of curriculum support materials. The chapter has presented the findings of an investigation into the impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials. It has also presented the findings to determine whether there is technical,

capacity and marketing-related challenges faced by publishers in digitisation of curriculum support materials. Lastly, the chapter has presented the assessment of the relationship between KICD and publishers in regard to digitisation of curriculum support materials. The next chapter synchronises all these findings according to research questions by presenting them in summary and recommends measures to be undertaken.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This chapter gives a summary of the findings of the study. The findings are based on research objectives and subsequent research questions. It also gives implications of the study, and suggestions for further research.

5.2 Summary

This study was guided by the three objectives of the research: The impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials; the technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials, and; the relationship between KICD and publishers in regard to digitisation of curriculum support materials.

5.2.1 The Impact of ICT Policy to Book Publishers in Kenya in Regard to Digitisation of Curriculum Support Materials

From the findings, it was revealed that the Ministry of Education through KICD had adopted ICT Policy 2006 and ICT Policy 2016 to digitise curriculum support materials. The Digital Learning Program (DLP) drew its foundation from the two ICT policies. Publishers were therefore operating within the confines of the two ICT policies. On the question about impact of ICT Policy to book publishers, the study established that the policy of digitisation of curriculum support materials had mixed implication. To some publishers, the policy of digitisation of curriculum support materials had affected their human resource structures significantly. The policy had led to creation of new jobs such as e-learning editors and systems administrators. To other publishers, the policy had not affected their human resource structures at all.

In regard to publishing operations, the study revealed that the ICT Policy had no impact on internal operations to some publishers. This was because such publishers were still in the process of aligning their operations to the ICT Policy of digitisation of curriculum support materials. However, operations in other publishers had been affected as a result of the ICT Policy. The policy had led to alterations in their operational structures. For every print copy produced, there was a digital version that was being produced as well.

In terms of sales returns, the ICT policy had very little contribution to the overall sales turnover to the publishers. Digital content accounted for only 1 % of the total annual returns. The impact on the sales turnover was thus insignificant. The low returns from digital content were attributed to the low uptake rate of digital materials due to lack of market. The market for digital content is still very small.

5.2.2 The Technical, Capacity and Marketing-Related Challenges Faced by Publishers in Digitisation of Curriculum Support Materials

The informants and respondents interviewed gave different responses in regard to technical, capacity and marketing challenges faced by publishers in digitisation of curriculum support materials. The findings revealed the following challenges:

5.2.2.1 Technical Challenges

The first technical challenge established was lack of infrastructure. These include Internet services, reading devices such as kindles and computers for schools and learning centers. Learners and teachers had no access to digital support materials for teaching and learning through online services. Very few schools across the country were well equipped to fully utilize digital content. Because of lack of these technological infrastructures in schools

across the country, publishers were reluctant to digitise their content since they could not reach the target market.

The second technical challenge was security and maintenance of digital content. Although KICD had established Kenya Education Cloud (www.kec.ac.ke), a digital platform where publishers would upload their content, publishers were non-committal to digitisation process due to fear of losing their products. Maintenance of systems was also revealed to be expensive venture to publishers and as such, they were reluctant to digitise their content.

Technological change was the third technical challenge that was established as a hindrance to the digitisation of content. The new media have brought about changes that have necessitated technological shifts to fit the needs of the time. Publishers are now forced to develop mobile apps and desktop apps to meet the customers' needs. The formats for digital content are changing everyday depending on the new apps that suit the consumer needs. Publishers therefore have to invest a lot in research and development of new digital formats to meet consumer needs. This is very demanding and expensive. Publishers that are unable to cope with these technological dynamics are forced to develop low quality content that do not appeal to the customers.

Weak and inadequate policy framework was also identified as a stumbling block for publishers towards digitisation of curriculum support materials. The existing ICT Policy adopted from the Ministry of Information and Communication was generic and did not address specific issues of concern to publishers such as copyrights, sales and distribution of digital content, licensing and pricing of digital content. Publishers are reluctant to

publish digital content without proper policies being in place. Without proper policy framework in place, it is difficult to convince publishers to develop content whose market and safety is not guaranteed.

5.2.2.2 Capacity-Related Challenges

The first capacity related challenge established was the lack of expertise to digitise content in-house. It was revealed that the editors and designers had partially been trained but did not possess the technical skills to digitise content. The publishers also lacked the financial capacity to invest in the technology to digitise content. As such, publishers were forced to outsource digital services from foreign companies.

The cost of digitising content was also revealed to be very high and this was another challenge that publishers were facing. The process of digitising high quality interactive content was very expensive in terms of technology and resource mobilisation. Most publishers were therefore forced to digitise low quality and non-interactive content in form of PDFs and e-Pubs to save on the cost. The local publishers also lacked the capacity to invest in the technology to digitise content.

Lack of devices like kindles and computers for reading digital materials by customers was another technical challenge that was revealed. The Ministry of Education reported challenges in funding schools to buy gadgets to enable learners to access digital content. Consequently, publishers were reluctant to digitise content because of lack of reading devices to access the content in schools. Another challenge was the lack of proper distribution structures for digital curriculum support materials. Publishers had no proper distribution channels and platforms to avail their content to customers. They depended on

online shops such as Amazon, which sometimes dictates the pricing and licensing terms. This exposes publishers to overexploitation and susceptibility to theft.

5.2.2.3 Marketing-Related Challenges

The common problem established in marketing digital content was the low market potential for digital content. The market share of digital content was still very low and many customers preferred print materials to digital materials. Print curriculum support materials still claim the largest market share of book market in the country. Despite the effort being made by the MoE and the KICD to implement the ICT Policies, digital content still lags behind in terms of preferences. Print books are still a preferred choice for many users in Kenya (MOE, 2017).

The low sales turnover for digital content was also established as another marketing challenge. The low sales turnovers were attributed to the fact that very many schools were still using print books in the country. Digital content generated very minimal returns despite exorbitant costs incurred in digitisation processes. Piracy of digital content was another challenge identified. Publishers were skeptical of digitising their content for fear of incurring losses through piracy. Publishers were incurring losses through cyber theft and piracy of digital materials especially those ones sold in CD formats.

Digital Rights Management (DRM) concerns were also identified as a challenge in digitising curriculum support materials by publishers. DRM is the major drawback in digitising content. Publishers are unwilling to digitise their content for fear of losing their copyright through cyber space. This means that in the absence of DRM, publishers are at risk of losing their digital content online and as such, they are unwilling to digitise their content. Lack of pricing and licensing models for digital content were also established as

other problems associated with digitisation of content. There are no proper standardised pricing models for digital content, which makes publishers left exposed to extortions and controls by online shops.

The lack of awareness about availability and relevance of digital curriculum support materials was also established as a challenge. The target market was not well informed about the availability of digital content. It becomes very difficult for publishers to sell the digital content when the target users are not aware about the existence and availability of the very content. The dominance of print books over digital books was also revealed to be a hindrance to the digitisation of curriculum support materials. The study revealed that the attachment to print books by many customers was affecting the resurgence of digital publishing. The print books should not be entirely eliminated but instead should be used alongside digital materials to complement each other.

5.2.3 The Relationship Between KICD and Book Publishers in Regard to Digitisation of Curriculum Support Materials

The nature of cooperation between Kenya Institute of Curriculum Development and publishers was established to be positive. At the policy formulation and implementation levels, the relationship was cordial. The KICD and publishers worked together to ensure that the ICT Policy of 2006 and 2016 were being implemented. Publishers developed the digital content and submitted to KICD for vetting and approval. Publishers were represented at KICD and MoE meetings through KPA where policy guidelines relating to development of curriculum support materials were spelt out. The nature of relation between KICD and publishers was also revealed to be a continuous process. KICD engages publishers on the emerging issues and changes in the curriculum designs. Publishers implement such changes on the subsequent editions of curriculum support

materials. Kenya Institute of Curriculum Development issues guidelines to publishers relating to relevance of content to the curriculum, accuracy of the content, appropriateness to the target learner/user, promotion of values, multimedia elements and their quality.

Another positive indicator of cooperation was noticed through joint effort between publishers and KICD to pilot a portal to provide a platform for publishers to avail their digital content to customers. Publishers supported this venture because it would provide proper distribution mechanisms. The cooperation between KICD and publishers was however a little bit strained on the marketing aspect of the digital content. Publishers expressed their dissatisfaction with KICD over what they termed as conflict of interests. KICD was generating digital content and procuring it directly to schools thereby shrinking market for digital content from publishers.

5.3 Conclusion

The study concludes by revealing that, apart from ICT policy 2006, KICD had come up with an ICT Strategy for Education and Training 2006, to operationalise the vision of National ICT Policy 2006. However, this ICT strategy also did not address specific issues of concern to publishers. The impact of ICT Policy is felt in the operations and human resource restructuring of publishing industry. The impact is insignificant and almost nonexistent on the sales revenue generated by the publishing firms. The relationship between KICD and book publishers is mutually dependent and beneficial at policy formulation and implementation level. However, the contention arises out of lack of clear policy framework to guide development and procurement of digital materials as well as capacity building for publishers. The challenges that affect publishers in digitising

curriculum support materials include; Digital Rights Management (DRM) concerns, weak and inappropriate digital policy by KICD, high costs of digitising content, rapid changing technology, lack of technical expertise to digitise content, lack of reading devices by customers, low quality of digital content, lack of distribution network, low market potential for digital content in the country, low sales turnover, piracy of digital content, lack of pricing and licensing models and lack of awareness about availability of digital content.

5.4 Recommendations

Based on findings of this study, the research recommends for more research to be conducted about integration of ICT in teaching and learning with specific focus on digitisation of content. The study established that very little researches have been conducted in this area of digitisation of content for schools. The findings of such studies will help to unravel the mystery surrounding laxity of publishers to digitise content in line with ICT Policy of 2006 and 2016.

The study also recommends that schools and other institutions of learning be sensitised about importance and availability of digital content apart from the print content. The Ministry of Education should sensitise teachers and parents about the importance of using digital curriculum support materials in teaching and learning process. Sensitisation can be done through awareness campaigns in mainstream media, social media and training of teachers to be acquainted with digital content. The study established that currently, many schools use only print curriculum support materials because of inaccessibility of digital content and lack of knowledge about their availability.

The government should avail reading devices like kindles, computers and Internet to schools. This will facilitate learners to access digital content in schools and at homes. The study established that the biggest problem that hinders publishers to develop digital content is lack of market. Most schools across the country have no facilities to access the digital content. This makes it difficult for such schools to access interactive content in digital formats. Although the government has rolled out the DLP with initiatives such as one laptop per child, more infrastructures need to be developed in schools in order for actual utilisation of digital content to be realised. When government equips schools and learning centers with digital devices, it will be very easy and convenient for learners to access digital material from different publishers at ago.

The researcher also recommends that the Ministry of Education through KICD should develop proper ICT policy guidelines for digitisation of curriculum support materials to be used by publishers. The policy should address issues of concern to publishers such as standardisation and formats of digital content, pricing models, DRM, vetting of content, procurement of content and distribution structures. The study established that the issues of concern to publishers make them reluctant to digitize content in line with the ICT Policy of digitisation of curriculum support materials.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

BRAMUEL ERICSON ADAKAI
UNIVERSITY OF NAIROBI
SCHOOL OF JOURNALISM AND MASS COMMUNICATION
P O BOX 13433-00800
NAIROBI
July, 20116

Dear Sir/Madam,

**RE: REQUEST FOR INTERVIEW ABOUT RESEARCH ON IMPACT OF
DIGITISATION OF CURRICULUM SUPPORT MATERIALS ON PUBLISHING
INDUSTRY IN KENYA: THE CASE OF KENYA LITERATURE BUREAU AND
LONGHORN PUBLISHERS**

I would like to request you for an interview over my project research study for my masters' degree program. I am a student at University of Nairobi pursuing a degree in Master of Arts in Communication Studies. I am doing research about **Impact of Digitisation of Curriculum Support Materials on Publishing Industry in Kenya: The Case of Kenya Literature Bureau and Longhorn Publishers**. My respondents include KICD officials, KPA officials, selected booksellers, and selected case publishers. I have purposively selected you to be my key informant in this study. This is based on my research objectives that require only those key respondents with specific knowledge and understanding of the subject I am investigating.

The main purpose of conducting this study is purely on academic basis. The ethical standards of confidentiality, anonymity and privacy shall be upheld in this study. Therefore, the information you give shall be held in the strictest confidence. Consequently, I shall assign you a specific code with no any other identifying information. I am looking forward to your positive responses. Find attached interview guide questions for my research. Thank you.

Yours Sincerely,

Bramuel Ericson Adakai
(Student/Researcher)

APPENDIX II: INTERVIEW GUIDE FOR KPA OFFICIALS

Introduction

This interview was conducted in July 2016 at KPA premises. The two executive officers were interviewed on the same date. Interviewees were reminded of the purpose of this study and the time involved. The ethical standards of confidentiality, anonymity and privacy were explained to the interviewees. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

1. What is your view or thought as KPA about KICD policy of digitisation of curriculum support materials by Kenya's publishers?

2. What is the nature of cooperation between publishers and KICD about digitisation of curriculum support materials? (How do you relate with KICD at policy level?).

3. What are the major challenges and concerns to publishers about process of digitising curriculum support materials for schools in Kenya?

4. What is the advantage of digital publishing over print publishing?

5. Between digital and print curriculum support materials, which one has the largest market share in Kenya? What percentage? Why is that?

6. Has the policy of digitisation affected publishing operations in companies in any way? How and why?

7. What is the future of print publishing as a result digital policy? Is print book market under threat?

8. Are publishing companies in Kenya well equipped and prepared to handle digitisation of curriculum support materials?

APPENDIX III: INTERVIEW GUIDE FOR BOOKSELLERS

Introduction

The four booksellers involved in this study were selected using purposive sampling technique. This was necessary so as to get only relevant information for this study. The booksellers interviewed were reminded of the purpose of this study and the time involved in carrying out the interview. They were also assured confidentiality, anonymity and privacy of their identities. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

1. Do you have stocks for digital curriculum support materials from local publishers?

2. Is there digital content from other publishers that you stock other than from locals?

3. Mention some of the publishers that have supplied you with digital materials for schools curriculum for Kenyan market (Both local and foreign).

4. Between print and digital materials, which one do you stock most? Why?

5. As a leading bookseller, what is your assessment about the market potential of digital curriculum support materials in Kenya?

6. Does digital print materials have a significant effect on the sells of print materials? How and or why?

7. Has ICT policy of digitisation of curriculum support materials affected your sales and distribution channels of books in any way?

8. What specific challenges do you encounter in selling digital curriculum support materials (e-books)?

APPENDIX IV: INTERVIEW GUIDE FOR PUBLISHING MANAGERS AND ICT EDITORS

Introduction

These interviews were conducted in the month of July 2016 at different locations and dates. For KLB, it was conducted at KLB offices whereas for Longhorn, it was conducted through online linkage. The publishing managers and ICT editors were briefed on the purpose of this study and the time involved in carrying out the interview. The ethical standards of confidentiality, anonymity and privacy were explained to them. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

Impact of ICT Policy on book publishing industry

1. In your view, what is the advantage of digital publishing over print publishing?

2. As Longhorn, how many book titles have you managed to digitise since the inception of ICT policy of digitising curriculum support materials?

3. Do you digitize your content in-house or you use intermediaries to digitise your content?

4. In what formats do you present your e-content? (e-pubs, HTML or PDFs)

5. How many editors, sub editors and designers are trained and well conversant with this digital technology in your company? Can they handle digitisation of content perfectly?

6. What is the market potential of digital material compared to print material?

7. Has the policy of digitization affected publishing operations in your company in any way? Mention some instances if any.

8. Has digitisation policy affected human resource operations in book publishing industry in any way? (Job creation or job losses)

9. What do you think is the future of print publishing as a result digital policy of digitising curriculum support? Is print publishing under threat?

Relationship between KICD and Publishers in regard to digitisation policy of curriculum support materials

1. What is the nature of cooperation between publishers and KICD in regard to digitisation policy of curriculum support materials? Kindly indicate extend of your cooperation whether good or bad.

2. As publishers, do you feel supported by KICD in implementing this ICT policy of digitizing curriculum support materials? In what extend?

Challenges faced by publishers in digitising curriculum support materials

1. In terms of preparedness, how well is your company prepared in terms of technology and human resource to deal with content development for digital curriculum?

2. What are the specific challenges your company faces in digitising curriculum support materials for schools?

APPENDIX V: INTERVIEW GUIDE FOR MARKETING MANAGERS

Introduction

These interviews were conducted in the month of July 2016 at different locations and dates. For KLB, it was conducted at KLB offices whereas for Longhorn, it was conducted through online linkage. Both marketing managers were briefed on the purpose of this study and the time involved in carrying out the interview. The ethical standards of confidentiality, anonymity and privacy were explained to them. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

1. Do you have digital content that you sell?

2. Which is your target market for digital curriculum support materials? Why?

3. In what forms do you present your digital content to your customers? (CDs, buy online, e-pubs or PDF downloads)

4. Compared to print content, how easy or difficult is it to market your digital content to your customers?

5. Does digital content for schools curriculum sell quick and easily? Why?

6. Between print and digital materials, which one does you stock most? Why?

7. Does digital content for schools curriculum sell quick and easily? Why?

8. What is your assessment about the market potential of digital curriculum support materials in Kenya?

9. Do digital print materials have a significant effect on the sales of print materials? How and or why?

10. Has ICT policy of digitisation of curriculum support materials affected your sales and distribution channels of books in any way?

11. What is the future of print books? Is print book market under threat?

12. Citing a specific, book title, or general scenario, can you give a comparison of sells for the year 2015 or any other year between digital and print formats in your company? (Secondary data will be appreciated)

13. What are the specific challenges or concern you experience or face when marketing digital content to your customers?

APPENDIX VI: INTERVIEW GUIDE FOR KICD OFFICIALS

Introduction

This interview was conducted in July 2016 at KICD offices. The two KICD officials were selected using purposive sampling technique. The idea was to get right responses from right respondents selected. The two KICD officials were reminded of the purpose of this study and the time involved. The ethical standards of confidentiality, anonymity and privacy were explained to them. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

1. Does KICD have a policy for digitisation of curriculum support materials for schools?

2. What is the nature of cooperation between yourselves (KICD) and publishers in regard to digitisation policy of curriculum support materials for schools?

3. Are publishers aware and well informed about policy guidelines for digitising curriculum support materials? If it is there. (Have you sensitized them through workshops, seminars, trainings, policy documents and circulars)

4. How many local publishers have managed to digitise their content and brought to KICD for vetting and subsequent approval? (Names of publishers or number if possible)

5. Does KICD digitize content for schools as well or depend solely on publishers?

6. Between digital and print materials, which ones do publishers submit most to KICD for vetting and subsequent approval? Why?

7. Do you also receive digital content from foreign publishers for vetting and subsequent approval? What is their quality and format compared to the ones from local publishers?

8. In what formats do publishers present their digital content? (E-pubs, HTML or PDFs)

9. Have publishers met set guidelines and standards of digitising curriculum support materials?

10. Are there other forms of support KICD offers to publishers apart from policy guidelines about digital content? Please mention.

11. What is the future of print publishing as a result of digital policy of digitising curriculum support materials for schools? Is print publishing under threat?

12. As KICD, what do you think are the major challenges of implementing ICT policy of digitization of curriculum support materials in Kenya? The challenges of digitising curriculum support materials for schools.

APPENDIX VII: INTERVIEW GUIDE FOR e-KITABU OFFICIALS

Introduction

This interview was conducted in the month of September 2018. The respondent was briefed on the purpose of this study and the time involved in carrying out the interview. The ethical standards of confidentiality, anonymity and privacy were explained to them. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

Impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials

1. What does e-Kitabu do?

2. In terms of digitization of curriculum support materials in Kenya, which policy guides your operations?

3. How many book publishers in Kenya have you partnered with in digitising curriculum support materials? List them down.

How many books have you digitised from Kenya's publishers?

What is the future of print books in Kenya?

Compared to print content, how easy or difficult is it to market your digital content to

your customers?

Are publishers willing to digitise their content? Why?

Relationship between KICD and Publishers in regard to digitisation policy of curriculum support materials

What is the nature of your relationship or partnership with publishers and KICD?

Challenges faced by publishers in digitising curriculum support materials

What are the specific challenges or concern you cite in as far as digitisation of content is concerned?

APPENDIX VIII: INTERVIEW GUIDE FOR MoE OFFICIALS

Introduction

These interviews were conducted in the month of September 2018. Both respondents were briefed on the purpose of this study and the time involved in carrying out the interview. The ethical standards of confidentiality, anonymity and privacy were explained to them. The information they gave was held in the strictest confidence. Below is a list of questions that were involved in this interview guide:

Impact of ICT Policy to book publishers in Kenya in regard to digitisation of curriculum support materials

1. Is there a policy of digitization of curriculum support materials at the Ministry of Education? Explain further.

2. How does the Ministry of Education support KICD and publishers in implementing ICT policy of digitisation of curriculum support materials?

3. Which steps has the Ministry of Education taken to support the implementation of ICT Policy of digitization of curriculum support materials?

4. As MoE, what are the major challenges of implementing ICT policy of digitisation of curriculum support materials in Kenya? The challenges of digitizing curriculum support materials for schools.

APPENDIX IX: CERTIFICATE OF FIELDWORK



**UNIVERSITY OF NAIROBI
COLLEGE OF HUMANITIES & SOCIAL SCIENCES
SCHOOL OF JOURNALISM & MASS COMMUNICATION**

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Nairobi, GPO
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REF: CERTIFICATE OF FIELD WORK

This is to certify that all corrections proposed at the Board of Examiners' meeting held on 25/07/2016 in respect of M.A/~~Ph.D~~ final Project/~~Thesis~~ defence have been effected to my/our satisfaction and the student can be allowed to proceed for field work.

Reg. No: KSO/74686/2014

Name: Bramuel Ericson Adakai

Title: Effects of digitization of curriculum support material

to publishers: Case of Kenya Literature Bureau & Longhorn Publishers

Godwin Siundu
SUPERVISOR

CM Siundu
SIGNATURE

29/07/2016
DATE

Dr Samuel Sirugi
ASSOCIATE DIRECTOR

Sirugi
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01/08/16
DATE

Dr. Ndeti Ndahi
DIRECTOR

CM
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This is to certify that all corrections proposed at the Board of Examiners meeting held on 10/10/2018 in respect of M.A/~~PHD~~ Project/~~Thesis~~ defence have been effected to my/our satisfaction and the project/thesis can be allowed to proceed for binding.

Reg. No: K50/74686/2014

Name: BRAMUEL ERICSON ADAKAI

Title: AN INVESTIGATION OF THE IMPACT OF DIGITIZATION OF CURRICULUM SUPPORT MATERIALS ON PUBLISHING IN KENYA THE CASE OF KLB AND LONGHORN PUBLISHERS

Godwin Siundu
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08/11/2018
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07/12/2018
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Dr. Ndlovu Ndlovu
DIRECTOR

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10-12-2018
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APPENDIX XI: CERTIFICATE OF ORIGINALITY

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