UNIVERSITY OF NAIROBI

FACULTY OF SCIENCE AND TECHNOLOGY

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CRITICAL SUCCESS FACTORS TO THE IMPLEMENTATION OF DIGITAL LITERACY PROGRAMME IN PUBLIC SCHOOLS IN KENYA: A CASE STUDY OF LANGATA AND WESTLANDS CONSTITUENCIES IN NAIROBI COUNTY KENYA

BY:

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A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT OF UNIVERSITY OF NAIROBI.

AUGUST 2021.

Declaration

I, Margaret Waithera Wairumbi, do hereby declare that this research project report is my original work and where there is contribution of other individual, it has been duly acknowledged. To the best of my knowledge, this research work has not been presented in any educational institution for academic credit.

Margaret Waithera Wairumbi

P54/6577/2017

Signature…… Date……23/8/2021……

I, Prof. Elisha Toyne Opiyo, do hereby certify that this project report has been presented for examination with my approval as a University of Nairobi Supervisor.

Signature Date 23/08/2021

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DEDICATION

This research is dedicated to my parents Mr. and Mrs. Charles Wairumbi, to my Spouse Mr. Johana Reuben Okello Ouma, and my entire family for their unwavering support and encouragement during the entire period of my study.

Acknowledgement

I would like to express my deepest gratitude to the Almighty God for His guidance throughout this project report. My sincere gratitude to my supervisor, Prof. Elisha Toyne Opiyo, for his support and guidance throughout the project. I am also grateful to my friends and colleagues for their encouragement and support.

ABSTRACT

Numerous technical tools are accessible, and further training should be offered to ensure DLP's effectiveness in Kenyan classrooms. When it comes to the employment of technology in Kenya's educational system, the situation is dire. While implementation in schools is critical, it is contingent upon a variety of circumstances. While many elementary schools have computer technology, only a small percentage of students have the fundamental ICT skills necessary for learning. A study was conducted in Nairobi County, Kenya, to determine the factors impacting the efficacy of digital literacy initiatives. 134 people were initially recruited. 95 of the 134 participants were Nairobi residents. 65 individuals were questioned. 5 took part in a semi-structured focus group discussion with teachers from Nairobi public schools, utilizing semi-structured scripts. Twenty-five participants completed questionnaires that were distributed in advance. Following a literature review and data analysis, three critical success factors for implementing a digital literacy program in Kenya's public schools were identified. Along with administration and technical assistance, student engagement and learning outcomes, and program architecture, the following other factors should be considered: To ensure the DLP program's effectiveness in Kenya's state primary schools, teachers' abilities and competence must be significantly enhanced. When it comes to implementing the Digital Learning Programme in Kenyan public primary schools, factors like as student involvement and learning results, infrastructure, and DLP have been critical to its success.The model can be adopted in other regions in Kenya which are also on the process of implementation of DLP.

Keywords:DLP, ICT

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Abbreviations

ICT: Information Communication Technology

CBC: Competence Based Curriculum

UK: United Kingdom

UNESCO: United Nations Educational, Scientific and Cultural Organization

UN: United Nations

OECD: Organization for Economic Co-operation and Development

KICD: Kenya Institute of Curriculum Development

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Even in the most third world countries, technology is already embedded in the educational system. Kenya entered the list lately after establishing a competency-based curriculum and incorporating technology into the system. By 2004, the majority of Europe's industrialized countries had embraced ICT to varying degrees of success (Pelgrum, 2013). According to the OECD (2015) and OECD, ICT is widely utilized in classrooms in the United Kingdom (2013). ICT use in education has significant economic and social benefits. According to UNESCO, countries that have incorporated ICT into their educational systems have done so due to the benefits of technology, such as the creation of a multimodal interactive platform for students and instructors with limitless educational and learning potential.

Students benefit from computer and internet use because they improve teaching abilities and topic comprehension. ICT adds value to education by increasing instructional efficiency and communication. ICT has evolved into a ubiquitous and computer-based instrument that should be integrated into every aspect of a school's work. ICT-based education and instruction can aid students in becoming more knowledgeable (Iding, 2005). According to a study (Wong, 2015), ICT improves economic understanding, notably in the sphere of education.

According to a 2004 World Bank research, the global economy's fast development is forcing educational institutions to utilize ICT to teach students today's skills and knowledge. Integrating ICT into the teaching and learning process benefits instructors who are able to differentiate between ICT use and expanded curricula. As a result of (Haddad and Draxler, 2004),Individual or diverse ICTs contribute significantly to educational growth and efficient and effective learning. To do this, access must be expanded, efficiency must be improved, and the quality of education and management systems must be enhanced.

It has been more than two decades since the Dakar World Forum in April 2001 set the six Education for All (EFA) objectives. Kenya accepted a wide vision of education and a holistic approach to sector growth in Vision 2030. Since the adoption of the Kenyan Constitution in 2010, all Kenyans have been able to make full use of education for children, adolescents, and adults (Republic of Kenya, 2012). Kenya began its Free Primary Education (FPE) project in 2003. This Act establishes a legal framework for free and obligatory basic education (Republic of Kenya, 2012). This is stipulated in the 2013 Basic Education Act and the 2010 Kenyan Constitution. According to the United Nations (2013), the 2015 objectives remain in place, and education is more than a means to an end; it is also a means to an end. Kenya's national treasury raised Ksh 14.4 billion for the Digital Literacy Programme in the 2016/2017 budget. The funds were intended to assist in the production of digital materials, teacher training and capacity building, the acquisition of computer equipment, and the establishment of computer laboratories in all government primary schools (Treasury, 2017). According to the department for information and communication technology, about 19,565 schools have already implemented digital devices (ICTA). As of August 2017, there was 989,485 pieces of digital equipment for students, 37,150 pieces of equipment for educators, and 18,556 pieces of projector equipment. There was a total of 1,087,745 devices. Additionally, 80,200 public school instructors have acquired digital education in

order to give it to their students.

Numerous African developing countries have been living in a technologically backward era for an extended period of time. African nations are integrating technology in order to assure access to new, enticing, diversified, and promising opportunities as a result of technical advancements. Over the last eight years, the Kenyan government has made significant expenditures in ICT infrastructure. According to Grabe & Grabe, technology plays a significant role in the learning and teaching processes (2019). Kenya's government has selected training as the most efficient method of imparting ICT skills to citizens in order to achieve robust and sustained economic growth.

Nairobi County takes its name from the capital city of Kenya. Nairobi County public schools will be among the first in the country to implement the new CBC education system, which includes laptop computers. Different technologies were easily integrated into classroom sessions, and learners made use of new technology. According to Kleyn-Kennedy (2001), the world as we know it has already shifted due to massive and exponential technology advancement, with profound and unforeseeable consequences for every social element.

The use of information and communication technology has a profound effect on global social and economic progress. These tectonic shifts are described by terms such as "learning society" and "knowledge economy," emphasizing that knowledge and learning are the bedrock of social progress and economic output. Because knowledge is dynamic, the value of knowledge generation is greater than the value of knowledge acquisition. Education is becoming more critical as society and business progress. The use of ICT in education has had a tremendous impact on how children learn. Kenya's education reform is centered on collaboration, assessment, curriculum development, and teacher training. ICT has a positive impact on education globally. According to Rose, a country (2013),

Unrestricted access to high-quality education will boost economic growth, alleviate poverty, and reduce maternal and child mortality. The introduction of novel concepts, methods, or technologies has been defined as innovation (White and Glickman 2007). The education sector's technological advancements are expected to increase its flexibility and efficiency. Due to the adaptability of technology, educators may be more creative. Technology was described as a tool that should not be taken for granted in order to avoid underuse.

It is defined as a more straightforward and pleasant method of learning with the use of ICTs (Jenkins and Hanson, 2003). According to Garrison (2011), e-learning is the use of asynchronous and synchronous electronic communication to generate new knowledge and validate existing knowledge. Synchronous learning makes use of Internet technology to kick-start a classroom course (Cantoni, 2014). To participate in real-time learning, all participants must be available at the same time. Asynchronous learning is given through the local area network via CD-ROM, which enables students to access course material at any time and expedite their study (Takalani, 2008).

It is propelled forward by cutting-edge technologies such as the Internet of Things (IoT) and e-learning. The approach teaches through the use of blended learning. As defined by Garrison and Vaughan (2008), integrated learning is the purposeful pairing of online and face-to-face interactions. E-learning empowers students to take ownership of their education, which boosts Takalani's confidence and knowledge (2008) According to Khan, Hasan, and Clement (2012), technology increases student motivation by giving access to knowledge and collaborative tools that facilitate comprehension. Globally, education is heavily reliant on the effective and efficient use of information, communication, and technology. Education is a dynamic, ever-changing, and never-ending process. People rely on technology for virtually all of their behaviors. Through innovative teaching methods, several education departments across the world have transformed the classroom into an outstanding environment for technological advancement. Several

public schools in Kenya have been equipped with computers and iPads as part of the government's initiative.

1.2 Problem Statement

Teachers in Kenya have access to a variety of technological tools for use in the classroom, and ongoing training should be offered to ensure maximum adoption. As a result of technological advancements, several changes have occurred in school instruction. Technology has been ingrained in the daily routines of the majority of educational institutions globally. This has resulted in a growing need for ICT in educational programs. When it comes to the employment of technology in Kenya's educational system, the situation is dire. While implementation in schools is critical, it is contingent upon a variety of circumstances. To ensure the success of your ICT integration, Laaria asserts that you will require electricity and buildings, as well as the procurement of hard and soft things (2013) additionally, there is a demand for skilled IT educators. As a result, the initiative's success is contingent upon the school administration's commitment to and support of the project. While many elementary schools have computer technology, only a small percentage of students have the fundamental ICT skills necessary for learning. Numerous impediments exist to the effective use of technology in education (MOEST, 2012). For instance, poverty levels, a lack of rural electrification, a lack of teacher training, power outages, and computer literacy all critical. The student-teacher ratio at the smallest public institutions is 150:1. As a result of a redesigned curriculum that incorporates technology into classroom instruction, just 38percent of teachers utilize ICT in the classroom. 6percent of the project was actually completed. The integration of ICT into education is all about fostering information literacy, defined as the capacity to efficiently acquire, utilize, and analyze information, as well as to solve problems in order to produce new knowledge.

1.3 Purpose of the Study

The objective of this study is to identify the critical elements that contribute to the success of a digital literacy program in public schools in Kenya's Nairobi County.

1.3.1 General Objective

The study's broad goal is to ascertain the essential elements influencing the effectiveness of a digital literacy program in Nairobi County's public elementary schools.

1.3.2 Specific Objectives

The following are the particular aims of this study:

i. To show the impact of how teachers are enhancing digital literacy programme.

ii. Establish the impact of the school administration in promoting digital literacy programme.

iii. To determine the role and benefits to students in the digital literacy programme.

iv. To assess the impact of ICT infrastructure on DLP deployment.

1.4 Research Questions

With a close relationship to the research objectives, the research questions are:

To what extent are teachers in Nairobi County utilizing DLP in primary school system?

i. What is the role of the school administration in the DLP in education system?

ii. How do learners feel about the employment of DLP tools in their education?

iii. To assess the impact of ICT infrastructure on DLP deployment?

1.5 Significance of the Study

Technology enhances education by assisting students in acquiring the talents, information, and skills necessary to participate in the global economy. From the data obtained in this study, many stakeholders in education will be able to deduce what is required for the DLP system to succeed. The findings will be used by the Ministry of Education to improve academic quality in public and private primary schools. ICTs will be used more extensively in research to ensure the success of technical education. Additionally, it will serve as an excellent teaching tool for Kenyan curriculum designers who use computers. The study's findings will help determine how to improve examination performance.

1.6 Limitations of the Study

Along with public schools, private institutions have embraced the DLP method. This might be because many public schools continue to embrace ICT as a tool for early learning. The research will concentrate only on the Langata and Westands constituencies, as their performance is unique from that of other government primary schools in Nairobi County and other parts of Kenya, instead the study could have been carried out across the counties for a reliable outcome. The use of ICT in teaching and learning is subject to a number of success criteria, all of which have an effect on the learning and teaching outcomes.

1.7 Summary

The research will be conducted in Nairobi County, which is a technology-assisted pioneer. For four years, the schools utilized technology, which provided an appropriate research sample. This chapter will discuss the context, the issue statement, the purpose, the general and specific study objectives, as well as the research issues, relevance, and restrictions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

On the other hand, this chapter focuses only on the subject's literature. When it comes to integrating technology into education and learning, there are several factors to consider. He examines the impact of technology on education on a global, African, and Kenyan scale. Secondary sources and circular educational ministries were used to assemble the material. To do this, a thorough research will be conducted to identify and assess critical knowledge, views, attitudes, and abilities relevant to the execution of the programme's digital literacy component. It establishes the research's intellectual and theoretical foundations.

2.2 Digital Literacy Programme

Education is one of several public sectors that can benefit from technology advancements (Kozma, 2004). Many have identified it as a key economic sector comprised of service and value-added businesses. The Kenyan government's 2030 Vision identified a number of economic and social sectors where ICT adoption may improve performance. The vision is the government's long-term development strategy, with the goal of accelerating the country's transition to middle-income status as quickly as possible. Access to ICT is a primary aim for everyone. At all levels of education, the Digital Literacy Program and the Academic and Administrative Process Automation Program have been developed (Ministry of ICT, 2014).

In 2017, as part of the Digital Literacy Program, ICT integration was formally incorporated into elementary education (DLP). The initiative's major aim is to coordinate and integrate ICT into all government-led elementary school curricula. The project's primary components include increased ICT

infrastructure, digital content production, teacher skill development, and ICT equipment purchase.

Education is a career that is always changing (European Commission, 2017). Instructors must acquire a new set of talents in order to fulfill these new standards. As digital learning becomes more prevalent, instructors' digital abilities must always be enhanced. The Ministry of Education, Science, and Technology, in collaboration with other stakeholders, has developed a training module to assist teachers in government primary schools in developing and strengthening their capacity to provide digital learning to their students throughout the DLP's implementation. The Digital Literacy Program's status report indicates that almost 90,000 teachers have been trained to deliver digital learning to youngsters across the country.

2.3 CBC in Public Schools in Kenya

Inclusion and diversity are the cornerstones of diverse curriculum and learning. Each student has the ability to customize curricular materials and instructional approaches to his or her needs. Customizing the curriculum allows for the fulfillment of student requirements. Not every student should approach and study the same topic in the same way or at the same speed.

To address talent shortages, Rwanda's education system introduced a skills-based curriculum in 2016. Rwanda wanted to develop an educated population on the other side of the world capable of competing in both domestic and international labor markets. According to the country's educational philosophy, every child, regardless of their learning level, should get a quality education in order to develop their entire potential, skills, attitudes, and knowledge necessary to reach their maximum potential in life. Assimilation into the labor market (Republic of Rwanda, 2015). Rwanda aspires to be a knowledge-based middle-income country by 2030. They believe that information and communication technology is a critical tool for progress (ICT).

As a result of the country's basic education curriculum, every Kenyan is expected to be an engaged and

empowered citizen. Simply as a responsible citizen. The objective is to create a planet with sufficient work. Utilizing this approach. By 2030, our digital capabilities will have reached their full maturity. It aims to ensure that every Kenyan has access to a world-class education. The Ministry of Education is extremely appreciative of instructors, instructional materials, and learning spaces.

Kenya's CBC system, a long-term and creative curriculum, provides integrated skills training to pupils. Teachers may serve as role models for youngsters, caring for and inspiring each child to reach his or her full potential. Additionally, a more adaptable curriculum enables teachers to fulfill each child's unique needs, abilities, and interests through ongoing analysis and collaboration with other stakeholders, including parents, other professionals, and members of the community. Each child will be empowered by providing them with unique, distinctive, and creative learning experiences that will enable them to confidently and proudly take their position in the world.

This new curriculum will ensure that each learner's context is relevant to their entire growth and development, enabling them to develop into independent and self-assured learners who like learning and are eager to use their knowledge constructively as productive, responsible citizens.

"Digital literacy" refers to the abilities, knowledge, and habits required for the safe and effective use of digital devices or information. Smartphones, laptops, mobile phones, desktop PCs, and tablets are all examples. Devices that are capable of being linked to a network. Digital literacy is distinct from computer literacy in that it focuses on devices that can connect to the internet via a network. Reading, writing, speaking, and using a computer are all critical components of digital literacy, according to CBC. Along with a breadth of digital talents and knowledge, someone who is digitally competent have a fundamental understanding of how computers work.

This requires familiarity with ethical behavioral norms, an understanding of the societal issues created by digital media, and the ability to evaluate content digitally.

Individuals with digital literacy should also be able to use technology securely and ethically while evaluating data in order to help and enhance our surroundings (British Council, 2015). Because digital literacy is a competence, it entails knowing how to utilize various hardware platforms, such as computers, tablets, and mobile devices, appropriately. Additionally, it entails a grasp of how to properly operate software such as search engines or online applications. Because the world of ICT is always evolving, digital literacy is a dynamic capacity. This firm is constantly expanding and evolving in order to fulfill the growing global need for efficient and effective communication technologies. Digital literacy is one of the most critical talents for education and living in the modern world. This entails more innovative, creative, and frequently transformative learning.

The CBC will disseminate information that will help bridge the divide between industry and technical requirements. Education programs should aid in the development of students' technical and industrial skills in accordance with global trends.

2.3.1 Pillars of the Basic Education Curriculum Framework

As stipulated in Kenya's 2010 Constitution, the State department supports education, particularly the integration of fundamental values into curricula at all educational levels. Respect, excellence, compassion, understanding, caring, tolerance, and confidence are all characteristics. Honesty, sincerity, and integrity are the foundations of confidence. The program's pillars were created as a result of a KICD Needs Assessment research. Citizenship and digital literacy are pillars, as are imagination and creativity, as well as communication and collaboration. The research focuses on digital literacy.

2.4 Information Communication Technology

Education technology is the application of current knowledge to a practical purpose, as defined by its own definition. Technology is the use and enhancement of existing knowledge in order to modify and improve an existing system. In schools, computers are utilized at multiple decision-making levels and as educational tools, rather than only for administrative tasks. Numerous explanations exist for the widespread use of ICT in schools. Consider the 1989 Daltone model. Adoption, according to the document's provisions, occurs in five stages or phases. Technology in education may be abandoned or abused. To begin, senior management must design and create information systems, and then make them available to external users such as students (Barta, Moshe and Yaffa, 2002). When it comes to education, the creative phase is inextricably linked to the project implementation phase. To be effective, the process of ICT integration must pass through five phases, each of which is dependent on the preceding phase. Examples include the invention and integration phases of the digital literacy program's implementation.

2.4.1 ICT in Education Policy

The Ministry of Education views ICT as a necessary tool for universal training and education in Kenya. To do this, all educators, students, and communities must have appropriate ICT infrastructures and abilities, as well as rules governing their usage and growth. It argues for acknowledging that ICT contributes to the development of society's capabilities.Include the knowledge and abilities necessary for a knowledge-based economy. Along with promoting 21st-century pedagogies, it calls for a paradigm change in teaching and learning. The Ministry of Education makes use of information and communication technologies to improve access, learning, and administration in the delivery of educational programs and services. The primary objective will be to integrate ICT into educational and training programs. Three documents comprise the present ICT education plan: the e-government strategy, the national ICT policy, and the 2005 Session Paper No. 1. (A Policy Framework for

Education, Training and Research). As a result, these documents must be combined into a single document. The consolidation process's primary aim would be to consolidate and unify ICT educational policy, including its scope, application, administration, methods for managing innovations, and associated intellectual property rights (IPR).

2.4.2 Innovation phase

This lesson is designed to expose students to technology for the first time. ICT is not used in educational hierarchical decision-making. From the point of understanding to adaptation or rejection, it takes time. There will be a cyclical process of awareness, attitude modification, and large-scale ICT replication.

2.4.3 Integration phase

We've arrived at a tipping point. If a user has certain responsibilities and obligations in relation to technology, this is referred to as delegating authority. Consumers are taught how to use ICTs through feedback, periodic assessments, and upgrading existing programs (Da Graca, 2006).

2.5 The Theoretical Literature

Cognitive psychology, constructivism, and behaviorism are frequently utilized to improve learning and teaching through the use of technology (Mishra, 2001). Additionally, Rockart's Critical Success Factors Model is employed.

2.5.1 Constructivist Learning Theory

According to Hung (2001), this paradigm is particularly well-suited for examining technology in the classroom. It is an educational psychology hypothesis. According to Frosnot, this study is founded on the constructionist theory of learning. In an increasingly urban, industrial, and alienated society, Dewey asserts that public schools can teach skills to the community. For Richardson (2003) and Yilmaz (2018), this concept is best defined as active and enhanced involvement between students and teachers. Individuals can develop their own perspectives and knowledge via their actions and reflections on their experiences, such as books and brooks.

According to this view, pupils acquire knowledge about a variety of situations via their experiences. The student must pay attention in order to integrate and grasp what is being taught (Bassey, Umoren and Udida, 2012). Individuals' cognitive processing processes vary significantly when it comes to issue analysis and decision-making. According to Brunner, one of the most vocal proponents of the constructivist theory of learning is education, which places a premium on predispositions, the structure of information, the optimal sequences of presentation of learning material, and the type and pace of rewards and punishments, among other things.Jean Peaget began by examining infant development. Vygotsky was a Soviet psychologist who studied how children acquire knowledge through language. 'Semanovitch's Le Semanovitch' The learning process, he explained, occurs when learners' complete activities for which they require assistance. Teachers, peers, and even technology may be able to assist.

Through the identification of the most successful instructional and interactive techniques for effective learning, the system positions teachers at the center of the DLP implementation. This approach incorporates a variety of components, including students and instructors. The application of computer-assisted education

Computers are used in learning environments to assist students or to maintain a conducive learning environment. According to Lou, the rapid growth of information and communication technologies in particular

(2005) in computer-supported learning and teaching there arises teaching models being adopted such as Case-Based Learning and Problem-Based Learning, are based on this theory.

This theory is based on:

i. Group work: students are in groups which positively impact their communication skills

ii. Student-centered learning: the students have the overall control over what they learn

iii. Knowledge development which encourages information evaluation and critical thinking

The theory shifts the role of the teacher from being a source of knowledge to a facilitator. The 8-4-4 system in Kenya was largely taught though text and lecture methods which harbor significant limitations. With the DLP, students get to learn using visual and audio-visual stimuli and some bit of text and lecture which enhances the concentration. The ministry of education in Kenya has introduced the DLP system as it's an interactive and physical system for skills enhancement. This theory forms an essential theoretical background for the assessment of critical factors for the success of technology supported learning in Nairobi County.

2.5.2 Critical Success Factors (CSFs) Approach

A firm's success is contingent upon the CSF technique, and if objectives are not reached, the business will suffer. Daniel proposed the concept of critical success criteria in 1962, while Rockart popularized it in 1978, Performance. According to Bullen and Rockart (1981), the absence of CSF results indicates that the organization's efforts over a certain time period were not sufficiently defined. However, CSFs

are only a means to an end. They are not, however, just the firm's aims; they are also a collection of procedures and actions aimed at assisting in the achievement of these objectives. CSFs enable the development of strategies to accomplish business objectives within the context of identified demands. Planning, management information systems, and requirement analysis may all be beneficial to the CSF Approach. They argue that the value of CSFs rests in their ease of comprehension, recording, and monitoring.

In Kenya's public schools, technology-assisted education will serve as the framework for assessing academic standards. The new CBC will be compared to the existing educational system in order to determine how the system will evolve in the future.

There is a disconnect between the usage of CSFs in public schools and other government sectors in Kenya. The commercial sector's literature on CSF detection and application is more thorough than the governments. According to Parr and Shanks (2000,) CSFs alone do not guarantee a positive outcome, but they are necessary.

Schelin and Garson used it to examine the performance of ICT efforts in both public and private sector organizations (Schelin and Garson, 2019). A total of 14 significant success factors were identified as having an effect on the efficacy of ICT efforts. These include effective communication, highly trained and competent ICT workers, the use of incentives, end user participation, stakeholder involvement, well-defined and measurable strategic technology planning goals, political and top-level management support and financial resources, as well as training and development opportunities for all involved individuals.

Collaboration across functional boundaries In this study, a similar CSF method will be used to examine stakeholders' perceptions and attitudes about technology learning in public schools. external CSFs or adapting and monitoring CSFs. The internal CSFs are those controllable by a particular manager while external CSFs are those where a manager has little control over. The classification of CSF provides

managers with an overall and better insight for goal setting. In the education sector, stakeholders should set to achieve CSF goals ensuring they minimize negative impacts on their school operations.

2.6 Empirical Literature

According to Komba (2013), pupils from the old educational system lack the talents and skills essential to compete on the global, regional, and local job markets. DLP aspires to improve the quality of education in Kenya by developing students who demonstrate and apply knowledge in response to social demands and ambitions.

Kenya's 2030 vision recognizes that some of its objectives are contingent on the availability and usage of computers in classrooms. Every child has the right to a basic education under the Basic Education Act 2013. According to Geoffrey et al. (2017), Kenya's educational and training system is comprised of the following components: (1) pre-primary education; (2) primary education; (3) secondary school; and (4) intermediate-level elementary schools. This is why the system is designed to enable students of various abilities to progress sequentially and at their own pace.the learner's physical, mental, and intellectual capacities, as well as the resources that are available to him or her Planned laptop distribution to schools will aid Kenya in achieving Vision 2030, which seeks to provide Kenyans with a new industrialized nation's lifestyle. Mitchelle asserts that procurement procedures, financial constraints, and instructor competency all influenced laptop deployment (2014) Additionally, the study proposes that the Ministry of Education develop a policy framework outlining the metrics for each elementary school's laptop project execution.

2.7 Knowledge Gap

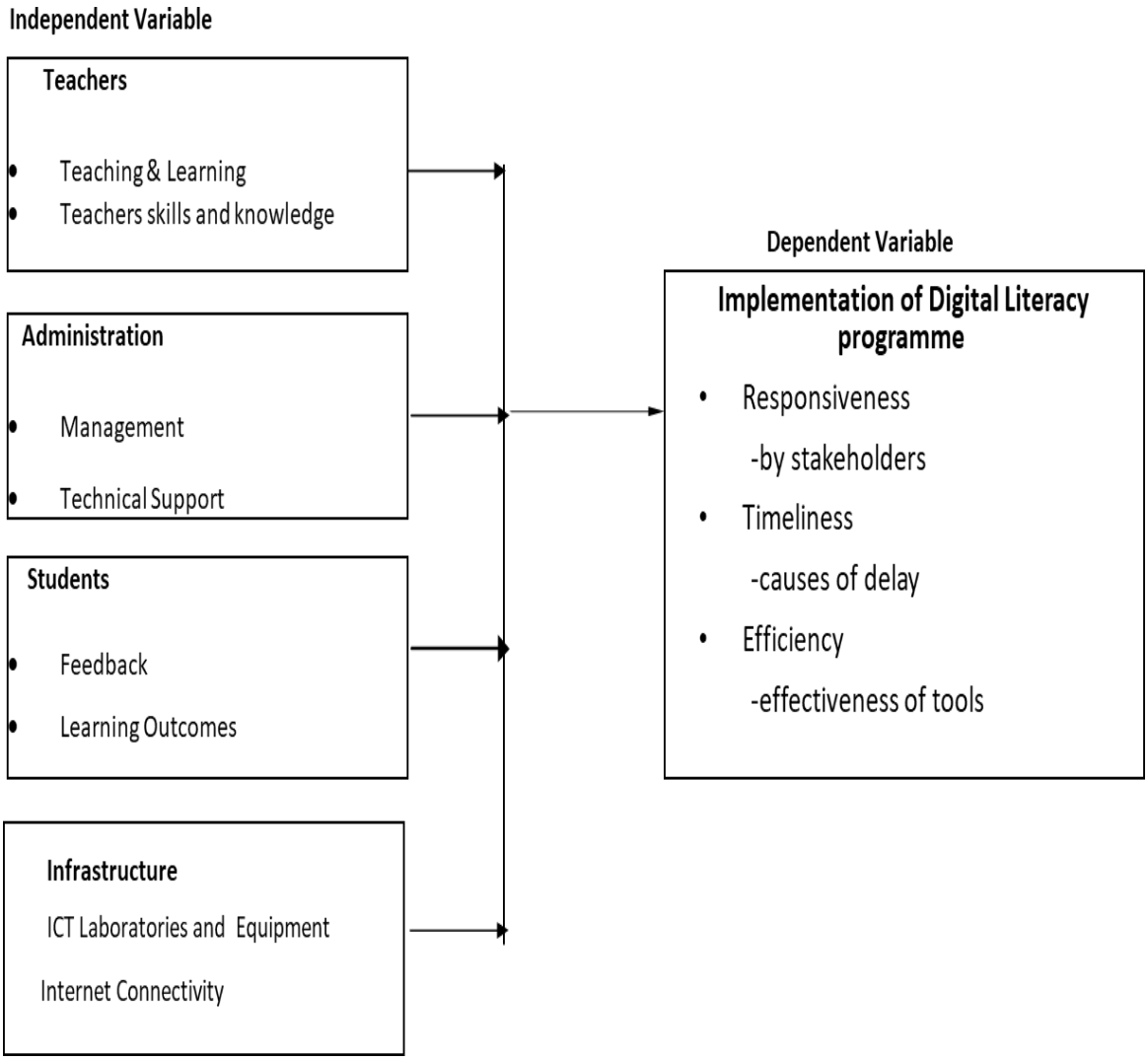
Table 1: Knowledge gap

Study	Findings	Gap
Uwezo Kenya for 2012	A survey report titled: 'Are our children learning? Annual Assessment Report' by Uwezo Kenya for 2012, notes that there is at least one computer out of 10 schools in Kenya and only five out of the ten use them for learning purposes.	No specific focus on DLP Purely based on perceptions
Komba and Kira (2013)	Students from the old education system didn't exhibit skills and competencies to fully address the needs in the global job market internationally, regionally and locally.	No specific focus on school laptop project Did not interview all education stakeholders
MOEST, 2012	Many public primary schools have received computer equipment yet only a small fraction is efficient with the basic ICT skills necessary for learning.	No specific focus on CBC. Did not consider other factors affecting implementation

2.8 Conceptual Framework

The success of technology supported learning is influenced by the education stakeholders in the school setup. A learning environment in a school involve teachers, connected to several students in a well- define physical setting forming a system of inter-related factors jointly affecting learning. In the school setting, teachers and students primarily interact with the content and curriculum subjects. The school setting is organized to ensure teachers deliver curriculum content through pedagogical practices. The teachers set the content, defining the lesson objectives and the instructional strategy. With technology- supported learning, the teacher utilizes a computer strategy as a delivery mode in the classroom setup. The critical Success Factors in the technology-based system is evaluated through a feedback process. Evaluation is essential in objectives attainment, allowing for revision of the instruction process. According to Haggins (2012), when computer technology is utilized in the school system, there are positive effects on the learning and teaching process.

Figure 1: Conceptual Framework



2.9 Summary of Literature Review

This chapter focuses on technology supported learning in public schools to determine the critical success factors that impact technology and education. The schools should constantly leverage benefits made available by technological innovations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the study's methodology. You will get an understanding of the research' design, demographics, sample size, and sampling procedures. You will learn about the validity and reliability of research instruments, data collection and analysis methods, and much more.

3.2 Research Design

The study will include a descriptive research survey. According to Vyhmeister (2018), descriptive design demonstrates reality by compiling extensive and accurate factual information about a particular incident at a particular time. The purpose of descriptive research is to characterize the conditions (2016) According to (Ormrod, 2017), descriptive research enables users to make generalizations about a whole population based on sampling data if and only if the sample reflects the community accurately. The research approach entails questioning respondents about their talents and attitudes, as well as their knowledge and understanding of the digital learning program's architecture. This research approach is appropriate for data collection from study participants via observation, interviews, and questionnaires.

3.3 Target Population

A group of people, events, and objects that all have something in common (Orodho, 2003). As a result, a population of parameters will be evaluated. Educators from the County of Nairobi participated in this study. The research focused mostly on public school students and instructors. Teachers and school workers in Nairobi County's primary schools Nairobi County's public elementary schools are anticipated to total 216. (Nairobi County Government, 2014).

3.4 Sampling Procedure

A sample is utilized to obtain information about the complete population. As the name indicates, the objective is to estimate unknown population characteristics. It is a methodological technique in which a large number of persons are chosen for study in order to reflect the larger population from which they were chosen. Throughout the sampling process, a range of variables are considered, including the organization's structure and objectives, its complexity, time constraints, and existing research on the subject.

The study employed a technique known as targeted sampling. A sampling technique is the process by which a researcher selects a sample based on the group's experience or expertise. (Maina, 2012) uses the term "purpose sampling" to refer to the process by which researchers select instances that include the essential information in connection to the study's objectives. A elementary school with a computerized curriculum was chosen for the study. Three students and three school administrators were randomly chosen from each of the six public elementary schools. Following that, instructors were asked to submit questionnaires. To determine the sample size, 2209 students from 19 schools were recruited.

We use Slovins formula.

Where:

n = sample size

N = population size

e = margin of error 10%

n= 2209/ (1+2209(0.10) = 95.669 Sample size for the study.

The study surveyed 134 individuals from Nairobi County's Westlands and Langata constituencies. Each school had one staff member, five pupils, and one administrator. The 19 public primary schools included in the study were chosen using a deliberate test procedure due to their various locations across Nairobi County's two districts. The middle-income regions of Nairobi were chosen because they have a low rate of power outages, a low rate of computer literacy, and are located inside the city. Teachers from all 19 public primary schools that employ digital learning in their classrooms were chosen using the purposeful sampling approach.

Table 2: Target Population

Unit	**Number**
Nairobi County Public Primary Schools	216
Students in Nairobi County Public Primary Schools	201, 078
Students in grade 4 Nairobi County Public Primary Schools	2209

Table 3: Sample Population

Unit	Number
Teachers	19
Pupils	96
School admins	19
Total	134

3.5 Methods of Data Collection

A semi-structured survey and an interview guide were used in the study. The questionnaire initially sought demographic information, followed by a request for digital learning. Both the teacher and the office administration received the questionnaire. Teacher assistants will assist students and school administration in disseminating questionnaires.

3.5.1 Methods of Data Collection

Data collecting approaches include participant interviews and web-based surveys. Following the receipt of a letter from the institution. Additionally, a letter of introduction will be included in the application bundle. The researcher will conduct surveys to establish rapport with the respondents. The observation checklist will be completed as soon as a school representative visit the campus to conduct student interviews and assess the information technology infrastructure.

3.6 Validity of Study Instruments

It is the relevance and accuracy of Mugenda's study results (2013) A thing, measure, or instrument is legitimate if it measures or performs as intended. A pilot study will be conducted to ascertain the study instruments' validity. Three public schools in Nairobi County have been chosen for examination. If the intended variables are not measured, instruments are rejected or replaced.

3.6.1 Reliability of Study Instruments

Dependability refers to the degree to which a study instrument consistently provides data or conclusions after repeated trials (Mugenda and Mugenda, 2003). The dependability of the results is contingent upon the clarity of the data collection procedures utilized. As part of the pre-testing phase, the instruments will be evaluated at three Nairobi County schools. The pilot study responses will be analyzed to determine the information's relevancy, consistency, and omission.

More so the study used the Cronbach's alpha (α) formula to test the reliability of the items, that is α=k/k-1*(1-Σ(s2)/ Σs2sum), whereby α= Cronbanch's alpha, k= Number of responses, Σs2sum=variance of summed up scores and Σ(s2)= Variance of individual items summed up. Below, for conceptual purposes, the formula for the standardized Cronbach's alpha:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Thus N is equal to the number of items, c-bar is the average inter-item covariance among the items and v-bar equals the average variance. The test of internal consistency that is 0.986 was reliable (Katou, 2008; Cronbanch's, 1951; Ritter, 2010) for purpose of this study.

3.6.7 Data Analysis Techniques

Quantitative and qualitative research methods will be used to analyze the data. The responses to each question are classified and organized in accordance with the study's objectives and questions. For the purpose of evaluating demographic data, descriptive statistics such as percentages, averages, and frequency must be employed. SPSS may be used to examine coded items, and regression analysis can be used to identify the main factors that contribute to technology-assisted learning. A regression Model was used

in order to measure the direction and size of the effect of independent variable on a dependent variable (Neuman, 2006). These is represented as $Yi=\beta i+\beta 1X1i+\beta 2X2i+\beta 3X3i+\beta 4X4i+\mu i$. The Y value represents the output that is Implementation of the Digital Learning Program, the $\beta 1X1i$, $\beta 2X2i$, $\beta 3X3i$, $\beta 4X4i$, represents the coefficients values of the independent variables of teachers Capacity skills and knowledge in the Digital Learning Programme, Administration and Technical Support, Student Participation and Learning Outcome and Infrastructure and the Digital Learning Program.

3.7 Ethical Considerations

The study will be voluntary and obtained results will be referred to anonymously with no intention to harm the respondents (Babbie, 2010). The students under Digital Learning Programme will be given assent forms to be signed by the guardians while other stakeholders will be given consent form. Personal information such as age of the respondents will not be recorded on the questionnaires sheets and information recorded by a tape recorder will be scrambled using voice scrambling techniques. A participant is free to withdraw from the study. The study will be funded with assistance from the government and the University of Nairobi.

3.8 Summary

This study will be employing a descriptive design and a case study to understand phenomenon under study. A case study methodology will allow studying of evolution of Digital Learning Programme supported learning in a school set-up.

CHAPTER FOUR

PRESENTATION, DATA ANALYSIS AND INTERPRETATION

4.0 Introduction

Throughout the chapter, data presentation, interpretation of data and study analysis of success criteria are discussed. The results of the analysis were in line with the study's objectives.

4.1 Presentation of Findings

This section summarizes the study's findings in relation to the research goals.

Table 4.1: Response Rate

On average, 95 respondents responded to their surveys out of a total sample size of 134, yielding a statistically significant response rate of 70.895 percent for generalization. As a result, we've compiled a list of our results.

Table 4: Response rate

Category	Target Respondents	Response	Response Rate (%)
Respondents	134	95	70.895
Total	134	95	70.895

In Visser, Krosnick, Marquette, and Curtin (1997), surveys with a lower response rate about 20% exhibited more reliable measures than surveys with a higher response rate near 60 or 70 percent . contrasted the 5-day Pew Research Center survey (with a response rate of 25%) to a more comprehensive survey conducted over a lengthy field period and achieving an astounding 50percentage response rate (2006). Despite this,

Numerous contemporary research initiatives need higher response rates, as missing data is not random. There is no acceptable statistical approach for missing data, which is not necessarily random. One strategy for dealing with low survey response rates is to assume that participants have several biases. It is better to have a small, random sample (>80%) with a high response rate than a large sample with a low reaction rate. Due to the high response rate of 70.895 percent, the data collected in the field is sufficient to meet the study goals. As a result, the study was sufficiently represented, and the data may be used to generalize the investigation's findings.
The study's findings, analyses, interpretations, conclusions, and recommendations are all based on the aforementioned data.

4.1.1 Reliability Test.

Cronbach's Alpha test on profitable possibilities yielded a score of 0.720, as shown in the figure below. At 0.8 or more, the Lewis scales are trustworthy. The profitability variable used in this study was determined to be internally consistent and trustworthy for analysis and generalization.

Table 5: Reliability Statistics

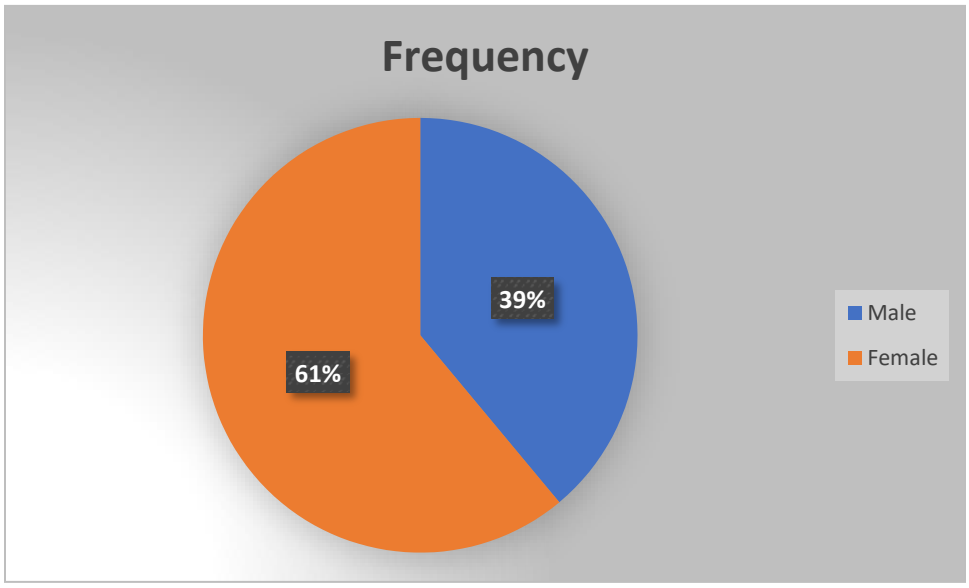
Cronbach's Alpha	N of Items
.986	35

According to the study, Cronbach alpha values for variables in this dataset are greater than the least permissible level, i.e. greater than 0.80. The accompanying table indicates that 0.986 is more than 0.80, indicating that the data set pieces have a high degree of internal consistency.Demographic Characteristics of the Respondents The research evaluated the instructors' and other administrative staff's demographic characteristics in the following areas: age, gender, and degree of education, as shown in this section:

4.2.1. Distribution of Respondents by Gender:

The investigation also tried to establish the makeup of the respondents' gender. The following statistics reveals that 61,1 percent of total respondents are female respondents, whereas 38,9 percent are male respondents.

Figure 2: Gender Distribution

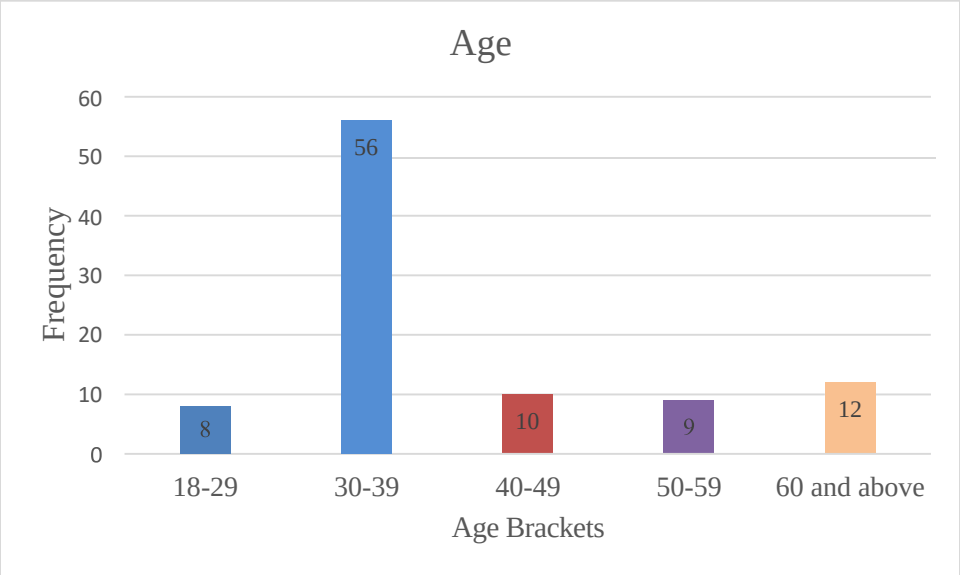


Source: Research Data 2020

4.2.2 Distribution of Respondents by Age

Respondents were requested to indicate their age in years. The stance of the instructor towards digital literacy material depends on the age of the teacher and so age analysis is crucial.

Figure 3: Distribution of Respondents by Age



Source: Research Data 2020

The majority of teachers (58.9 percent) were between the ages of 30 and 39, followed by those aged 60 and above (12.6 percent), 40-49 years (10.5 percent), 50-59 years (9.5 percent), and 18-29 years (8.4 percent). As a result, the bulk of replies come from young individuals interested in developing their digital literacy. The research topic is authentic, and based on the information provided by these individuals, it may also be utilized to establish major success factors for the implementation of Digital Literacy programs in Kenyan Public Schools.

4.2.3 Distribution of Respondents by Education

According to the respondents' educational credentials, they were either competent primary school teachers or trustworthy sources of information about this study. As a result, we have compiled a list of our results.

Table 6: Distribution of Respondents by Education

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	P1/Diploma	73	76.8	76.8	76.8
	Degree	22	23.2	23.2	100.0
	Total	95	100.0	100.0	

Source: Research Data 2020

The results in the table above indicate that the teachers who had P1 qualification or Diploma were the majority at 76.8%, followed by those with degree who were 23.2%. This shows that the teachers had attained the minimum qualification of a primary school teacher which is P1 certificate. Effective implementation of Digital Literacy Programs requires qualified teachers, and this could assist them to successfully implement digital literacy programme.

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4.2 Teachers Capacity skills and knowledge in the Digital Learning Programme.

The study sought to establish the teacher's capacity skills and knowledge in the digital learning programme. This is important to this study as teachers with capacity skills and knowledge of digital learning will make the adoption of the programme successful. The results are as shown below.

Table 7: Capacity skills and Knowledge

Factors	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	F (%)	F (%)	F (%)	F (%)	F (%)
Teachers are properly trained in the basic IT skills	20 (21.1)	34 (35.8)	5 (5.3)	20 (21)	16 (17)
Do you think teacher's capacity determines the success of the DLP in the school	45 (47.4)	30 (31.6)	4 (4.2)	11 (12)	5 (5.3)
Majority of the teachers are equipped with the IT curriculum recommended by the DLP Programme.	9 (9.5)	17 (17.9)	19 (20)	43 (45)	7 (7.4)
Do you have enough teachers in your school with the basic IT skills and knowledge	17 (17.9)	38 (40)	8 (8.4)	18 (19)	14 (15)
Digital Learning Program is useful and enhances my effectiveness when teaching.	37(38.9)	23(24.2)	15(16)	14(15)	6 (6.3)
Senior Digital Literacy officials have been very helpful in the adoption of Digital Learning.	14(14.7)	16(16.8)	24(25)	31(33)	10 (11)

Source: Research Data 2020

According to Table 1, educators have received enough training in core IT skills. According to 35.9 percent of respondents, teachers are well-trained in core IT skills, with 21.1 percent strongly agreeing. 21% of respondents disagreed and 17% strongly disagreed that teachers received enough training in core IT skills, compared to 5.3 percent who agreed. As more respondents believe that instructors are properly trained in core IT skills, establishing digital literacy programs in Kenya's government schools should be simplified. Additionally, the study evaluated if the instructors' talents had an effect on the DLP's efficacy in schools. 48.4 percent of respondents in the preceding table strongly agreed, followed by 31.65 percent who believed that teacher competency had an effect on the efficacy of DLP in the classroom. Although 13% of respondents strongly disagreed that teacher ability has an effect on DLP performance in school, 5.3 percent expressed reservations and the remaining 4.2 percent expressed uncertainty.

Around 45 percent of respondents indicated that the majority of instructors used the DLP-recommended IT courses, whereas 20% were unsure, 17.9 percent agreed, 9.5 percent strongly agreed, and 7.4 percent strongly disagreed. A second aspect to consider was whether schools had sufficient IT teachers. Over half (40%) of respondents agreed; 19% disagreed, and 17.9 percent strongly agreed.15% of individuals surveyed stated they

were adamantly opposed, while 8.4% expressed uncertainty.

The scientist inquired as to whether the responders (teachers) had received personalized instruction on their laptop project. 51.6 percent agreed strongly, 36.8 percent agreed, and 9.5 percent disputed that they were instructed personally by the Laptop Project. As a result, numerous teachers for the laptop project have been trained, which should improve the project's implementation. A majority of 38.9 percent strongly agree that the Digital Learning program is helpful and improves teaching efficiency, followed by 24.2 percent who believe the program is beneficial and improves teaching efficiency. Is the digital learning program beneficial to and effective in enhancing my teaching? 16 percent of respondents expressed uncertainty, while 155 percent and 6.3 percent respectively expressed disagreement.

The study's second goal was to ascertain if senior digital literacy officers aided in the implementation of digital learning. 33% were opposed to the notion of senior digital literacy authorities supporting digital learning, 25% were undecided, 16% agreed, 14% strongly agreed, and 11% strongly disagreed. Regrettably, the program's implementation is highly dependent on the cooperation of leading digital literacy authorities. According to Peralta and Costa (2007), the use of ICTs in education in Italy is highly dependent on the instructor's technical knowledge. Computer teaching abilities were in high demand in Portugal. More experienced teachers stressed the need of ICT integration more than new professionals.

Prior educators were at a disadvantage. According to responses, a skilled ICT instructor guarantees that school-based ICT instruments are maintained. This results in enhanced workplace safety, lower production costs, and higher product quality.

4.4. Administration and Technical Support

The study sought to establish the role of the school administration in the Digital Learning programme. This is important as it would indicate the management and technical support accorded to the success of the DLP programme.

Table 8: Administration and Technical Support

Factors	**Strongly** Agree	**Agree**	**Neutral**	**Disagree**	**Strongly** Disagree
Administrative staff are properly trained in the IT skills	7.4	12.6	10.5	45.3	24.2
The software associated with the project is too expensive to maintain	28.4	22.1	31.6	12.6	5.3
The laptops recommended for the project are too expensive	0	2.1	33.7	51.6	12.6
Have you personally been trained under supervision of instruction for the Digital Learning Program	1.1	7.4	16.8	57.9	16.8
The cost associated with repairing and servicing the laptops is high	49.5	24.2	0	26.3	0
Do you think DLP equipment capacity determines its success	47.4	29.5	3.2	14.7	5.3
Senior Digital Literacy officials have been very helpful in the adoption of Digital Learning.	7.4	20	34.7	29.5	8.4

Majority of the students are equipped with the IT equipment recommended by the Digital Learning Program	15.8	20	27.4	30.5	6.3

Source: Research Data 2020

To determine if administrative personnel is trained successfully in IT, the study assessed administrative staff's IT competencies. The majority of responders (45.3 percent) disagreed with this assertion.

Administrative information technology training is adequate. 24.2 percent of respondents strongly agreed, 12.6 percent disagreed, 10.5 percent were unsure, and 7.4 percent strongly agreed. Table 1 indicates that, based on the facts, the program is financially unsustainable. 28.4 percent strongly agreed that the program is too expensive to sustain, 22.1 percent agreed, 12.6 percent disagreed, and 5.3 percent strongly disagreed. While there is widespread ambiguity regarding the software's maintenance capabilities, a sizable majority of those who remain believe that it is prohibitively expensive to maintain, preventing the DLP from being widely installed in primary schools.

Along with software, the laptops used for the project were deemed expensive. Overall, 51.6 percent of respondents disagreed, 33.7% disagreed, 12.6% disagreed strongly, and the remaining 2.1 percent agreed. 57.9 percent disagreed, 16.8 percent strongly disagreed, and a similar proportion were indifferent, 7.45 percent agreed, and 1.1 percent strongly agreed. Difficulties arise when personnel is unable to offer healthcare to pupils. Additionally, the program's implementation in elementary schools is hindered.

Computer repair and maintenance costs were also included in this study. Only 24.2% of respondents disagreed. The majority (49.5 percent) of respondents strongly agreed.

Finally, 26.3 percent of respondents said that the cost of computer repairs and maintenance was prohibitively expensive. If the DLP is adopted in elementary schools, the widespread perception that it is too expensive may

act as a hindrance. If the capability of the DLP equipment has an effect on its success, respondents were questioned. 47,4 percent strongly agreed, 29,5 percent agreed, 14,7 percent disagreed, 5,3 percent strongly disagreed, and 3,2 percent disagreed. The study's second goal was to ascertain if senior digital literacy officers aided in the implementation of digital learning. According to Table 1, 34.7 percent of respondents were unsure, 29.5 percent disagreed with the proposition, 20 percent agreed, 8.4 percent strongly disagreed, and 7.45 percent strongly agreed. This is critical because it allows us to assess whether or not Senior Digital Literacy Authorities support the spread of digital learning. This survey was conducted to see if the majority of students had access to technology, as discussed in our previous section on administration and technical support. 30% disagreed with the Digital Learning Program's recommendation that the majority of children should have access to IT equipment. 27.4 percent of voters were unsure. According to the Digital Learning Program, the majority of students lack access to key IT equipment. As a result, it is critical for students to have access to the appropriate IT equipment in order to excel in the program.

4.5. Student Participation and Learning Outcome

This section sought to establish the attitudes of learners towards the use of DLP tools in their education. The leaners were asked questions regarding their role in use of DLP tools and the outcome from the same. This is important to the study since the Digital Learning programme targets ease of learning by students in public primary schools. The students were asked if they had resources necessary for digital learning in class.

Table 9: Student Participation and Learning Outcome

STATEMENTS	N	Mean	Std. Deviation
I have the resources necessary to use Digital Learning in class?	95	2.9158	1.18198
Are the resources required to facilitate the Digital Learning Program sufficient?	95	1.6842	.46730
Working using the devices is easy; it is easy to understand what is going on?	95	1.6842	.46730
Digital Learning improves my class performance?	95	1.5789	.49635
Digital Learning enables me to accomplish tasks more quickly?	95	1.6000	.49250
Teachers in my school who have adopted Digital Learning have a higher profile compared to those who do not?	95	2.2421	1.43063
I am able to get assistance whenever I face difficulties when using Digital Learning devices?	95	1.5895	.49454
Have you personally been trained under the Digital Learning Program?	95	1.5474	.50039
Valid N (listwise)	95		

Source: Research Data 2020

According to a mean score of 2.9158, students believe they have the resources necessary to apply Digital Learning in class, although they differ on the resources required for Digital Learning. Additionally, students argued that gadgets are simple to operate, as evidenced by a median score of 1,6842.

However, they all agreed, on average, that digital learning improves their class performance by allowing them to complete their work more quickly.

As demonstrated by an average score of 2,2421, many students believed that instructors who use digital learning had a higher profile than those who do not. On the other hand, some children said that they are adept

in school ministry, while others indicated that they had rudimentary computer skills.

Students were questioned about the difficulties they face when using digital learning in the classroom, including a lack of digital learning equipment, unreliable energy, and a shortage of teachers to train them.

4.6. Infrastructure and the Digital Learning Program

Infrastructure is crucial to implementation in public primary schools of the digital learning program. The research attempted to determine the infrastructure preparation to implement the digital learning program successfully. The findings are given in the following table.

Table 10: Infrastructure and the Digital Learning Program

Descriptive Statistics			
	N	Mean	Std. Deviation
Lack of proper IT infrastructure slackens the DLP project	95	2.5579	1.54173
The school lacks an ICT Laboratory and equipment to run the DLP project	95	2.3053	1.43715
Frequent power interruptions in the area affect the DLP project	95	2.8105	1.53189

The school lacks internet connectivity and cannot support the DLP project	95	2.1579	1.36301
Valid N (listwise)	95		

Source: Research Data 2020

The results indicate that respondents agreed that a lack of adequate IT infrastructure slows down the DLP project by a mean of 2.5579, that the school lacks an ICT laboratory, and that the school lacks the necessary equipment to operate the DLP project by a mean of 2.3053. The respondents agreed that frequent power outages in the region have an adverse effect on the DLP project, as shown by a mean of 2.8105, and that the school lacks internet access and hence cannot assist the DLP project, as indicated by a mean of 2.1579. These findings corroborate Warschauer's (2010) contention that one of the most critical ICT infrastructure components for successful ICT integration in schools is energy availability. Further, when asked whether they believe their school's infrastructure is suitable for ICT integration, the majority of respondents answered that they had only one computer lab that is not adequately prepared for ICT integration. Other responders, on the other hand, claimed that they created impromptu computer laboratories by reorganizing one of the classes. These findings corroborate Warschauer's (2010) argument that one of the most critical ICT infrastructure components for successful ICT integration in rural schools is access to power. Further, when asked whether they believe their school's infrastructure is suitable for ICT integration, the majority of respondents answered that they had only one computer lab that is not adequately prepared for ICT integration. Other responders, on the other hand, claimed that they created impromptu computer laboratories by reorganizing one of the classes. However, according to the majority of respondents, the scarcity of computers has made ICT integration a nightmare in the majority of schools in Baringo County.

4.7. Implementation of the Digital Learning Program

The survey intended to ascertain respondents' perceptions on the digital learning program's implementation. As such, respondents were asked the identical questions, and the findings are summarized in the table below.

Table 11: Implementation of the Digital Learning Program

	Yes	**No**
Do you think you have enough effective tools to facilitate the Digital Learning program?	38	57
If No, do you think the project is smoothly on course?	38	57
Is the DLP easily delivered by stakeholders?	28	67
If Yes, do you consider the Digital Learning program a success?	28	67
In your view, do you feel the implementation of the DLP project was rushed?	56	39

Source: Research Data 2020

The respondents were asked to comment on whether there is enough effective tools for the Digital Learning Programme where majority 57, agreed, while 38 disagreed on the same statement. This implies therefore that there are not enough effective tools for the Digital Learning Programme, and this means that the project cannot run smoothly as they also stated. When asked whether the DLP easily delivered by stakeholders, majority of the respondents, 67, disagreed while the remaining 28 agreed to the same, and hence, the Digital Learning Programme is not considered a success yet. Lastly, a majority of the respondents 56, agreed that the implementation of the Digital Learning Program was rushed, while 39 think it wasn't rushed.

Inferential Statistics.

Multiple regression analyses were used in inferential analysis to determine the link between the independent and dependent variables. The factor is a quantitative measure. The model's predictive ability was determined. The model is summarized in the table below.

Table 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.929[a]	.864	.858	.18552	.864	150.586	4	95	.000

a. Predictors: (Constant), four, three, two, one

The adjusted R squared is coefficient of determination which shoes the variation in the dependent variable due to changes in the independent variables. In this case, the findings in the above table show that value of the adjusted R to be 0.858 indicating that there was a variation of 85.8% on the implementation of the digital literacy program in Nairobi County due to changes in Teachers Capacity skills and knowledge in the Digital Learning Programme, Administration and Technical Support, Student Participation and Learning Outcome and Infrastructure and the Digital Learning Program.

Table 13: Analysis of Variance(ANOVA)a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.730	4	5.183	150.586	.000b
	Residual	3.270	95	.034		
	Total	24.000	99			

a. Dependent Variable: five

b. Predictors: (Constant), four, three, two, one

The probability value of 0.00 indicates the regression relationship was highly significant in predicting how the Teachers Capacity skills and knowledge in the Digital Learning Programme, Administration and Technical Support, Student Participation and Learning Outcome and Infrastructure and the Digital Learning Program affected the implementation of digital literacy programme in public primary schools in Nairobi County. The F ration calculated at 5% level of significance was 150.586, and since the F

Calculated in greater than F-Critical (Value=2.4729), this shows that the overall model was significant and hence acceptable.

Table 14: Table Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.272	.066		4.120	.000	.141	.403
	Teachers Capacity	-.143	.059	-.393	-2.438	.017	-.259	-.027
	Admin and Tech. support	.234	.044	.623	5.345	.000	.147	.321
	Student participation	.579	.072	.588	8.013	.000	.435	.722
	Infrastructure and DLP	.039	.049	.118	.800	.426	-.058	.136
a. Dependent Variable: five								

The regression equation obtained from this outcome therefore was:

$$Y=0.272-0.143X_{\mathbf{1}}+0.234X_{\mathbf{2}}+0.579X_{\mathbf{3}}+0.039X_{\mathbf{4}}$$

The study's findings indicate that if all independent variables were adjusted to 0, a digital literacy program in Nairobi County public elementary schools would be implemented at a rate of 0.727. The ability and knowledge of teachers decreased by –0.143 for each unit change throughout the execution of the digital literacy program, which is significant since the p-value=0.017 is less than 0.05. The introduction of a digital literacy program in Nairobi County's public elementary schools will result in an increase of 0.234 administrative and technical support units.

The study demonstrates that using a digital learning program in public primary schools in Nairobi County will increase student involvement and learning performance by 0.579 units for every unit change. The variable is significant at a P value of 0.00, which is less than 0.05. According to the study's findings, the Infrastructure and Digital Learning Program would result in a 0.39 unit increase in digital training in Nairobi County's public elementary schools. Despite the fact that the p-value of 0.426 was larger than 0.05, it was not significant.

On the basis of these findings, it can be concluded that student involvement and learning outcomes had the greatest impact on the Digital Learning Programme's implementation in Nairobi County. Learning and knowledge skills have a harmful influence on the implementation of digital learning in Nairobi County's public elementary schools and may thus be deleted from the program. The revised equation for implementation is as follows:

$$Y=0.272+0.234X_{\mathbf{2}}+0.579X_{\mathbf{3}}+0.039X_{\mathbf{4}}$$

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This part of the research summarizes significant results, discussions based on the findings and suggestions. The results and recommendations concentrate on resolving the research topic and the goal of the study.

5.2 Summary of the study.

A digital literacy program was being introduced in Nairobi's public schools, and the study sought to uncover critical success factors. Kenya: The research had the following objectives: We're interested in learning how Kenyan elementary school teachers are enhancing their digital literacy programs. Additionally, we're interested in learning how school administration promotes digital literacy, the function and advantages of digital literature, and the impact of curricular material on the digital literacy program. By doing descriptive survey research, it is possible to correlate data from respondents without jeopardizing their identity, which was critical in this investigation. 95 participants were selected using simple random selection. Questionnaires were used to collect data, analyze it, and present it in the form of frequencies and percentages. DLP studies have been conducted, and the majority of responses appear to be young individuals interested in the therapy. Each variable is summarized below:

5.2.1 Teachers Capacity skills and knowledge in the Digital Learning Programme.

The study wanted to discover how instructors in Nairobi County's public elementary schools are promoting digital literacy in order to provide recommendations for improvement. Primary school instructors appear to have a firm grasp of the fundamentals. Along with digital literacy training, the majority of primary school instructors possess computer skills and knowledge. According to the study, teacher training in core IT skills is insufficient to meet DLP requirements.

5.2.2 Administration and Technical Support

The research spent two-thirds of its time identifying the role of school administration in the development of literacy. The researchers revealed that administrative staff is under-trained in basic information technology capabilities. Regardless of the DLP device capabilities that affect the efficacy of DLP deployment, the study found that the software used was costly, as were the laptops that needed to be maintained and repaired. According to researchers, senior officials are not doing enough to assist them.

5.2.3 Student Participation and Learning Outcome

The study wanted to understand the purpose of the DLP and what the children might eventually contribute. Student resources are accessible but insufficient for the DLP project. According to the study's findings, kids in public primary schools that participate in a digital learning program do better. Additionally, the study found that students viewed instructors who used DLP more successfully as more effective.

5.2.4 Infrastructure and the Digital Learning Program

Additionally, researchers aimed to determine how curricular materials affected the digital literacy program in Nairobi, Kenya. The findings indicate that a lack of IT infrastructure impedes the progress of the digital learning program. Additionally, it has been demonstrated that the DLP program requires an ICT laboratory and associated equipment. Additionally, it has been demonstrated that frequent power outages and a lack of internet connection have an effect on the DLP in schools.

5.3 Conclusion

This study concluded that the infrastructural alertness influences enactment of the Digital Learning Program in public primary schools in Nairobi County significantly. In spite of the school having IT resources, it was proven that they are not enough. The implementation of the Digital Literacy Program has been delayed by inadequate internet connections and unstable power supplies coupled with inadequate digital literacy program devices for teaching and learning in the schools.

The study further concluded that the teacher's competence has significantly affected implementation of Digital Literacy program in public primary schools in Nairobi County. It was evident that teachers have basic IT skills and knowledge as many of them are trained on digital literacy. This could help a long way in the implementation of the digital literacy program.

Lastly, the study concluded that lack of infrastructure derails the implementation of the Digital Learning Program and that lack ICT laboratory and equipment's slags the implementation of Digital Literacy Program in public primary schools in Nairobi County.

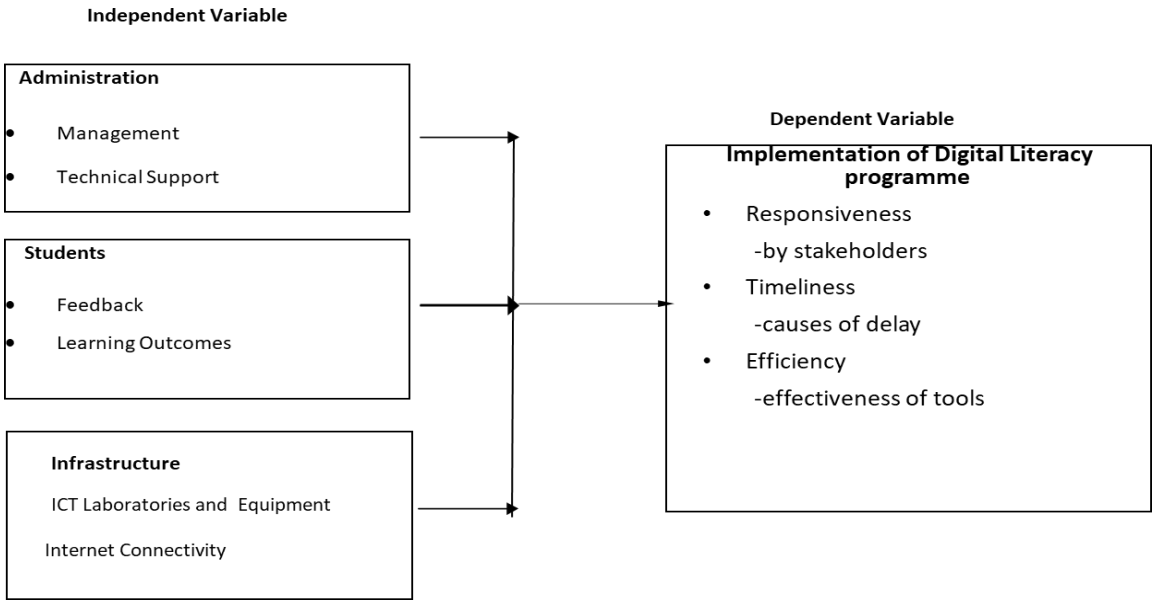
5.3 Conceptual Framework

A study of public elementary schools in Nairobi County discovered that infrastructural preparedness had a significant influence on the program's execution. While IT resources are available, they are deemed inadequate. The Digital Literacy Program's implementation was hampered by insufficient Internet connections and intermittent energy, as well as a scarcity of digital teaching and learning tools in schools.

According to the study's findings, teacher competency was critical in executing the digital literacy program in Nairobi County's public elementary schools. Numerous teachers have basic IT skills and knowledge as a result of their digital literacy training. This may be a significant addition to the program's implementation.

Additionally, there is no ICT laboratory or equipment in Nairobi County's public primary schools, which precludes the execution of the Digital Literacy Program.

Figure 4: Conceptual Framework



5.4 Recommendations

a) To assist public elementary schools in establishing connections to trustworthy Internet services, the county or national government should provide support in the context of the research. With an internet connection, schools will have access to critical information and materials that will help assure the success of the Digital Learning Program's implementation.

b) Public elementary schools should be encouraged to establish computer laboratories with adequate resources for teachers and students that are completely consistent with the study findings. Thus, the Digital Learning Program's implementation will be facilitated.

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APPENDICES

Appendix II: Letter of Introduction University of Nairobi

P. O Box 30197-00100,

Nairobi.

Dear respondent, Re: Research.

I am a student at the above-named university undertaking a Master of Information Technology Management Project. As a requirement for this course, the university expects me to submit a researched project as a partial fulfillment for the award of the degree.

To fulfill this requirement, I have decided to carry out a study on Critical Success Factors to the Implementation of Digital Literacy Programme in Public Schools in Kenya: A Case Study of Nairobi County

I kindly request you to fill in the questionnaire attached. The information provided will be used with confidentiality and will only be used for the intended purpose of this study.

As you participate in this study, do not indicate your name. I highly appreciate your participation towards the success of this study. Thanking you well in advance for your kind participation.

Yours Faithfully,

Margaret Waithera Wairumbi

P54/6577/2017

Appendix II: Questionnaire

Section A: Background information

Please insert/tick (√) details or circle the appropriate category for you.

1. Sex:

Male	
Female	

2. Age:

18- 29 yrs	
30-39	
40-49	
50-59	
60+	

3. Your highest qualification:

P1	
Diploma	
Degree	
Other	

4. Number of years you have served in your current position.

Less than 2 yrs	
2-4 yrs	
4-6 yrs	
Over 6 yrs	

Section B: Teachers Capacity skills and knowledge in the Digital Learning Programme.

5. Please react to the statements about teaching skills and knowledge by indicating whether you strongly agree, Agree, Disagree or strongly disagree. Please tick (√) against each statement your best opinion.

Factors	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Teachers are properly trained in the basic IT skills					
Do you think teacher's capacity determines the success of the DLP in the school					
Majority of the teachers are equipped with the IT curriculum recommended by the DLP Programme					
Do you have enough teachers in your school with the basic IT skills and knowledge					
Have you personally been trained under supervision of instruction for the laptop project					
Digital Learning Program is useful and enhances my effectiveness when teaching.					
Senior Digital Literacy officials have					

been very helpful in the adoption of Digital Learning.					

Section C: Administration and Technical Support

6. Please react to the statements by indicating whether you strongly agree, Agree, Disagree or strongly disagree with the following factors?

Factors	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Administrative staff are properly trained in the IT skills					
The software associated with the project is too expensive to maintain					
The laptops recommended for the project are too expensive					
Have you personally been trained under supervision of instruction for the Digital Learning Program					

The cost associated with repairing and servicing the laptops is high					
Do you think DLP equipment capacity determines its success					
Senior Digital Literacy officials have been very helpful in the adoption of Digital Learning.					
Majority of the students are equipped with the IT equipment recommended by the Digital Learning Program					

Section D: Student Participation and Learning Outcome

7. I have the resources necessary to use Digital Learning in class? Yes [ ] No [ ]

8. Are the resources required to facilitate the Digital Learning Program sufficient? Yes [ ] No [ ]

9. Working using the devices is easy; it is easy to understand what is going on? Yes [ ] No [ ]

10. Digital Learning improves my class performance? Yes [ ] No [ ]

11. Digital Learning enables me to accomplish tasks more quickly?

    Yes [ ] No [ ]

12. Teachers in my school who have adopted Digital Learning have a higher profile compared to those who do not? Yes [ ] No [ ]

13. I am able to get assistance whenever I face difficulties when using Digital Learning devices? Yes [ ] No [ ]

14. What challenges do you face when using Digital Learning in class?

    _____

15. Have you personally been trained under the Digital Learning Program?

    Yes [ ] No [ ]

16. If yes, what were the key areas of competency?

Comment	(Tick)
Basic IT skills	
Basic computer knowledge	
Ministry IT curriculum	
Advanced computer training	
Other:	

Section E: Infrastructure and the Digital Learning Program

17. Please react to the statements by indicating whether you strongly agree, Agree, Disagree or strongly disagree with the following factors?

Factors	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Lack of proper IT infrastructure slackens the DLP project					
The school lacks an ICT Laboratory and equipment to run the DLP project					
Frequent power interruptions in the area affect the DLP project					

The school lacks internet connectivity and cannot support the DLP project					
Frequent power surge and power outs impair the DLP program					

Section F: Implementation of the Digital Learning Program

18. Do you think you have enough facilities for the Digital Learning program?

Yes [ ] No [ ]

19. If No, do you think the project is smoothly on course?

Yes [ ] No [ ]

20. Is the IT curriculum easily delivered or taught to all the pupils?

Yes [ ] No [ ]

21. If Yes, do you consider the Digital Learning program a success?

Yes [ ] No [ ]

22. In your view, do you feel the implementation of the DLP project was rushed? Yes [ ] No [ ]

23. On a scale of 1-5, kindly rate the implementation of the Digital Learning Program.

Factor	**Tick**
1.Perfect	
2.Good	
3.Average	
4. Poor	
5.Very poor	

Thank you for completing this questionnaire. Your participation is very much appreciated.