

**ASSESSING THE USE OF TECHNOLOGICAL APPLICATIONS TO
PROMOTE ENGLISH LANGUAGE LEARNING IN UPPER
PRIMARY SCHOOLS IN KITUI COUNTY**

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DECLARATION AND APPROVAL

Declaration by the Student

This thesis is my original work and has not been presented for a degree in any other University or for any other award.

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DEDICATION

I dedicate this thesis to my beloved siblings; Lynn and Caleb and to the Almighty God with whom all things are possible.

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ABSTRACT

One of the core objectives of the new curriculum (CBC) in Kenya is helping children to be literate in their early years. Language skills are among the essential components of literacy achievement. Although this area is one of the greatest educational priorities, it is also one of the greatest challenges. Therefore, learners learning a new language need a great deal of language support. One of these supports is the integration of technological applications in the teaching and learning of English language. Hence, there is a dire need for studying the link between technological applications and English language teaching and learning in early years in Kenya. The objectives of the study were to: Examine how the use of Computer and Mobile Assisted language Learning Apps support the development of different English language skills in upper primary, evaluate the role of Computer and Mobile Assisted Language Learning Apps in English language teaching and learning in upper primary, Determine the learner's and teacher's attitudes towards the use of Computer and Mobile Assisted Language Learning as support for teaching and learning language skills and to establish the impacts of the use of Computer Assisted Language Learning (CALL) and Mobile Assisted language Learning (MALL) in upper primary schools. The study applied the socio-cultural theory as developed by Vygotsky. The study adopted a mixed research design involving quasi experimental research design and descriptive survey design. The study location was in Kyuso sub-county, Kitui County. The target population was primary school learners and teachers of English of these schools. A purposive sampling method was used to determine the sample size of the study. The sample sizes of the study were 80 learners and 72 teachers of English. The study utilized four instruments namely questionnaires for teachers, questionnaires for learners, pre and post assessment and observation schedules. Quantitative data of the study was analyzed through descriptive statistics and inferential statistics. Qualitative data was analyzed through content analysis. The findings of the study revealed that CALL and MALL Apps had a significant effect on English language learning. The findings show that pupils' performance in English language skills significantly improved after use of CALL and MALL Apps. The significant improvement is attributed to the fact that CALL and MALL devices expose pupils to the authentic materials which attract pupils' attention and increased the engagement level of pupils in classrooms hence leading to Collaborative Language Learning. Further, both teachers' and pupils' attitudes were generally positive toward the implementation of more technology in the classroom. The study therefore recommends that CALL and MALL should be integrated in English language curriculum which can facilitate learning. Further, English language teachers should be involved in modern technology courses and enough training periods should be provided for teachers to know how, when, and where to use these technologies in teaching language skills. This study adds knowledge to theory and practice of teaching Second Language Acquisition (SLA) and in Applied Linguistics. The study is also beneficial to teachers, pupils, and policymakers in education and government officials.

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ABBREVIATIONS

ASR:	Automatic Speech Recognition
CAI:	Computer-Assisted Instruction
CALL:	Computer-Assisted Language Learning
CBC:	Competency Based Curriculum
CMS:	Course Management Service
EL:	English Language
ELL:	English Language Learner
ELLs:	English Language Learners
ICT:	Information and Communication Technology
KICD:	Kenya Institute of Curriculum Development
MALL:	Mobile-Assisted Language Learning
MOE:	Ministry Of Education
MOEST:	Ministry of Education, Science and Technology
SAMR:	Substitution, Augmentation, Modification and Redefinition
SCT:	Sociocultural Theory
SLA:	Second Language Acquisition
SLL:	Second Language Learning
TBLT:	Task Based Language Teaching
TELLS:	Technology-Enhanced Language Learning
TPD:	Teacher Professional Development
TPACK:	Technological Pedagogical and Content Knowledge
TPK:	Technological Pedagogical Knowledge
ZPD:	Zone of Proximal Development

DEFINITIONS OF SIGNIFICANT TERMS

The following are the definitions of operational terms as used in the study

Computer Assisted Language learning: This is the study of applications of the computers in language teaching and learning that are applicable at the level of junior primary in Kenya. Ways of using computers for the purpose of language teaching and learning.

Language Skills: The four skills of listening, speaking, reading and writing. Two receptive skills reading and listening and the two productive skills, namely writing and speaking

Mobile Assisted Language Learning: In this study it is language learning that is assisted or enhanced through the use of a handheld mobile device. Both teachers and learners are able to access language learning materials via mobile.

Upper Primary: Grade 4 to 6

Technological Applications: technology that brings influences on fields in English language teaching and learning particularly. In this study the technological applications will be referred to Computer Assisted Language Learning and Mobile Assisted Language Learning.

Technology Integration: Use of technology in classrooms for teaching and learning

CHAPTER ONE

INTRODUCTION

This chapter provides an introduction to the study. It begins by giving the background to the study, followed by the statement of the problem, research objectives, research questions and research assumptions. Further, the rationale of the study and scope and delimits are provided.

1.1 Background to the Study

One of the greatest educational priorities in Kenya is helping children to be literate. This is evidenced in Ministry of Education (MOE), 2023 Article, Presidential working Party on Education report. Though this area is one of our greatest educational priorities, it is also the one with greatest challenges. Language skills such as vocabulary development, verbal/oral interaction, reading and writing are among the essential components of literacy achievement. In the last decades, the very idea of what literacy means has been expanded due to the development of digital media and the Internet, (Barton, 2007; Lankshear & Knobel, 2008). The main objective of teaching English in primary schools in Kenya is to enable the learners to communicate fluently, independently and accurately in English Language in everyday life. However, the teaching of English in Kenyan context is one of the greatest challenges. This is due to change in classroom environments due to a large population learner. Moreover, due to large population, becoming proficient in English is a very difficult transition. Thus, children learning English as a second language need a great deal of language support which is crucial for children's language acquisition. English Language Learner (ELL) needs a variety of language experiences to enable them get opportunities to hear, write, speak, and read English.

Likewise, the learning of English language as the new curriculum emphasizes on purposeful learning such as acquisition of literacy using digital platforms. This is according to the 7 Core Competencies of Kenya Competency-Based Curriculum. (<https://cardinalelementary.com> 2024). Gainer and Lapp (2010) argue that inclusion of new literacy needs to become part of our instructional base if we want to engage students in motivating, purposeful learning experiences. Currently, literacy is not limited to traditional texts, such as, books, stories, and essays, and are now expanded to multimedia texts (Jacobs, 2013). In fact, as new technologies emerge, so do new literacies (Jacobs, 2013). Godwin-Jones (2015) emphasizes on acquisition of electronic literacy; reading and writing on-line which are often collaborative activities. In this case, there should be a gradual shift in the teaching and learning of English language to accommodate new literacies that a child should acquire. New literacies involve the use of text, sound, video, and other forms as a way to generate, communicate, and negotiate meaning. Moreover, technology is easily accessible, digital technologies are a part of everyday life and members of society are expected to not only successfully participate in the use of these technologies, but also interact and manipulate digital materials and tools.

The emergence of new technologies especially computers and ever-growing expansion of electronic devices have provided ELL with persuasive and genuine language input. Brand, Favazza and Dalton (2012) observe that technology can help facilitate the attainment of learning goals for individuals with wide differences in their abilities to see, hear, move, read, write, understand English, sustain attention, organize, engage and remember. Technological devices and programs can offer multiple means to present, engage, express, and assess student understanding and acquisition of language and

literacy skills. For instance, computers can play an integral part in providing ELL with valuable language experiences as they learn a new language. Additionally, new technologies continue to impact on literacy acquisition in that individuals gain new skills, knowledge, and ways of interacting with other social groups. Fathali and Okada (2018) observe that face to screen language learning has a key role in developing language competencies. Thus, computers can be used to help provide additional language learning opportunities for ELL that take place beyond normal classroom instruction. Combining these opportunities with activities that can be done at home with family members provides ELL with a rich language learning experience.

The above background clearly shows that technological innovations have certainly brought changes in learning strategies and English teaching. Technology offers numerous opportunities for ELLs to simply communicate with native speakers in a foreign language context (Reinders & Benson, 2017). By means of the internet, both learners and teachers have access to a whole new range of authentic language material such as online newspapers, music files, videos, etc. that can be used for reading or listening activities. Moreover, ELLs can perform literacy tasks through different technology mediums, ranging from word document programs set to their primary language to games or computer programs with dual language features.

Technological applications can also be integrated in speaking or writing activities. Spell checkers and grammar checkers, for instance, can be a helpful resource for learners when writing a text. Video conferencing on the other hand can be helpful in the practice of speaking skills. Thus, integration of technology in the educational context has brought promising opportunities for instructors and learners to increase the efficiency of the pedagogical process (Yenkimaleki & Van Heuven, 2019). This also implies that

these innovations also affect the teacher's role in class. Teachers, for instance, must continue to adapt instruction to meet the needs of diverse learners in their second language class and technology is a viable option to do so. Thus, mixing traditional and new literacies promotes literacy learning in the classroom.

The new curriculum in Kenya, known as Competency Based Curriculum (CBC) 2023 emphasizes the connection between the school and home environment that supports learning. Technology provides a tool that facilitates the building of bridge between in and out of school literacies and the larger cultural systems. In fact, ELLs participation in literacy activities at school may be heightened if technologies exposed to and used at home are made available. Thus, connecting home and school experiences is critical when acquiring language and literacy skills; technological advancements make this connection easier for ELLs.

It is therefore under the above premises that the current study assessed the development of language skills through technological applications. The studies focused on how Computer-Assisted Language Learning (CALL) and Mobile-Assisted Language Learning (MALL) are supplemental teaching tools for teaching English language learners and on how these activities are extended at home to produce a greater school-home relationship.

CALL was initially referred to as CAI (Computer-Assisted Instruction) and TELLs (Technology-Enhanced Language Learning). While CALL is the study of applications of the computer in language teaching and learning (Levy, 1997). MALL includes mobile social applications such as Facebook, Twitter, YouTube, Instagram, and Flickr, and Course Management Service (CMS), Mobile Podcasting, and Automatic Speech

Recognition (ASR) that are very significant in language performance and skills (Kim & Kwon, 2012).

The presence of new technologies and a persistent change in economic and social structure are an indicator of constant shifts in the skills and abilities that individuals will need for effective participation in modern work, academic, and leisure environments. In this case, learners must possess multiple skills that will enable them to take advantage of the diverse modes of communication made possible by emerging technologies and to participate in global learning communities. Due to technological advancement of English Language Learners are faced with the task of not only becoming literate in another language, but trying to negotiate sociocultural skills to succeed in a different learning environment. Moreover, there is need for English Language Learners to possess multiple skills that will enable them to take advantage of the diverse modes of communication. Therefore, there is need to study the technological applications to establish how they enhance the teaching and learning of English language. This study hence sought to assess how podcasts could be used for measuring speaking and listening skills, CALL vocabulary Instruction, Digital Storytelling through Toontastic 3D for speaking skills, Moodle reader for reading skills and Google docs for writing skills, as new forms of Computer Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL) to teach English language skills in upper primary.

1.2 Statement of the Problem

Despite the importance of technology in fostering a wide range of literacies that enable learners to succeed academically, accelerate linguistic competency, and acquire necessary language skills in their upper primary level, there seem to be laxity in the

adaptation and uptake of new technologies and instructions in the classroom in Kenya. Majority of the schools have no devices such as overhead projectors, interactive whiteboards, laptop computers and other relevant facilities. Besides, there is doubt and uncertainty on the usability of technology and teacher competence. Moreover, children are growing in the era of digital technologies, yet there is still insufficient supply and application of useful technologies within classroom settings. Consequently, the number of learners not meeting the expectations of competencies they should acquire in English language and the new curriculum in their early years is increasing. Therefore, there is a dire need for studying the link between technological applications and English language learning in upper primary in Kenya.

1.3 Purpose of the Study

The purpose of this study is to assess the use of technological applications to enhance English language teaching and learning in upper primary schools in Kitui County

1.4 Objectives of the Study

The objectives of the study are to:

- i. Examine how the use of Computers and Mobile Assisted Language Learning Apps support the development of different English language skills in upper primary in Kitui.
- ii. Evaluate the role of Computers and Mobile Assisted Language Learning Apps in English language teaching and learning in upper primary in Kitui.
- iii. Determine upper primary learners' and teachers' attitudes towards the use of Computers and Mobile Assisted Language Learning Apps as support for teaching and learning language skills in Kitui.

- iv. Establish the impact of the use of Computers and Mobile Assisted Language Learning in upper primary Kitui.

1.5 Research Questions

The study was guided by the following research questions:

- i. How does the use of Computers and Mobile Assisted Language Learning Apps support the development of different English language skills in upper primary in Kitui?
- ii. What is the role of Computers and Mobile Assisted Language Learning Apps in English language teaching and learning in upper primary in Kitui?
- iii. What are learners' and teachers' attitude towards the use of computers and Mobile Assisted language learning as support for teaching and learning language skills in Kitui?
- iv. What are the impacts of the use of computers and mobile assisted language learning in upper primary in Kitui?

1.6 Research Assumptions

The study was based on the following assumptions:

- i. Technology offers support in the development of different English language skills.
- ii. Integrating technology in English language teaching and learning is beneficial.
- iii. Attitudes of English Language Learners and teachers' towards the use of technology in classroom may impact on the acquisition of different language skills.
- iv. The use of technology in upper primary has impacts on different stakeholders.

1.7 Justification and Significance of the Study

The overall aim of this research was to contribute to the understanding of how technological applications influence teaching and language learning of English Language. Thus, the study is situated in the research field that investigates language learning by means of CALL and MALL. Exploring how CALL and MALL afford learning activities is something that is related to practical and theoretical interests in the field of CALL. The study contributes to the understanding of how CALL and MALL can change the conditions for language learning and by so doing makes a contribution to Applied Linguistics and specifically on teaching and practice of SLA.

Moreover, various scholars agree that new technologies play a significant role in accelerating how information is communicated and transported. Technologies have an effect on how individuals communicate and apply skills necessary to live and perform everyday tasks. Therefore, as language educators it is increasingly important to understand how learners should negotiate digital literacies and what role technology plays in learning a second language. Thus, the study findings may be used to facilitate the integration of CALL and MALL in the teaching and learning of English language. This study focused on the use of technology as a valuable academic tool and extends the idea and scope of digital pedagogy. The study would therefore, enlighten the teachers on the importance of integration of technology in instruction of English. The findings of the study may help forge new pedagogical ground that combines the use of technology in school and outside school.

The study would further provide the current status of the resources and technology integration in the teaching and learning of English in Kitui County. This information may therefore be useful to administrators, policy makers and other stakeholders in

education in determining the preparedness of upper primary in Kitui County in terms of availability of appropriate facilities for English language-learning. The findings of the study may be used as a baseline data for laying strategies on increasing the level of integration of technology in different schools in Kitui County. The study may further indicate the capacity building gaps which may be useful in formulating framework to empower teachers and learners in the adaptation of digital tools in different context of language learning.

The findings of this study may assist teachers in engaging ELLs to efficiently use digital technologies in the process of Second Language Learning (SLL) at upper primary school level. Further, the study may help teachers to develop more efficient methods of teaching and learning of English to ensure that the learning process is learner centered. Moreover, the findings of this investigation might be utilised to equip ELLs for future English education, as well as to supplement present English programs at all grade levels. Furthermore, the study's findings might act as a springboard for incorporating technology-integrated vocabulary education into all English language learners' classroom teaching.

Further, these findings could inform the Ministry of Education (MOE) and county government on the state of ICT in schools and this could help in further provision and maintenance of these facilities. The findings of the study may be useful to the Ministry of Education, Science and Technology, the Teachers Service Commission (TSC) in reviewing policies in regard to teaching practices to enhance effective learning and teaching environment. The study will be important to curriculum developers in formulation of future policies in respect of developing more training opportunities for teachers on digital literacies. The Kenya Institute of Curriculum Development (KICD)

may also use the findings in designing teaching courses for the teachers that are essential in implementing quality of education the learners that may enhance development of language skills and digital literacies.

1.8 Scope and Delimitations of the Study

The purpose of this study was to assess the use of technological applications to development different language skills. More precisely, the study focused on the usability of CALL and MALL regarding the four major language skills, namely the two receptive skill reading and listening and the two productive skills, namely writing and speaking. CALL and MALL are chosen on the premise that technology can be used to support the development of language skills. The study took four different angles; first how CALL and MALL support the development of different English language skills, second the benefits of integrating CALL and MALL in a language classroom, third the focus was on the teacher as an actor in the integrating CALL and MALL use and finally the implications on the use of CALL and MALL.

This study focused only on measuring the effectiveness of four CALL and MALL Apps which were: podcasts for measuring speaking and listening skills, CALL vocabulary Instruction, Digital Storytelling through Toontastic 3D for speaking skills, Moodle reader for reading skills and Google docs for writing skills. There are a number of other digital tools that may be integrated to test different effects on improving the development of English language but this study was limited to the

The study also assesses the issue of language learning with technological devices in Kitui County, mentioned Apps only. Kenya. The study used a small scale sample that represented only 80 pupils. The sampled two Schools in Kyuso sub county of Kitui County was considered as a limitation due to the fact that the conclusions drawn from

this particular case hardly could be applied elsewhere. This means that application of the results in other areas may need to be done with care because the social, economic and cultural set up may be different. The findings of this research may therefore be generalized to other regions with caution since some areas in the country may be unique and different from other areas especially those in urban set-ups.

1.9 Summary of the Chapter

This chapter has presented a background to the study. It has also presented the statement of the problem, the research objectives, research questions and assumptions. The chapter also presented the justifications as well as the scope and delimits. The next chapter presents the literature review and the theoretical framework that was applied in the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND THEORETICAL FRAMEWORK

Introduction

This chapter gives a review of literature that relates to the current study. The chapter is divided into seven parts, where the Section 2.1 deals with themes and concerns of language learning and technology; Section 2.2 focuses on the concept of CALL and MALL which is the research field of language learning and technology; Section 2.3 provides a literature review on the importance of technology in language teaching and learning while Section 2.4 focuses on attitudes towards integration of technology in language teaching and learning. Section 2.5 reviews literature on studies on language and technology; Section 2.6 presents a set of core theoretical ideas and concepts within a Sociocultural Theory (SCT) that are central in the approach to language learning and teaching that the current research assessed; and lastly Section 2.7 provides a summary of the chapter.

2.1 Language Learning and Technology

Kang and Dennis (1995) investigated the use of computers in facilitating vocabulary development of beginning English language learners Seoul, South Korea. The participants of the study were the fifth grade students who were assigned to three different groups. The three groups studied different topics which were definitions, picture, and context. The group studying definitions was given the English word with the definition written in Korean. This group relied mainly on rote memorization. The group studying pictures were given the definition as well as a picture. The third group was given a situational context employing the English word first and then given the

definition and picture. The findings of the study showed that the picture and definition groups did much better than the context group initially. However, after a few sessions, the context group's scores surpassed those of the other two groups. The results of the assessment revealed that, the context group scored significantly higher than the other two groups. The conclusion of this study was that the contextual approach is much more effective in promoting long-term recall of vocabulary. This learning process was made possible and more effective by the use of computers that provided visual cues. Kang and Dennis study provided insight on the benefits of the integration of the computer in teaching of vocabulary.

Gee (1996) on the other hand portends that, the internet offers many authentic materials to children. Gee argues that the socio-cognitive approach offers the opportunity for language learners to interact in a real social context. In this vein the internet can supply socio-cognitive approach via tasks and project study. Among the computer areas that can support language learning are online games that enhance various vocabulary fields and give positive insights in language feedback. Moreover, technology is characterized by features such as the speed, high accuracy, and repetition of the lesson presented to it dozens of times in the same day, and also its great contribution to saving time and effort for the teacher. In this case, the repetition process helps the child a lot in memorization and comprehension the lesson significantly. Computer based activities offer quick information and excellent materials to language learners. Gee's study provided insights on support of technology on the development of vocabulary and the theoretical underpinnings that are necessary to the current study.

Liaw (1997) study investigates whether computer book increase verbal interaction between students. Computer books have interactive stories that appear on the computer

screen as an actual book with text and illustrations. They were used together with a variety of interactive choices that students used to read the story, including: real voices that read aloud, music, and sound effects. The story was also highlighted so that the readers' could follow along with the text. The study mainly made use of videotaping student interactions while using the computer books. The students were arranged in groups of three to read the stories and their types of speech used with each other were analyzed. The findings of the study show that even though the children had limited English language proficiency they engaged in various modes of language functions to accomplish their reading of the computer books. The students made many commands to each other. They also shared opinions and made suggestions. They tended to ask a lot of questions of their partners and were given responses. The study also analyzed the quality of talk by measuring the amount of computer related talk and story related talk. The findings of the study showed that initially there was a lot of computer related talk, but as the students became more familiar with the format of the stories and software, their talk became story related in subsequent sessions. The conclusion of the study was that the use of computer facilitated verbal interaction. Thus, computer books enhance language development by providing an opportunity for verbal interaction. Liaw's study provided insights on the use of technology to enhance verbal communication and the acquisition of English.

Regarding verbal interaction Glisan, Dudd, and Howe (1998) on the other hand investigated the effect of video-conferencing on language learning and found that video-conferencing technology improved Spanish listening comprehension skills, but the time on task variable remained the key influence. Beauvois (1998) on the other hand examines peer response through networked computers in writing classrooms and

reports that Web-based response is easier than face-to-face response, being characterized by more participation, more discussion during interactions, more feedback, and gradually increased confidence. The study showed that small group interactions in oral and network-based modes have shown increased participation in electronic classroom discussions. Moreover, Beauvois study found that students in networked writing projects demonstrated more fluid conversation due to availability of more time to think, phrase responses, and participate in networked writing. The current study was able to utilize interactions on oral network-based modes; this increased the learners' ability to express them as well.

Case and Truscott (1999) investigated the use of Computer based reading instruction; He observed that another benefit of using computers is for reading instruction and that computers offers immediate feedback on performance. They also can provide added practice when necessary. Case and Truscott study reveal that students have been able to improve their sight word vocabulary, fluency, and comprehension using computers. This can be attributed to increased interaction with texts, attention to individual needs, and increased independence through an ability to read texts they would not otherwise be able to read. The findings of Case and Truscott (1999) are in line with Lunde (1990) who studied electronic mail as a medium for foreign language study and instruction, Lunde reported that students of Japanese enrolled in computer mediated communication projects improved reading comprehension. The current study purports that use computer mediated technologies for teaching English language help learners to read and also manage articulation so well.

Lee (2002) completed a pilot study using synchronous electronic chats combined with task-based instruction to boost learner communication skills. Lee's study demonstrated

that Computer-mediated Communication using less structure controlled, but more open-ended exchange significantly impacted the language learning process. Hertel (2003) on the other hand reports that student writing skills can be improved via networked computers. The findings of this study reveal that foreign language teachers integrate e-mail-based activities into their curriculum that improve their writing skills. Taj (2017) found out that computers, particularly email and the internet, can improve learners' second language (L2) reading skills and vocabulary knowledge. They argued that digital tools can develop EFL learners' working memory to retain and recall word meanings. The above studies provide insights into analysis of teacher's integration of technology.

Doughty and Long (2003) proposed optimal psycholinguistic environments for distance foreign language learning give a series of methodological principles that are crucial in the task-based-language-learning philosophy. Doughty and Long (2003) argued that language education should focus on tasks and not only on texts since they allow learners to experience language as a living entity by doing the tasks they will face beyond the classroom. Further, they promote the use of language as opposed to talking about language. They argue that the use of computer based instruction methods may provide ELLs with an environment that will encourage the use of language. The current study supports his view in that after exposing the learners to different tasks; it was found that they were practicing the activity the same way from the source especially reading by the use of Toontastic 3D activities.

Ware's (2008) study assessed how 20 English-language learners utilized multimedia as a part of their in-school instruction and after-school program at a technology-intensive middle school. The aim of the study was to find out if there is a connection between in-

school literacy practices and out-of-school literacy practices in relation to the use of technology. The findings of the study revealed that not all youth participate in the types of literacy-rich, out-of-school digital worlds and, therefore, have not yet developed a rich base of experience with digital literacy. Moreover, despite high levels of access to technology within the school, ELLs had not explored new literacy activities outside of school. The study recommended that language learners need access to and support for multiple genres in order to become active participants in a larger public dialogue. The study concluded that multimedia literacy practices broaden the breadth of language experiences, but still little empirical evidence was found in the development of ELLs' linguistic skills in reading, writing, and speaking. The current study found a gap in studying the use of technology in teaching and learning of English language among upper primary learners in Kitui County.

A study by Kukulska-Hulme (2008) on generic MALL and that of English language learning show that the integration of MALL into learning and teaching has been more gradual, as educators have sought to understand how best to use these tools to support various kinds of learning. The findings of this study found that the use of MALL is effective since it offers interactive listening and speaking activities in the context of online interactions. Moreover, MALL tends to be purely teacher student based and that the range of approaches and learning activities using MALL are a purely teacher-learner that support multimedia, collaborative listening and speaking activities. Their study provided insights on the use of MALL in support of listening and speaking skills.

Larsen-Freeman and Anderson (2011) study found out that children can improve their listening, reading, and writing abilities in the media and the Internet. This may be attributed to the fact that language learners find electronic chat, games, and pan-pals

and podcasts interesting. In general, children are visual students. They want to see as they learn. Internet and computer-based activities provide children's worlds with visual materials. The current study focused on technological applications that support the development of language skills.

Lin and Yang's, (2011) study demonstrated that Wiki technology improves the written skills of students. This was done by inviting students to join a Wiki page to write passages and then read and answer their classmates' passages. This technology afforded learners immediate feedback about their assignment. Moreover, students learned vocabulary, spelling, and sentences by reading their classmates' work.

González – Lloret and Ortega (2014) argue that technology mediated tasks should focus on meaning rather than on grammatical forms, be learner centered, authentic and draw on real world processes of language use. González – Lloret and Ortega observe that Web technologies generate opportunities for social discourse and casual conversation and encourage learner's agency and confidence in language use. Dooly (2017) notes that research on telecollaboration for language learning is situated within task based language teaching (TBLT), which conceptualises “task” as a set of activities designed to foster second language acquisition. González – Lloret and Ortega (2014) and Dooly (2017) studies provides insights on the use of computers as an instructional method that gives learners functional task that invite them to focus primarily on meaning exchange and to use language for real world. However, their studies were on telecollaboration devices. Therefore, it was found useful to the current study since it provides an opportunity to collaborate the usual teaching with sounds (computer-Based) to enhance functional classroom environment for learning and teaching of English language in Kitui.

2.2 Computer Assisted Language Learning

This section gives a review of the area and the research perspectives characterizing CALL, also pointing at CALL's interest in the current study. Levy (1997) first observes that research in CALL is the search for and study of applications of the computer in language teaching and learning. Levy (1997) notes that initially the study of language learning and technology was known as Computer-Assisted Instruction (CAI) and Technology-Enhanced Language Learning (TELL). CAI fell out of favor among language teachers as it appeared to imply a teacher-centered approach (instructional), whereas language teachers are more inclined to prefer a student-centered approach, focusing on learning rather than instruction. CALL began to replace CAI in the early 1980s. Levy and Hubbard (2005) observe that the adaptation of CALL adopts development trends; for instance, replacing "Computer" with "Technology" or use "Enhanced" rather than "Assisted". The above literature provides a review on the understanding of the concept CALL which the current study is anchored on.

Egbert (2005) portends that CALL means since their emergence, learners learning language in any context, with, though and around computer technologies capture attention. He further observes that research in language learning and technology has broadened. The current study on CALL research is more inclusive in embracing computer technologies and language learning.

Jung (2005) notes that CALL is a research field of language learning and technology that covers research of every manner of using computers for language learning purposes from software explicitly designed for language learning to web-based environments such as virtual environments, social software and computer gaming. Jung further points

out that the four basic language competences of reading, listening, speaking, and writing are represented in existing CALL research studies.

Zha, Kelly, Ko Park, and Fitzgerald (2006) investigate students' communicative competence in a computer-mediated communication environment. The research examined the changes in ELL children's use of language for social purposes and appropriate use of language in different social and cultural settings. The findings of the study revealed that Computer-mediated communication provides an equal opportunity for learners with different cultural background and personalities, thereby increasing participation and use of language. The study contributed to the understanding of the concept of integration which is applied in our study. The findings of the study show that culturally and linguistically responsive classrooms that provide authentic learning opportunities through a variety of mediums, like technology, benefit ELLs and their ability to construct a literacy identity that is valued.

Kern (2006) focuses on the theoretical grounding of CALL field and observes that there are different views of theories related to CALL research. Kern points out that CALL closely relates to existing areas such as SLA. That is, there are strong influences from SLA to CALL. This argument is in line with Chapelle (1997) who indicates that CALL is grounded in SLA theories and more specifically in an interactions approach. Kern also observes that CALL exists within other theoretical perspectives such as socio-cultural, systemic-functional linguistics, anthropology, ethnography, and semiotic theories. Kern further observes that the key question that has traditionally driven CALL research is if computers improve language learning. Moreover, one should be concerned with what computers can do for language learning and how effective technologies are in promoting learning. Kern further argue that these questions need to

be refined further into in what ways, by whom, for what purpose, and in what context computers are used. Most studies such as for Kern, Ware and Warschauer (2004) have dealt with research questions that gear online language learning such as quantifiable aspects, amount of participation, quantifying linguistic features and learning resources but also investigating affect and motivation patterns. They further observe that online language learning has shifted to embrace more qualitative methods, emphasizing questions that deal with intercultural competence, broad social non-institutional discourses and problematizing communication. The current study focused on how technological applications aid in the development of language skills in Kitui county. Moreover, Kern's views offer the researcher insights into theoretical frameworks of the current study and the premise that the study is anchored on.

Black (2009) explored the use of virtual environments to promote affiliation with composing and interacting in English. The participants of the study were three ELL focal participants. Through interviews Black's study aimed to see if adolescents' extracurricular online activities aligned with or differed from school-based literacy practices. The findings of the study revealed that extracurricular engagement with technology shows an abundance of sophisticated literate and social practices that include but are limited to traditional print literacies. Further, the study shows that online spaces provided ELLs with a sense of belonging in a community that was important to them and instilled the confidence needed to "attempt additional and more complex written and communicative endeavors. Moreover, virtual spaces gave students a sense of acceptance and belonging that enabled the ELLs develop identities as accomplished creators and users of English texts. Black (2009) study provides understandings on

importance of technology in SLL. However, as this study was based in a virtual space the study was in a classroom setting and home assignments by aid of technology.

Teixeira (2015) observes that CALL programs that merely present electronic flashcards to students when they are learning new words and phrases help students in sub-vocalization. Such types of programs ask students to compare their own audio recordings with those of native speakers of diverse accents. One obvious drawback of this type of exercise for improving L2 speech is the lack of any feedback. However, more CALL programs that offer some form of automatic speech recognition (ASR) can play an important role. Other scholars emphasize on the use of CALL for development of appropriate oral speaking in ESL that depict correct prosodic features such as stress, intonation, and tone (cf. Gorjian, Hayati, and Pourkhoni; 2013, Ong'onda and Muindi; 2016). These studies focus on speaking skills while the current study went further and assess the use of technology in development of language skills.

2.3 The Importance of Technology in Language Teaching and Learning

Beauvois (1994) study reveals that many students expressed increased confidence in speaking due to technological use. The findings of the study reveal that conversational aspect of writing via the network may have helped students to routinize certain expressions, thus promoting the development of automatic structures that assists speaking. Beauvois case study of an ESL senior secondary course integrating computer networking found that “considerable growth occurred in French-speaking skills, and possibly also in listening and reading comprehension, which implies that an explicit focus on one area can have an effect on the other skills. Beauvois case study focused on the role of technology in the development of speaking skills. The study at hand focused on both receptive and productive skills.

Coverdale-Jones (1999) observed both advantages and disadvantages to using video-conferencing as form of communication for language learning. The findings of the study show that video-conferencing have the following advantages; ability to communicate with people from other parts of the world, they are cheaper than traveling overseas to seek language practice opportunities; video conferencing is more interactive and personal than e-mail/ chat. Moreover, it is easy to see who you are talking to and establish a rapport and it has the ability to see the other party making it more personal than fax, telephone, and e-mail. The disadvantages of video conferencing included; impersonal, difficult to use with a group because of the one-way audio system, lack of clarity in understanding and frequent problems with unclear (fuzz) picture. The study was set to establish the benefits of using CALL and MALL applications in the teaching and learning of language skills. While interrogating student's perceptions towards video-conferencing project involving students of German and native speakers in Germany (Coverdale-Jones, 1999) revealed that students viewed video-conferencing as a reduced form of communication compared to face-to-face interaction.

Gordon (2007) study focuses on the concept of using technology to help language learning. This study reports that technology can catalyze various other changes in the content, methods, and overall quality of the teaching and learning process. The findings of this study also showed that technology benefits young learners by enhancing their physical abilities such as hand-eye coordination and fine motor skills. Moreover, technology can also improve children's understanding of the world around them, develop their flexibility and ingenuity, enrich their world view and expand their openness of mind. The study showed that the use of technology presents a number of benefits in the more general learning process thus it is important to align this with the

concept of language learning in general to highlight how technology has had a major impact over the past two decades.

Ilter (2009) study demonstrates that the use of technology motivates the students and makes them easier to talk, read, listen and write. The findings of the study revealed that the use of technology in classrooms in English as a foreign language can provide an important and attractive approach to language study. However worth noting is that technology is not enough to teach ELLs alone. Schwartz and Pollishuke (2013) note that the use of technology needs a teacher with clear targets, who knows the curriculum and effective education strategies and can provide children with learning experiences to increase and encounter with previous knowledge.

Traore and Kyei-Blankson (2011) study was based on the use of multiple technologies that may motivate ELL learners to develop strategies for successful learning. Their study focused on multiple technologies used in the presentation of a novel to classroom of ELL students. Through one-on-one interviews that the researchers conducted they found that the use of technology empowered the students. Some of the interviewees stated that audio-visual technology gave them an understanding and a confidence that they would not have had from the reading of the book only. The findings of the study show that through the use of literature books with accompanied CD-ROMS or attached supplementary technology driven activities that are motivating and authentic helps to build up interest for other cultures. The study concludes that language learners can develop language and communication skills through the use of word processors, presentation software, multimedia, hypermedia, and the Internet. Moreover, language learners gain a sense of freedom, motivation, and encouragement they need for learning when technological devices are utilized. Traore and Kyei-Blankson study focused on

the study of literature in combination with multiple technologies that could offer additional support for English-language learners. The current study exposed upper primary learners to language context that may be developed through technology.

Peregoy and Boyle, (2012) showed that using technology improves the reading and writing skills of learners. The findings of the study showed that the tools used in technology enhance the ability of learners to write and read because they are user friendly. Peregoy and Boyle study also showed that learners learn more efficiently by using technology tools instead of traditional teaching methods because the Internet provided a conducive learning environment for learners and provided a new platform for students who can access learning lessons in a convenient way. Moreover, technology assists students and teachers in their quick access to course materials. Likewise, Rodinadze and Zarbazoaia (2012) study showed that technological advances have an essential role to play in preparing students for what they learn to find their way into the global workforce in any subject. In this case, technology facilitates learning for learners and serves as a real learning tool. Similarly, Zhou (2012) observes that foreign language learners' emotional states, like motivation, have played influential roles in foreign language learning. Thus, technology gives learners motivation; willingness or desire to be engaged in or commit effort to complete a task.

Arifah (2014) states that internet usage increases the motivation of students. Arifa's research on use of film in education found that film helps students to understand and develop their knowledge with enthusiasm. And those Students can use technology in their learning processes via computer and the internet to learn effectively. The study also found that technology helps students develop their higher level of thinking skills when they are learning with technology. The study recommended that combination of

the multimedia and teaching methodology should be encouraged since it draws the attention of learners to English languages. The current study integrates various CALL and MALL apps.

Cutter (2015) study found that using classroom technology encourages English students to promote their success in English. In comparing traditional methodologies to technology Curtis study show that, technology offers many learning opportunities. For instance, teachers have many resources and materials for their lessons. Cutter's study also shows the increase in engagement in technology since students are motivated more while they are working on computers and use modern devices than they are working with textbooks. This study provides insights on the role of technology in the teaching of English language.

Schrooten (2017) examined the potential benefits of integrating information and communication technology (ICT) into language education and found that ICT allows for a high degree of differentiation, where individual needs and abilities can easily be accommodated, and also offers enriched content and allows a more intense, multi-sensory learning process. The findings of the study show that working with ICT not only elicits a high degree of learner motivation and involvement but also makes teaching more efficient, since the teacher can focus more on supporting learners rather than having to focus on providing content. Rassaei (2017) agrees with the above findings when he observes that modern technologies have supported English as a foreign language (EFLs) to participate in the educational context of language learning.

Mart (2018) notes that the real value of English is experienced by young students through emails, the web, satellite TV and cable technology. The study observed that

young students are energized, and it can be difficult sometimes to teach them foreign languages during their classes. In this case, technology can provide young language learners with a genuine and enjoyable atmosphere and increase the awareness of their language when it is used correctly. Increasing awareness and understanding of language encourages learners to arrive at accurate meaningful interpretations of text.

Recent studies show the importance of technology in language learning. Regarding negative emotions, Dogan (2020) investigated the effect of online and traditional learning on learners' foreign language anxiety. Khojah and Thomas (2021) study on the other hand found that task designs via digital technologies in educational contexts can raise learner engagement in language skills. Liuet al. (2021) studied grit in mobile learning contexts among EFL learners. The findings of the study show that grit has a significant relationship with academic performance in mobile EFL learning. Furthermore, educational technology can foster learner engagement (Chiu, 2021).

2.4 Attitude Towards the use of Technology in Classroom

Liou (1997) study focused on the impact of www texts on EFL learning. The study aimed at gauging the opinion and perceptions of the EFL learners towards technology through surveys. The findings of the study revealed that the experiment group improved their reading comprehension and writing and they held positive attitudes toward the Web activity and its prospects. The findings of the study also revealed that the Internet was a vital way of improving English language learners comprehension for both reading and writing. This study provides insights on methodology Liou argues that the use of questionnaires in a quantitative approach was the most effective method of gaining the opinion of a wide variety of EFL students.

Chapelle (2003) study shows that technology is vital in modern society to the overall development of language ability by students, both inside and outside the classroom. Through interviews teachers of English agreed that students need to practice English outside the classroom if they are to increase their communicative competence. This learning process would be made possible via technology. The findings of the study show that computers were involved and that interacting with the computers often required them to use English for at least some of the time and also meant that the English they used was in a way shaped by technology. The findings further reveal that students are increasingly influenced by technology and this has even adapted the way that English language is processed in modern classrooms and learning environments.

Solomon and Schrum (2007) study reported that 5.4 million students in US are currently classified as limited English proficient (LEP). The projection for such students is that they are expected to make up one out of every four students by 2025. This study outlines that the use of computer programs can help these 5.4 million learners to develop critical analysis skills as well as improve their overall language ability, reflecting the importance of one of the more fundamental technological tools that are available to students learning English. This study however indicates that although technology such as the use of computer programs can be successful, it is necessary that the teacher integrates it well into the learning process; otherwise, the usefulness of the technology will be severely reduced. The findings of the study also showed that as much as teachers were knowledgeable of the many types of technology, they were not sufficiently prepared to integrate this technology into curricular activities. Thus, there was need to prepare teachers to utilize technology in their classrooms. The study provides insights on the implications of the study.

Odo and D'Silva (2013) argue that the attitude of the teacher will determine the overall use of technology in class. Their study shows that the use of the Internet is important but teachers must guide students to use it in the correct manner. Thus, both the teacher and learner must be involved in online learning. Teachers must make certain to the learners the importance of being critical consumers of Internet-based information. This study shows the importance of the teacher's conscious effort in providing information on useful aids and resources and on how to use them. In this vein the use of the internet can be effective for ESL learners if teachers help and guide learners in terms of the use of the tool, as well as sifting through information that might not benefit them in the long-term. The findings of the study mirror that teachers should integrate traditional and additional online comprehension skills in their classrooms to help students make meaning of online texts.

Sorensen (2013) argues that the way a teacher feels about technology affects their implementation in the curriculum and those attitudes filter down to their students. The reasons toward technology in such situations include lack of confidence in the tools and discomfort or fear of their usage. Ackermann (2001) points out that teachers often have fear that they will waste time or look incompetent in front of their students. However, studies have shown that self-efficacy improved for preservice teachers when they were trained in the technological content within a science methods course. Mishra's and Koehler's (2006) and Rehmat and Bailey (2014) study recommends that teacher training in technology as it relates to content areas can be supported by Technological, Pedagogical, and Content Knowledge (TPACK) framework, thus helping build confidence within teachers for using technology in their classes. Introducing TPACK as a means to foster greater technological connections and applications to curricular

content would strengthen teacher methodology courses. This literature provides information on implication on a study of language learning and technology.

Ghavifekr (2015) study reveals that teachers who supported technology-led instructions make learning more effective and that technology has a positive effect on student's participation in language learning. Mustafina (2016) study suggests that although teachers have enjoyed integrating information and communications technology (ICT) within classrooms, it is still rare that such technology is actually implemented. Mustafina's research found that although teachers had a positive outlook on the use of technology, they did not provide access to technology for students. These results were so even when students showed a high level of motivation to use technology within the classroom. The study examined both learners and their teacher's attitude towards language learning and technology.

2.5 Studies in Kenya on Language Learning and Technology

Simenga and Nginye (2011) study focused on the benefits of ICT in teaching of languages and also whether the teaching of languages online faces particular challenges as compared to other subjects, the study case being Moi University. The findings of the study revealed that ICT is a powerful tool for extending education opportunities, to previously disadvantaged areas which including scattered rural populations traditionally excluded from education due to cultural or social reasons such as ethnic minorities and gender. The study also found that the use of computers (or even mobile phones) as tutors for drill and practice and instructional delivery combined with traditional instruction can result in increased learning which will be evidenced in students learning more quickly, demonstrating greater retention and being better motivated to learn. This study focused on learning and teaching of languages in virtual

settings. The proposed study focused on technological applications in classrooms with minimal online lessons to avert challenges of network. The study emphasized on face to face instructions with recordings from internet sources for learning and teaching of English.

Kabaka (2016) study was set to establish the influence of Information Communication Technology on teaching and learning of English in public secondary schools in Marani sub- County. The findings of the study reveal that students enjoy computer assisted lessons and that ICT influence learning of English skills. The study established that among the challenges for implementation of ICT are that most secondary schools in study areas do not have adequate ICT tools and infrastructure as well as that most teachers do not have advanced training on computer which was found to be hampering the transfer of such skills to students. The study concluded that ICT is a critical tool that may enhance teaching and learning of English as a subject. This study focused on ICT while the proposed study will be set to determine the relevant applications within CALL and MALL that should be integrated in the ELL classes .It was found that CALL and MALL were the best ICT applications in our study due to their availability to all especially mobile phones. A majority of parents use mobile phones unlike computers which learners used only at school.

Ong'onda and Muindi (2016) investigated whether the introduction of Computer Assisted Language Learning (CALL) software at the university level would result in developments in English phonetics learners' pronunciation. Through a quasi-experimental intervention design which consisted of control and experimental groups. The participants of the study were two groups of 40 students who were all studying English to become English Language. The control group followed traditional

pronunciation training while the experimental group attended computerized pronunciation instruction which integrated a Computer Assisted Pronunciation Training (CAPT). The findings of the study reveal that in EFL settings, where exposure to target language is quite rare, software programs can be perfect options to compensate for limited real life pronunciation practice. Ong'onda and Muindi's study provide insights to the integration of technology in EL class and on research methodology. However, this study focused on one level of language which is pronunciation the current study focused on development of language skills through technological applications among junior learners.

A study by Muindi and Ong'onda (2019) demonstrates that the combination of TBLT and web-based language learning enhances student's ability to acquire soft skills that are paramount in their real life. The study was guided by the hypothesis that soft skills are enhanced through the use of a combination of task-based language teaching and web-based language learning. The study used an experimental research design and the sample size was 30 students. The experiment group consisted of exposing two groups fifteen each, randomly sampled, to a set of activities but using different CALL methods. The findings of the study revealed that the mean of the performance of the control group and the experimental group was significantly different. The findings of the study show that when learners are exposed to the web and visual aids, they become actively involved in the process of learning unlike in an aural environment. This study focused on how web spaces can enhance the development of soft skills while the current study was based in classroom setting and on development of language skills.

Ogalo, Omulanda and Barasa (2020) examined teacher cognition about Technological Pedagogical Knowledge (TPK) of a teacher of English for ICT integration in secondary

schools in Nairobi County, Kenya. The study utilized mixed methods design. The results of the study revealed that secondary school teachers of English in Nairobi County, Kenya lack professional and personal factors which include teachers' limited TPACK knowledge, lack of exposure to technology, lack of knowledge about ICT tools and their uses, resulting to limited knowledge and skills required to integrate ICT in instruction. The study focused on teachers' cognition while the current study focused on development of language skills.

2.6 Theoretical Framework

This section deals with the theoretical basis for the study. This study applied sociocultural theory (SCT) (Vygotsky, 1978; 1986; Lantolf, 2007; Cook, 2008; Turuk, 2008). SCT theory focuses on learning as situated in a social and cultural context, looking at learners in connection with the social and material environment where they interact (Wells, 2000; Warschauer, 2005).

2.6.1 Sociocultural Theory (Sct)

SCT is a theory of mind and mental development with particular attention to how it relates to the learning and teaching of second/foreign languages. The sociocultural perspective on language learning has profound implications for teaching, schooling, and education. The main idea in SCT is that social interaction plays a key role in human development. This then implies that individual's internal cognitive process cannot account for developmental process. Researchers should also therefore consider the external social factors in the child's environment. Vygotsky (1978) therefore regards sociocultural settings as the essential and determining factor in the development of higher mental activities including voluntary attention, intentional memory, logical thought, planning and problem solving. The major tenets of the theory are discussed in

subsequent sections. Moreover, this theory has a holistic approach towards learning. Turuk, (2008) observes that the theory emphasizes meaning as the central aspect of any teaching and holds that skills or knowledge must be taught in all its complex forms, rather than presented as isolated, discrete concepts.

In order to understand new technological impacts on language teaching and learning the study applied the following concepts

- i. ZPD applied in social Interaction in classroom
- ii. Internalization used in connecting internal world and external
- iii. Mediation applied in use of physical and psychological tools as mediators.
- iv. Scaffolding applied in the use of an expert to act as scaffolder

2.6.1.1 Zone of Proximal Development

ZPD is a concept that was introduced in sociocultural theory by Vygotsky due to dissatisfaction with two practical issues in educational psychology; the assessment of a child's intellectual abilities and the evaluation of instructional practices (Turuk, 2008). Regarding the assessment, Vygotsky argues that the testing techniques used only assessed the actual level of development, yet ignored the potential abilities of the child. He maintained that psychology should be more concerned with the potential abilities of a child, that is, what a child will do to accomplish in the future but he/she has not achieved yet. Thus, he defines ZDP as a zone where an individual can achieve more with assistance of another person that is not possible to manage alone.

It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem

solving under adult guidance or in collaboration with more capable peers (Vygotsky, 1978, p.86).

Basing on the above definition ZPD is a discrepancy in level of competence of those involved i.e. that less capable individuals are guided by more capable peers. Also, ZPD contributes to shaping the mental functions of a child which has not become mature yet, but will develop in future. Cook (2008) agrees that the distinctive aspect of Vygotsky's ZPD lies in the fact that —the gap between the learner's current state and their future knowledge is bridged by assistance from others; learning demands social interaction so that the learner can internalize knowledge out of external action.

The ZPD therefore is a concept that shows that learning is socially situated. Moreover, ZPD is the region in which the transition from interpsychological functions (between people) turns into intrapsychological functions (inside the child). It is believed that learning causes a variety of internal developmental functions to be activated and this process happens only when the child is interacting with his peers or the adults in his environment. A view that Ellis (2000) agrees with when he argues that sociocultural theory is based on the assumption that learning emerges not through interaction but in interaction. That is, when learners get involved in doing certain tasks with the help of another learner or the teacher, they internalize the way to carry out the same task by themselves. Hence, social interaction is believed to facilitate or mediate the learning process. Ellis (2000) further portends that interactions that help the learners with their learning process are those in which the learners scaffold the new tasks.

In the study the role of the teacher in providing ZPD through good instructions will be assessed. Good instructions should proceed ahead of development to the learner. Hence,

instruction can play an extremely important role in development. Thus, in language classrooms successful instructions should be within the child's zone of proximal development (ZPD) and also successful learning process cannot be an individual's unmediated or unassisted effort but a collaborative process. ZPD therefore emphasizes on collaboration and social interaction that enhance development. Thus, teachers both in practice and in training can achieve an insight to teaching through reflective practice and collaboration with other teachers. Moreover, Pavlenko and Lantolf, 2000, cited in Davies (2007) argue that one of the key contributions of sociocultural theory to the issue of language learning is that of participation which combines the social context with individual acquisition. Thus, for an individual to become a competent speaker of a language, the mere personal effort would not result in the mastery of the language unless he benefits from other people's (especially adult) participation to negotiate through the Zone of Proximal Development (ZPD).

Thus, the aspect of ZPD was applied in the assessment of CALL and MALL application Apps that provide learners with meaningful interaction.

2.6.1.2 Internalization

The second concept in SCT theory that is important to the proposed study is the notion of internalization. Vygotsky (1978) defines internalization as a process where learning first takes place on an inter-psychological plane between a person and other persons, then on an intra-psychological plane. The process of internalization implies connecting the external world with the internal, where the two sides become an inseparable unity (Lantolf & Thorne, 2006). In this sense, internalization is considered a transformative process resulting in cognitive development. In other words, internalization is not just a simple process of duplication of the external but a transformation process.

The process of internalization has pedagogical implication for second/foreign language classrooms. First it emphasizes on the enhancement of interactions among the learners and that the role of the teacher is not limited to that of a teacher, but it can also be applied to those learners who have internalized an aspect of the language. It was used in the study to see how useful it can be, basing on the concept of internalization in language learning, words are partially belonging to others when communicating. And when words are being “shared” among users, words are eventually appropriated and adapted to suit new purposes when used. This concept was applied in the analysis to determine how useful peer learning is.

2.1.6.3 Mediation

The third concept of SCT that is relevant to the current study is mediation. Vygotsky (1978) identifies mediation as one of the central concepts within the socio-cultural tradition to learning. Humans use physical as well as psychological tools and signs as mediators when acting on the world. Williams and Burden (1997) point out that:

For Vygotsky and his followers, mediation refers to the use of ‘tools’. Tools in this sense refer to anything that is used in order to help solve a problem or achieve a goal. The most important of these tools is symbolic language..., the use of mediational language to help learners move into and through their Zone of Proximal Development (ZPD) is of particular significance. (p. 65)

Lantolf, (2000) identifies mnemonic techniques, algebraic symbols and language, serve as psychological tools, such that they serve as mediators in cognitive processes. Lantolf thus considers a psychological tool as a mediator between subject and object. In this sense, artifacts are essential to establish an indirect, mediated, relationship between ourselves and the world. Lantolf observes that Vygotsky considers language as the most

important psychological tool in cognitive processes. In fact, Saljo (2005) consider language as a tool of tools basing on its fundamental role. Basing on this argument language learning is more than engaging in words and sentences but from the view point of forms and actions (Linell, 2005). A view that was emphasized by Saussure's distinction of language system (langue) and language use (parole) emphasizing the necessity of both sides of language: speech (parole).

The study applied the concept of mediation by assessing technological applications as important tools that may lead ELLs move into and through their ZPD.

2.1.6.4 Scaffolding and ZPD

Scaffolding is a term that was first introduced by Bruner (1986). The term has been interpreted as social assistance. Bruner observed that children acquire their first language while their parents offer scaffolding in the form of continuous help to them through conversational –formats. Lantolf (2007) observes that one way in which learners scaffold is through collaborative interaction. Such collaboration would lead to the co-construction of linguistic knowledge. The concept of scaffolding suggests that the knowledgeable person (adult, teacher, or peer) help the less knowledgeable (child, or student) to accomplish a task which he or she would not otherwise be able to do by himself or herself. It is also interpreted as anything a learner benefits from or consults with, which might be a dictionary, grammar books, the traditional classroom technique of Initiation, Response, and Follow up (IRF) , or any corrective feedback offered by the teacher. The providence of learning environments designed for peer collaborators to interact are generally based on the premises that each collaborator tries to understand the other (Tomasello et al., 1993). Thus, the process of scaffolding facilitates L2 learning and it needs to exist within a learner's ZPD. Lantolf and Thorne (2007) also

observes that language learning is also meaningful when learners engage in dialogues. Linell (1998) defines dialogue as the relationship between two or more individuals, for instance learners incorporating language of others. Dialogues give learners' an opportunity to be part of cooperative struggle (Lantolf and Thorne, 2007) when interpreting and responding to the intentions of others. Learners also develop meaning through generating new ideas in responding to contributions by others. The current study focused on collaborative forms of learning through pedagogical forms by means of CALL and MALL. The aspect of scaffolding is also applicable in CALL and MALL research targeting ELLs involvement in joint activities with others.

The study adopted SCT due its relevance as depicted in the various tenets;

Zone of Proximal Development (ZPD) is essential in designing supportive activities that stretch a learner's capabilities just beyond their current capacity. In our study we utilized CALL and MALL to attain zone of proximity.

Internalization, Internalization used in connecting internal world and external

Mediation applied in use of physical and psychological tools as mediators. In our study CALL and MALL related applications were found to the mediators.

Scaffolding applied in the use of an expert to act as scaffolder, through collaborative interaction whereby knowledgeable learners helped the less knowledgeable to accomplish the given tasks.

2.6.2 Conceptual Framework

Figure 2.1 below shows the conceptual framework for this study. With these elements integrated into English language class, it is possible to improve pupils' language learning skills. The study assessed the relationship between the independent and

dependent variables. In the current study the independent variable was the use of technological application in development of language skills while the dependent variables are the specific language skills (two receptive skill reading and listening and the two productive skills, namely writing and speaking).

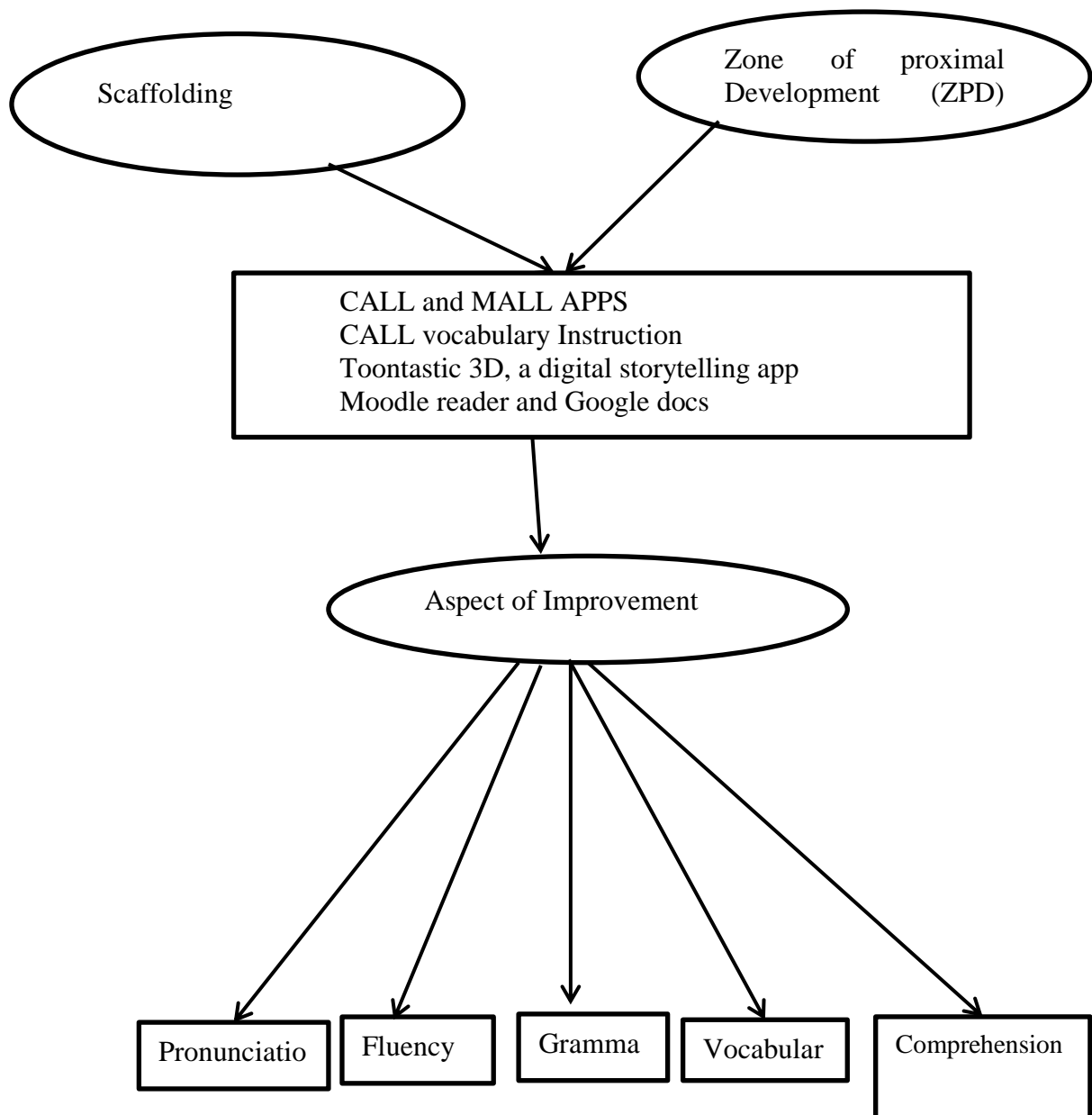


Figure 2.1: Conceptual Framework

2.7 Chapter Summary

This chapter has presented a review of the literature that is related to the interest of the present study. The concepts of CALL and MALL are reviewed with a close relation to Second Language Learning (SLL) which is the field that the current study is aligned to. The review on the importance of technology in language learning and attitudes by both learners and teachers has been presented. The chapter also reviews studies on language learning and teaching in Kenya with a view of identifying the research gap. The chapter has presented the theoretical framework that was applied in the analysis of study data. The chapter that follows presents the research methodology that was adopted in the study.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter presents the methodological procedures that were used in the study. It is organized under the following headings: research design, target population, sample and sampling procedures. It also constitutes the research instruments, validity and reliability of the instruments, data collection procedures and data analysis techniques. It ends with the ethical and confidentiality considerations made for the study.

3.1 Research Design

The study adopted a mixed methodology design. A mixed methodology design blends quantitative and qualitative data to provide with relevant and accurate information Cresswell, (2012). A mixed research methodology is intended to produce statistical information about aspects of education that interest policy makers and educators Kothari, (2004).

The study utilized quasi experimental research design that involves the manipulation of independent variable to observe the effect on dependent variable. Thus, the quasi-experimental study aimed to investigate the use of CALL and MALL Apps in the improvement of development of language skills. Specifically, the quasi-experimental study investigated the use of CALL vocabulary Instruction to improve vocabulary development, Podcast and Toontastic 3D, a digital storytelling app to improve pupils' listening and speaking skills, Moodle reader improve reading skills and Google docs to improve writing skills.

The quasi-experimental provided the quantitative data that was analyzed. This was achieved through the Pre-test, immediate post-test and delayed post-test that were used to assess the impact of CALL and MALL Apps on development of English language skills.

The study also utilized descriptive survey designs. Orodho (2008) observes that descriptive survey designs are used to allow researchers to gather information, summarize, present and interpret for the purpose of clarification. A descriptive survey design engages the people who are at the center of the research objective and it is a process of collecting data in order to answer questions concerning the status of the subjects in the study (Gay, 2006). First, the study utilized a descriptive survey of teachers' and learners' attitudes towards CALL and MALL as a teaching tool and their actual use in class in relation to the different language skills. The participants' personal thoughts and evaluations were at the center of this survey. A survey with Likert scale questions and open-ended questions were used in the study.

3.2. Location Of Study

This study was carried out in Kitui County in Kenya which borders Tana River County to the East and South East, Taita Taveta County to the South, Makueni and Machakos Counties to the West, Embu County to the North West, and Tharaka and Meru Counties to the North. Kitui is so large, the locales for the study was Kyuso sub-county. To the South, Kyuso sub-County borders Mwingi central Sub-County; to the West, it borders Mbeere Sub- County; to the North West, it borders Tseikuru Sub County and Tana River Sub- County to the East. The study was specifically carried out in Kyuso Sub County which lies within an area of 4,814.90 Km². It has 5 zones namely Kandwia, Kimangao, Kyuso, Mivukoni and Ngomeni. Kyuso sub-county was found appropriate

for the supply of the necessary data since efforts have been made to provide technology in schools as shown below:

Table 3.1: Zonal Summary of Schools in Kyuso Sub County

	Zone	Schools	Learner Devices	Teacher Devices	Routers	Projectors	Hard Disk Drives
1	Kandwia	15	561	30	15	15	15
2	Kimangao	8	441	16	8	8	8
3	Kyuso	14	567	28	14	14	14
4	Mivukoni	14	432	28	14	14	14
5	Ngomeni	21	820	42	21	21	21
	Totals	72	2821	144	72	72	72

3.3 Target Population

Target population is a list of the elements from which sample size is actually drawn. According to the report given by the sub county Director of Education, 2020 there were 72 primary schools in Kyuso Sub –County in Kitui County. The target population was Grade 5 and 6 learners and teachers of English of these schools. Grade 5 and 6 learners were targeted because they are expected to be more proficient in language skills before sitting for their exam to qualify them to join junior secondary.

3.4 Sample Size And Sampling Procedure

Kothari (2004) defines a sample as a representative part of a population. Thus, by studying the sample one can be able to know about the population without having to study the entire population. The research participants for this study were chosen using the purposive sampling technique, which is based on the learners’ ages (10-15 years old) and levels of English language competence (intermediate and low). Two schools were purposively chosen where the researcher could carry out the quasi experimental

research using the specific Apps that were measured in the study. The sampling of the two schools was characterized by their availability of computers and power supply unlike many other schools in the sub-county. Each class consisted of 40 pupils, thus 80 learners participated in the study. The range of their language proficiency ranged from “Average Language Proficiency” to “Low Language Proficiency.” Their proficiency level was evaluated by their English language performance basing on their Jan-April 2023 end term results. The participants that were chosen had limited levels of fluency, accuracy, and pronunciation in their Jan-April 2023 end term exam. The researcher purposively sampled 72 English language teachers from Kyuso Sub County to participate in the study. The sample size was therefore 152 respondents who consisted of 80 upper primary learners and 72 teachers.

3.4.1 Demographic Information of Respondents

The demographic information of the participants was obtained in order to understand the characteristics of the different categories of the respondents in this study and to determine if samples are representative of the populations of interest. The demographic data on teachers’ gender, learners’ age and gender, teachers’ highest academic qualifications and years of work experience was captured to help create a mental picture of the subgroups that exist in the target population.

3.4.1.1 Pupils’ Gender and Age

Out of 80 pupils who participated in the study, 40 (50%) of the pupils were males and 40 (50%) were females. This indicates that there was equal gender balance and representation among pupils who participated in the study. Table 3.1 presents distribution of the pupils’ age.

Table 3.2: Distribution of Pupils' Age

Age Bracket (years)	Frequency	Percentage
10 -11	20	25
12 -13	55	68.75
14-15	5	6.25
Total	80	100

The table above shows that 68.75% of the pupils who participated in the study belonged to age group 12-13, followed by age 10-11 years that is 25%, then 14-15 who were 6.25%. This age bracket is perceived to be the critical period at which a child acquires English language skills and aspects. Therefore, it is deemed that the respondents in the study would provide reliable information for the assessment of technological applications in the learning of English language learning.

3.4.1.2 Teachers Gender

Table 3.2 below presents findings on gender distribution of teachers

Table 3.3: Gender Distribution of teachers

Gender	Frequency	Percentage %
Male	34	47
Female	38	53
Total	72	100

The number of female teachers is the highest with 38 respondents (53%) and Male respondents are 34(47%) of all respondents. Table 3.2 above therefore shows there was an overall fair distribution of gender among teachers that participated in the current study.

3.4.1.3 Age of Teachers

The study sought to establish the age distribution of respondents and the results are shown table 3.4:

Table 3.4: Age distribution of teachers

Age Interval	Frequency	Percentage %
Under 25 years	5	7
26-35 years	17	24
36-45 years	31	43
46-55 years	19	27
56 and above	0	0
Total	72	100

The study established that the majority (43%) of the teachers were in the age bracket of 36-45 years. The study further established that (7%) of the respondents were aged below 25 years while (27%) were aged 46-55 years. 23% of the teachers were aged between 26-35 years. It is clear from these results that all categories of age were considered during data collection.

3.4.1.4 Years of Service

The study sought to establish the years of service of the respondents and the results are indicated on the Table 3.5 below.

Table 3.5: Years of Experience of English Teacher

Years of service	Frequency	Percentage %
Below 1 year	3	4
1-5 years	23	32
6-10 years	22	31
11-15 years	24	33
16 and above	0	0
Total	72	100

Table 3.5 shows that majority of the teachers (64%) have an experience of above 5 years of teaching English language. That is; 33% have an experience of 11-15 years while 31% have an experience of 6-10. This implies that the teachers in Kyuso Sub County have adequate experience in teaching English language.

3.4.1.5 Academic Qualification

The study sought to establish the academic qualification of teachers and the data below reveals the findings

Table 3.6: Academic qualification of respondents

Academic qualification	Frequency	Percentage %
Teacher primary certificate	54	75
Diploma	10	14
Degree	6	8
Masters	2	3
Total	72	100

Table 3.6 above shows that majority of teachers are qualified to teach in primary schools since majority have a teachers primary certificate (75%), followed by diploma (14%) which is followed by master's degree at (6%) and with masters (2%). This information indicates that the majority of the English teachers had met the minimum qualification to teach in a primary school.

3.4.1.6 Teachers' Views on the General Usability of CALL and MALL for each Language Skill

The study also sought the views of teachers on the general usability of CALL and MALL for each language skill and the findings are represented in Table 3.7:

Table 3.7: Teachers' views on the general usability of CALL and MALL for each language skill

	Very good	Rather good	Not so good	Not at all
Speaking	20	32	10	10
Listening	32	28	12	-
Reading	-	34	30	8
Writing	20	34	18	-

The findings reveal that the teachers recognize the role of CALL and MALL in teaching of language skills.

3.4.1.7 English Language Components Tested by CALL And MALL Applications

The English language components that were to be tested in the current study were vocabulary and all the English language skills as shown in Table 3.8:

Table 3.8: English language components tested by CALL and MALL

Language Components	CALL and MALL application Tools used
Vocabulary	CALL vocabulary Instruction: A video on children's rights and responsibilities Vocabulary Assessment Assignment
Speaking	-Podcast -Digital Storytelling through Toontastic 3D
Listening	Podcast videos: English podcast: Getting around the cities
Reading	Moodle reader available at mreader.org
Writing	Google docs: available at teachthought.com

Due to the large numbers the respondents were to be tested using specific CALL and MALL applications that fits a given skills. This was also done to reduce the challenges of a large class when you are using technological devices to teach.

3.5 Research Instruments

The study utilized four instruments namely questionnaires for teachers, questionnaires for learners, pre and post assessment and observation schedules. The three instruments were used to supplement each other and to give a deeper and wider exploration into research perspective which would give the research more quality. Quantitative data was collected using a survey questionnaire and pre and post assessment data whereas qualitative data was collected using classroom observation methods.

3.5.1 Survey Questionnaire

The survey questionnaire was formulated for both teachers and learners since they have a descriptive survey of teachers' and learners attitudes towards CALL and MALL as a teaching tool. The learners' questionnaire was made of 15 items that required ability to answer the survey, particularly the open-ended questions. The survey was learners to respond to a Likert Scale of 5 asking them to agree, to be neutral, or disagree (See appendix V). The teachers' questionnaire on the other hand places their personal thoughts and evaluations at the center of this survey. Thus, through the use of questionnaire the researcher was able to obtain personal views from the respondents about the use of CALL and MALL in class. The researcher used both structured and closed ended questions. Some closed ended questions on the use of technology for language learning are in form of subscales (see Appendix IV). Thus, a quantitative approach in the form of a questionnaire has been chosen in order to simplify the comparison between the respondents' different answers. Closed ended questions were

used with the aim of helping the researcher to obtain the personal views of the respondents (see Appendix). The survey targeted both male and female teachers of English. The main objective was checking the attitude of both teachers and learners toward the use of CALL and MALL in language teaching and learning.

3.5.2 Pre and Post Assessment Data

One of the research designs of the study is quasi experimental research design that involves the manipulation of independent variable to observe the effect on dependent variable. Therefore, to collect data on variables pre and post assessment data from learners that participated in the research study were collected to identify the amount of growth made in support of acquisition of language skills. Learners were individually assessed in regard to acquisition of language skills. The researchers chose two activities from the appropriate application in which each learner was tested on specific language skills.

3.5.3 Observation Schedule

The researcher used a detailed classroom observation to collect data. The researcher observed the classroom and its training, as well as the pedagogical techniques that motivated learners. Observation allowed the researcher to watch peoples' behaviours and interactions directly (the learner and the teacher). Observation helped the researcher increase the understanding of the situation that was being assessed or investigated. The researcher assessed the environment where L2 learning takes place (Classroom with technology).

During observation the researcher made use of video and audio recordings to observe and collect field notes on each 30 minute session of the study. A video camera was set up to capture learners as they interact with the different technological applications. The

researcher attended 8 sessions of classes where technology was integrated to teach various skills. Each class had four sections. At the end of each of recorded sessions, the researcher reviewed these recordings and took detailed field notes on what had been observed or heard in regards to the students' language skills, their ability to interact with the technological applications, and their independence. In addition to the field notes the researcher recorded her thoughts and perceptions about each session as a way to reflect and synthesize the information. The researcher made use of recording sheets and checklists, which are the most standardized ways of collecting observation data (see Appendix ix).

3.6 Data Collection Techniques and Procedure

The plan action for the quasi-experimental data is presented in Figure 3.1.

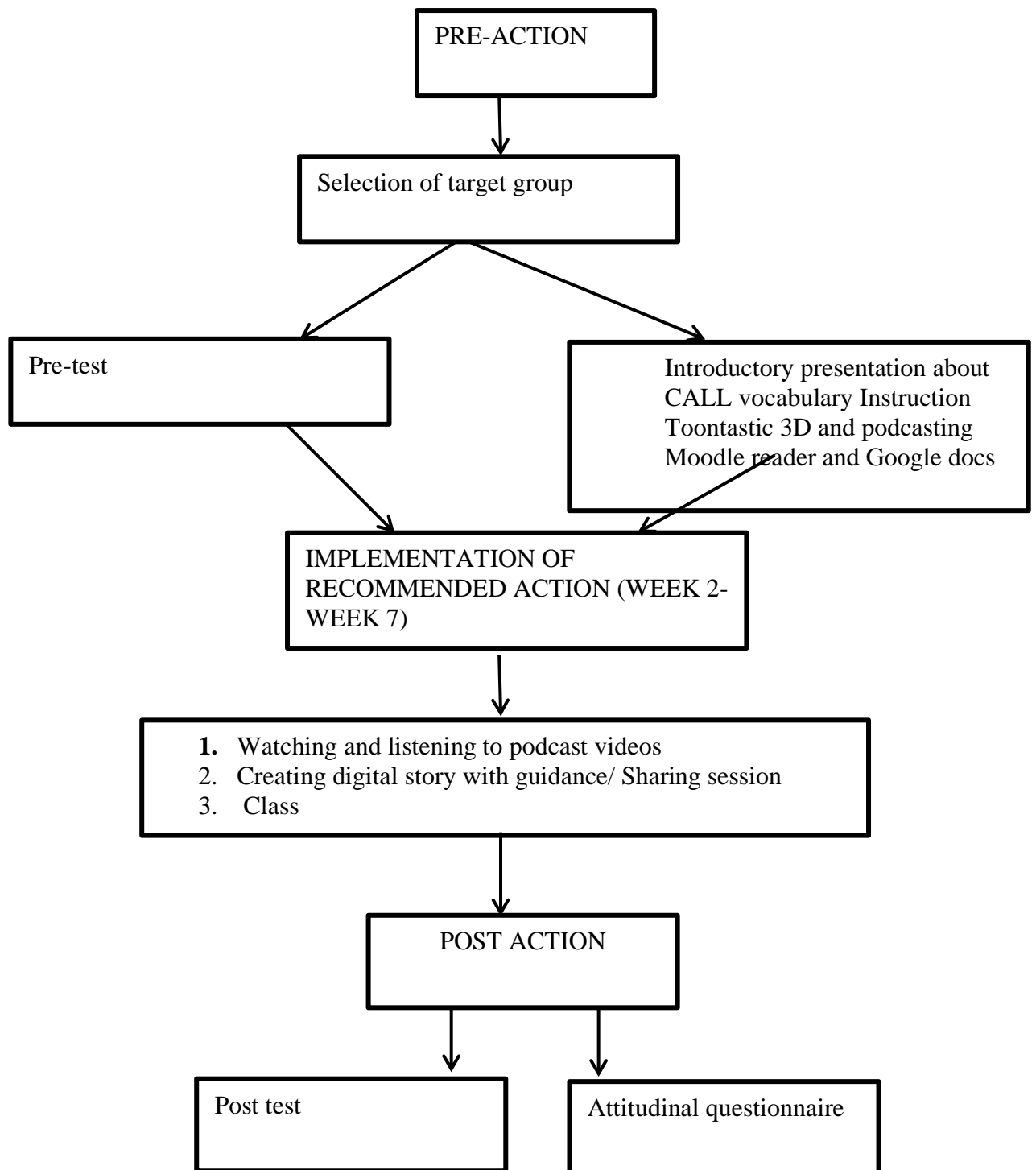


Figure 3.1: Pre- Action

From the diagram above the post test was administered to measure whether the subjects had made progress after they were given treatment and was used as a parameter to measure students' language skills (listening, speaking, writing and reading)

development. The posttest was administered on week 8 just directly after the last session. The standardized vocabulary test consisted of 25 scoring items as shown in (see Appendix VI). The vocabulary self-assessment checklist was used for the purposes of a pretest and posttest. The checklist included 25 vocabulary words that were chosen from Grade 5 and Grade 6 text books that all participants had learnt through explicit instruction. Explicit instruction followed this format: introducing the new vocabulary word, providing synonyms, and describing or explaining the meaning of the word. The Vocabulary Self-Assessment Checklist covered receptive and productive vocabulary (see Appendix V). The study also adapted Harris used (1969) levels of assessment to measure pronunciation, fluency, grammar, comprehension, vocabulary as key parameters in language skills development (see Appendix VII and VIII).

Further, the researcher sought a research permit from the Ministry of Education through the National Council for Science, Technology and Innovations. The permit was presented to the County Director in order to be granted a letter of permission and introduction to school heads through the District Education Officer. In every school that the researcher went to collect data from teachers of English, the researcher formally sought permission from the head teachers before embarking administration of tools. The researcher also sought informed consent from all the participants. The participants were asked to let their parents sign the consent form. The questionnaires were administered to teachers and parents in different schools.

3.7 Validity of the Instruments

Validity is the extent to which research instruments measure what they are intended to measure (Mugenda and Mugenda, 2009). That is, the accuracy and meaningfulness of inferences, which are based on the research results. Validity is the degree to which

results obtained from the analysis of the data actually represents the phenomena under the study. The extent in which an instrument asks the right questions in terms of accuracy. To ensure the content validity of language skills, curriculum, syllabus, and textbook used for grade 5 and 6 were taken into account. In the development of instruments, the researcher also asked for the judgment from her supervisor's s and two lecturers of the postgraduate Study of Machakos University about the content of the levels of language test and questionnaire. The study adopted Harris (1969) levels of assessment to measure pronunciation, fluency, grammar, comprehension, vocabulary as key parameters in language skills development it was considered that the validity has met the content validity requirements.

3.8 Reliability

Best and Kahn (2006) defines reliability as the degree of consistency that an instrument or procedure demonstrates. That is the measure of the degree to which an instrument yields consistent results or data after repeated trial. Reliability was ensured by pre-testing the instruments in a selected sample on a school from the target population. In this study, the writer applied Cronbach Alpha to find out the internal consistency of the tests by trying it out to non-sample students. The result showed that all of the questions were valid, with the reliability of Alpha Cronbach coefficient 0.808. The test was considered reliable because its reliability was higher than 0.70. To score the pupils' language achievement in both pre- and post-tests the language rubric proposed by Harris (1969) was used by three raters to measure. The writer explained it to the three raters before giving judgment in order to make sure that the three raters had the same concept. Then, in checking the language skills results, Inter-rater Reliability was used to see the consistency of three raters with the implementation of rating system.

3.9 Data Collection Procedures

The researcher obtained permission from Machakos University to enable her get a research permit from the National Commission for Science, Technology and innovation (NACOSTI), Ministry of Education, Science and Technology (MOEST). After acquiring the NACOSTI permit the researcher sought the consent of the Sub-County Director of Education (SDDE) in Kyuso Sub-County to carry out the study in Primary Schools. The researcher made an appointment with the Primary School Principals and personally administered the research instruments to the respondents in an effort of minimizing biasness, and to assure confidentiality.

3.10 Data Analysis

Quantitative data of the study was analyzed through descriptive statistics and inferential statistics. The descriptive statistics was used to summarize data in terms of percentages and frequencies while inferential statistics was used to establish relationship between dependent and independent variable. Descriptive statistics also helped the researcher to make interpretation easy and convenient in giving a general overview of the teachers' attitude towards the use of CALL and MALL in teaching and learning of English language. The regression method on the other hand was used to analyze data collected by use of the Likert Scale concerning the dependent variable and independent variables. Regression models showed the relationship between the independent and dependent variables in the study.

Qualitative data was analyzed through content analysis. The collected data was first coded, sorted and organized for analysis. Data from observation schedules was interpreted to complement the data from questionnaires. Data from interviews and

observation schedule was analysed through content analysis to complement data from questionnaires.

3.11 Ethical Considerations

The researcher obtained an introductory letter from the University and SDDE requesting authorities at the schools to allow the research to be carried out from their schools. The researcher requested to meet the learners and seek their consent (see Appendix 1) and to whom the purpose of study was explained and the learners requested to participate. The researcher also sought permission from the parents of all learners who were involved in the study to allow them to participate in the study. The researcher provided each parent with a permission form that explains the purpose of the study and asks for their permission and signature to allow their child to participate in the study (see Appendix II). Both parents and learners notified that the names of the participants would be changed to pseudonyms in order to protect the identities of the children.

The researcher sought informed consent from all the teachers of English (see Appendix IV). Informed consent gives participants autonomies and ensures that their integrity is protected. The findings and interpretations of the research were honestly and objectively presented. Confidentiality was maintained throughout the research. The integrity of the teachers, learners and schools involved was not revealed to unconcerned persons.

3.12 Chapter Summary

This chapter focused on the research methodology adopted in the study. It has presented the research design, the sampling procedures used, the sample size and the target population, the data collection procedures adopted, methods of data analysis, validity and reliability of instruments and presentation and ethical and confidentiality

considerations that were made for the study. The next chapter presents data analysis of objective one. The analysis is on use of Computers and Mobile Assisted Language Learning in support of the development of different English language skills in upper primary.

CHAPTER FOUR

USE OF COMPUTERS AND MOBILE ASSISTED LANGUAGE LEARNING IN SUPPORT OF THE DEVELOPMENT OF DIFFERENT ENGLISH LANGUAGE SKILLS

Introduction

This section focuses on application of Computer Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL) in support of the development of different English language skills in upper primary. Williams et al. (2020) argue that learning a language should be provided equally with quality to encourage opportunities for the purpose of sustaining future industries through lifelong learning as opined by the Sustainable Development Goals (SDG). In this vain, numerous efforts have been taken by the education systems worldwide to master English language skills be it as a second language or as a foreign language (Rao, 2020). The ubiquitous nature of CALL and MALL has contributed to innovative pedagogical practice and has significantly made its presence within the pedagogical approaches towards the development of English language skills.

To determine the support of both CALL and MALL the current study was conducted over a 3-month period with learners from two schools in Kyuso Sub County. At the beginning of the 3-month quasi experimental, all the participants in the study were oriented on how to use the language activities collaboratively using CALL and MALL applications such as podcasts, CALL vocabulary Instruction, Digital Storytelling through Toontastic 3D, Moodle reader and Google docs.

The study applied SCT by Vygotsky (1978) and more specifically the tenet of mediation and scaffolding. Vygotsky claimed that the society and cultural settings have a significant impact on the language acquisition process and in the language acquisition process, the environment is the most essential factor. This chapter applies the idea of mediation, the zone of proximal development (ZPD), ‘scaffolding’, and collaborative engagement that are all key aspects of sociocultural theory. The use of CALL and MALL are seen as important cognitive tools that may permit English learners to move into and through their ZPD. Moreover, scaffolding is also applicable in CALL and MALL research targeting English language learners involvement in joint activities with others. The findings of the study revealed that the use of CALL and MALL offers support in Vocabulary Development and the four language skills that are Speaking, Listening, Reading and writing as discussed in the following subsections.

4.1 Analysis of CALL and MALL in Support of Vocabulary Development

The study investigated the use of CALL vocabulary Instruction in support of English language learners’ vocabulary development. Learning and teaching of English is challenge for both teachers and learners alike. One major challenge is the teaching of vocabulary which is not treated as an applied skill. Yet, vocabulary is the essential factor connecting the four language skills in English classroom (Soltani, 2011). Moreover, having a good vocabulary helps you to understand what you hear, read, and write. Lewis (1993) asserts that “lexis is the heart of language”. Schmitt (2020) agrees that lexical items play such a crucial role when learners communicate that no messages are definitely produced or delivered without grammar or linguistics.

The current study investigated the integration of usable and available technology as a basic tool that supports vocabulary development. The research took 8 weeks. Pre-test,

immediate post-test and delayed post-test were used to assess the impact of CALL and MALL on English vocabulary development. Before treating the learners using CALL and MALL applications, the researcher administered the pre-test to the learners with the same instrument to know the homogeneity of learners' vocabulary level. The standardized vocabulary test consisted of 25 scoring items as shown in (Appendix V). In order to prevent students from using memory methods to recall words, the same test content with different order was performed without their knowledge. The quantitative data gathered from those tests was used to assess the treatment's impact. To ensure the test's dependability, learners were also told that the findings would not influence their end term exams. The self -test checklist help students reflect upon their own learning. The checklist included 25 vocabulary words that were chosen from Grade 5 and Grade 6 text books that all participants had learnt through explicit instruction. Explicit instruction followed this format: introducing the new vocabulary word, providing synonyms, and describing or explaining the meaning of the word. The Vocabulary Self-Assessment Checklist covers receptive and productive vocabulary as shown in Table 4.1.

Table 4.1: Vocabulary Self-Assessment Checklist

No	Word	I can define the word	I can give the synonym of the word	I can give the word in a sentence that shows the meaning of the word	I can use the word in a sentence that shows the meaning of the word	I can give a context /place in which the word can be used	Topic: Video to be watched
1	Chores						Child labor
2	Orphanage						
3	Domestic						
4	Exploiting						
5	Underage						
6	Celebration						
7	Anniversary						
8	Crowd						
9	Delicious						
10	Restaurant						
11	Appetizer						
12	Sorry						Etiquette telephone
13	Please						
14	Pardon me						
15	Thank you						
16	Ambulance						
17	Rescue						
18	Emergency						
19	Escape						
20	Tourist						
21	Attract						
22	Museum						Our tourist attractions
23	Swimming						
24	Beach						
25	Tour						

Eighty learners participated in Pre-test, immediate post-test and delayed post-test where they evaluated their own skills in vocabularies as guided in table 4.1 above. This is a new procedure of using independent t-tests to examine test results to measure the importance of word-form and word-meaning improvements. Moreover, vocabulary

learning involves knowing different aspects of a word. The above checklist can be used when pupils are learning new words, or revising ones they already know. The skills tested in the current study included defining the word, listing synonyms, using the word in a sentence, and giving the context where the word might be used. This method was deemed correct since tests typically study the evolution of word use as a group across time.

Prior to the intervention, participants had to undergo pre-test first. The next step was the treatment, where the learners were taught using CALL and MALL vocabulary instruction by utilizing the relevant videos and digital games. The presentation of the lesson was done by the researcher. The intervention was for a period of 6 weeks where MALL and CALL activities involved playing short informative videos related to the textbook content and they were allowed to take notes to later help them with the CALL and MALL vocabulary activity. This was done once a week and a reverse activity was planned with a video clip to be watched on the devices by the learners and the follow-up vocabulary activity was in-class for the teacher to assess firsthand their success in collaborating with other learners. Some of the activities had visuals attached to them. One teacher reported that the use of repetition and visual clues as well as the ability to hear the correct pronunciation of a word makes learning less difficult for the learners. The exercises for vocabulary teaching with CALL vocabulary instruction were simpler seeking passive inputs such as selecting the correct answer from the options given, and progressed to more complex ones, such as collaborating with others to complete the dialogues by substituting English definitions with words. The teaching activities in this section followed the steps in the table below:

Table 4.2: Teaching and learning activities for the quasi -experimental

Teaching Stages	Learning outcomes	Teaching Material
<p>Pre-activity (5 minutes)</p> <p>-The researcher greeted the learners.</p> <p>-The displayed a picture related topic e.g. children rights and responsibility.</p> <p>-The researcher gave motivation and asked some questions related to the topic that would be discussed</p>	<p>-To prepare the learners to study</p> <p>-To encourage the learners' attention to study.</p>	<p>Picture on children rights and responsibility</p>
<p>Whilst activity (40 minutes)</p> <p>-The researcher asked learners to watch video that was muted.</p> <p>-The researcher asked the learners to guess what actually happened in the video.</p> <p>-The researcher asked learners to play the audio/video with the sound, asked them to jot down the words, phrase, and sentences and mention them by taking turn with friends they choose.</p>	<p>-To keep the learners' attention while asking them to guess what happen in the audio/video they had watched</p> <p>-To make the learners' pay attention to discriminate the words, sounds, and intonation while writing down the words, phrases, or sentences they hear</p>	<p>Video on children rights and responsibility</p>
<p>-The researcher gave learners some printed questions and asked them to play the video again.</p> <p>-The researcher asked them to answer the questions</p>	<p>-To make the learners comprehend the audio/video while answering the questions</p>	

-The researcher asked the learners to act out what they had listened to or watched

-To make the learners have practice while acting out

Post activity (15 minutes)

-The researcher asked the learners to make sentences using new vocabulary they had got from what they had listened to/ watched.

-To evaluate the learners' comprehension of new vocabularies

-The researcher asked the learners to conclude the lesson.

-To check the learners' oral production while making sentences and conclusion at the end of the class.

-The researcher informed the topic for the next meeting.

-The researcher dismissed the class

Then, post-test was administered after finishing the treatment in week 8. The researcher used the same format of question that was administered in the pre-test. Even though the test instrument was the same, learners didn't realize that it would be examined again later. Finally, to examine the effect of CALL and MALL on upper primary learners' vocabulary learning, the scores obtained from the proficiency, pre-test, immediate-test and post-test were analyzed using SPSS Version 21.0. A sample t-test was performed to compare the vocabulary measures of the pre-test, immediate test and post-test. The self-vocabulary assessment test included words that all participants had the same vocabulary knowledge before experiencing the treatments of this study. And finally, in order to test the hypotheses of the study, the participants' vocabulary scores of the three tests were compared using independent samples t-test.

Table 4.2 displays the descriptive statistics of the scores that learners achieved on the vocabulary tests. To evaluate learning improvements due to the impact of CALL and MALL the researcher compared the number of terms that scored YES (I can define the word) with (I can give the synonym of the word) with (I can use the word in a sentence that shows the meaning of the word) and with I can give a context /place in which the word can be used on the pre-and immediate post-tests. The raw data were submitted to SPSS (version 21.0) to address the research questions and hypotheses of the study. Table 4.3 below presents the descriptive statistics analyzed. One sample statistic.

Table 4.3: Descriptive statistics and paired-sample t-test of pre-test, immediate post-test and delayed post-test

	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	80	59.46	5.70	1.11
Immediate post-test	80	98.57	16.34	3.20
Delayed post-test	80	89.11	12.89	2.5.2

The findings of the study in table 4.3 reveal that at the conclusion of the 8-week study, all participants scored higher on the 25-word exam than they did at the start. The pre-and post-tests confirmed that the terms scored YES in the pre-test were likewise rated YES in the post-tests. Additionally, almost all YES-marked words with incorrect meaning at the start were likewise marked YES in the post-test with the correct meaning. The findings of the study reveal that test scores in Vocabulary Assessment improved considerably among the learners after the CALL and MALL-based intervention. The CALL and MALL-based intervention included some activities that had visuals attached to them. The initial exercises were simpler seeking passive inputs such as selecting the correct answer from the options given, and progressed to more complex ones, such as collaborating with others to complete the dialogues by

substituting English definitions with words. The comparative descriptive statistics shows a change in scores in immediate post-test and delayed posttest.

The results show learners' immediate post-test scores ($M = 98.57$, $SD = 16.34$) are higher than their pre-test scores ($M = 59.46$, $SD = 5.70$), as shown in Table 4.1.2. Particularly, there was a 39.11-point increase between the pre-and immediate post-test. The pre-and immediate post-test standard deviations were 5.70 and 16.34, respectively, significantly less than the averages. Thus, the findings show the central tendencies for the entire dataset, that is, the standard deviation and mean have all increased. This demonstrates an upward trend in the performance of the group as whole. The upward trend shows that the collaborative learning achieved via CALL and MALL is beneficial to the learning objectives. That is participants improved their vocabulary scores by an average of nearly 39 points (98-59) on the immediate post-test. Thus, the averages and standard deviations indicated that the student's vocabulary knowledge had improved.

The use of CALL vocabulary Instruction via ipads, digital games and mobile phones are therefore seen as engaging and supplementary tools that are used to foster vocabulary learning in an English language class. The findings of present study above are in line with the results of some previous studies (Horst, Cobb and Nicolae, 2005; Kabilan et al., 2010) on the importance of vocabulary instruction through digital games on improving English learners' vocabulary learning and retention. The results of independent sample t-test indicated that there was a significant difference between learners' performances in the pretest and Immediate test. The results therefore reflect that, CALL and MALL had a positive impact on learners' vocabulary learning. Thus, the use of CALL and MALL applications had a great effect on learning new vocabulary.

The findings on the use of video games show this software had better improvement in their vocabulary knowledge as showed by the scores in immediate post -test.

A further quantitative analysis was on paired-sample t-test was used to assess if the difference in means between these two tests is significant at $p < 0.05$ as shown in Table 4.4:

Table 4.4: Paired Sample t-test

		Mean	Std Deviation	Std Error mean	95% Confidence Interval of the difference Lower	95% Confidence Interval of the difference Upper	T	Df	Sig (2-tailed)
Pair 1	Pre-test - Immediate post-test	-39.11	15.70	3.07	-45.45	-32.77	-12.70	25	.000
Pair 2	Immediate post-test - Delayed post-test	9.46	6.24	1.22	6.93	11.98	7.72	25	

The findings in Table 4.4 reveal that the crucial value of p was 25 for a two-tailed test with one degree of freedom. The difference in averages between the pre-and immediate post-tests is examined, $t = -12.70$, $p = .000 (< 0.05)$. The paired-sample t-test findings showed that the difference between pre-and immediate post-test reached a statistically significant level. The findings in Table 4.4 therefore demonstrate that learners' vocabulary acquisition improves when they utilize both CALL and MALL in class. The teachers reported that through the 8 week learner motivation was high and there was great cooperation and collaboration toward improved learning helping the peers learn. Thus, the findings are pegged to learners' interest in using online learning environments

which can be an excellent supportive agent to learn English language in and outside the classroom.

The findings of the paired-sample t-test also indicated that the difference between pre- and immediate post-test reached a statistically significant level. This demonstrates that learners' vocabulary acquisition improves when they utilize both CALL and MALL in class. Thus, the use of cognitive tools such as CALL and MALL seemed to be successful in terms of assisting students in developing their vocabulary.

The learners were able to complete teacher made worksheets on vocabulary activities using ipads. Some activities involved matching the meaning of the words with the help of visual pictures. The vocabulary activities on the ipad were chosen because important information (vocabulary words) was presented in a systematic and consistent fashion, much like the use of explicit teaching and the teacher-made worksheets. The findings are in tandem with Proctor, Dalton, and Grisham's study (2012) whose study showed that classroom technology, like the use of iPad, has the potential to provide learners with access to crucial digital literacies while working to improve vocabulary.

The results in Table 4.4 further indicate there was no statistically significant difference between immediate post-test and delayed post-test findings. The results show, the mean score in the post-test reached 98.57 (out of 25) and significantly decreased to 89.11 in the delayed post-test. Moreover, the mean score decreased by just 9.46 points between the immediate and delayed post-tests, with a 95 percent confidence range spanning from 6.93 to 11.98. This indicates that learners maintained a high number of vocabularies and kept them for an extended length of time. In other words, information that is presented in a multi-modal fashion including visual and audio improves vocabulary

knowledge and retention (cf. Traore & Kyei-Blankson, 2011). The learners were able to retain the vocabularies they had learnt as revealed by the post-test results. Moreover, a rich linguistic environment that is supportive of learners needs increases the ability of English language learners to comprehend the intended message. Thus, one of the benefits of using both CALL vocabulary instruction and MALL is to provide systematic repetition of words, ensuring that learned words are not forgotten.

The findings in Table 4.4 additionally indicate that the paired-sample t-test result indicated that the critical value of p for a two-tailed test with the degree of freedom was 25 and that there was a statistically significant difference between the immediate and delayed post-test findings with a p-value of .000, less than 0.05. The findings imply that the use of CALL and MALL promotes real vocabulary knowledge. Therefore, learners need to learn since vocabulary in context and with visual clues to help them understand. Moreover, computer and mobile applications can provide this rich, contextual environment. The above-mentioned results indicated a modest variation in performance between immediate and delayed post-test. This implies that after two weeks therapy there was a reduction in vocabulary acquisition.

The means of pre-test, immediate and delayed post-test are summarized in the chart as follows.

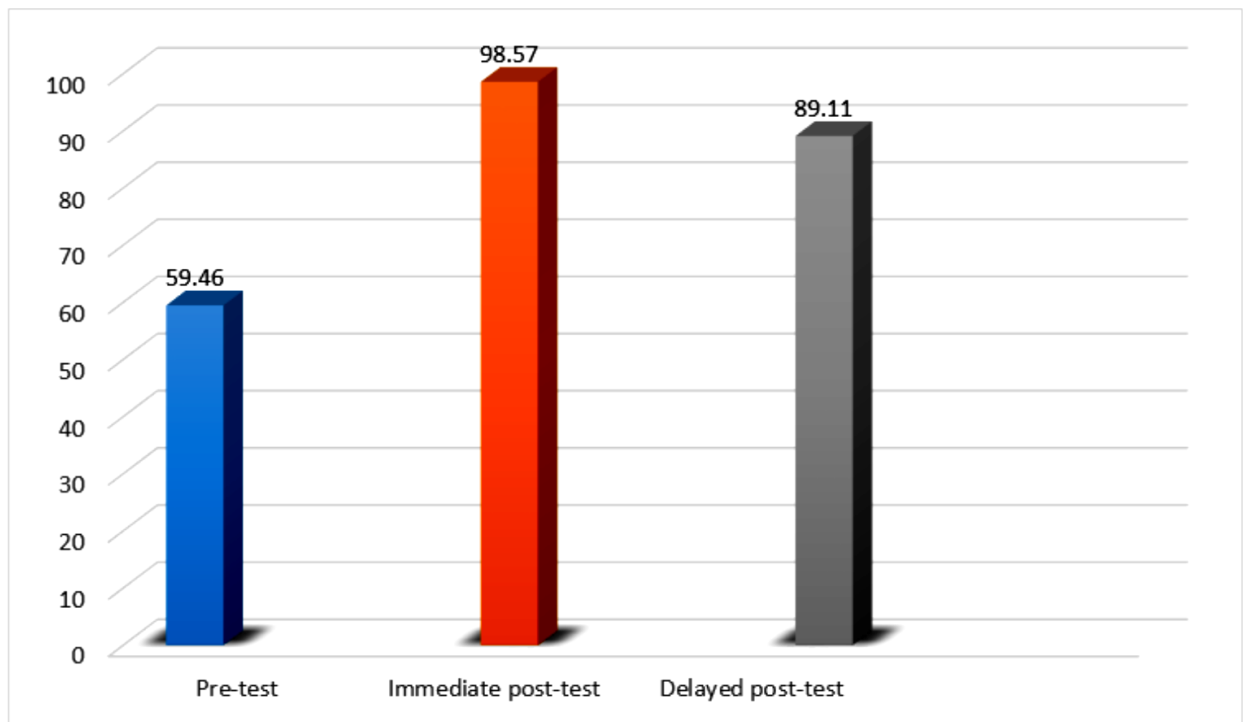


Figure 4.1: The Mean Score of Pre-Test, Immediate Post-Test and Delayed Post-Test

Source: Deborah Mutua

The findings in Figure 4.1 above show the learners' performance in the post-test after the CALL and MALL project after 8 weeks was, on average, higher than in the pre-test (98.57 in the immediate post-test in comparison with 59.46 in the pre-test). The results further reveal that the effects of CALL and MALL on vocabulary test were not significantly different in the immediate and delayed post-tests. The findings also showed that both CALL-based and MALL based approaches significantly increased learners' lexical knowledge in short and long period of time. Therefore, it is concluded that CALL and MALL technology may assist learners in increasing their vocabulary knowledge and that the words acquired while performing technology-assisted activities were maintained without substantial attrition two weeks later.

The results obtained from this study correlate with previous studies (Mousavi and Nemati; 2017 Hajebi, Taheri, Fahandezh, and Salari, 2018) on the importance of vocabulary instruction through CALL and MALL in improving English language learners' vocabulary learning. Moreover, the literature review showed that in most cases, the achievement gap between English language learners is differs in language proficiency levels which are one of the most persistent and frustrating a problem which is due to their limited knowledge of vocabulary (Ostovar-Namaghi & Malekpur, 2015). Consequently, there is need to provide learners with a context which allows them to learn vocabulary and visual cues that help them to understand. CALL and MALL therefore provide rich contextual environment that also allows students to be active learners.

The findings in the differences in the mean also reveal that learning vocabulary through CALL and MALL software's is more effective than learning it through printed book. Basing on the findings in this section the study concludes that teachers may use CALL and MALL applications to reinforce vocabulary learning. The study shows that CALL and MALL applications help learners to develop and use words in different contexts. Moreover, by using CALL and MALL applications learners could get rid of boring classrooms and have a fun time learning vocabularies. The findings therefore reveal that the use of both CALL and MALL have a significant effect on junior primary learners' English vocabulary learning.

4.2 CALL And MALL In Development of Language Skills

This section focuses on the use of CALL and MALL in language skills development. The section was based on the premise that lack of proficiency in English is usually reported among learners from primary schools as they transit to secondary schools.

This might be attributed to the kind of instruction methods used to teach the language. One of the consequences of the internet is the growth of culture and technology which demands that one has to be competent in English language skills in order to be part of the movement towards globalization. Therefore, having proficiency in English macro skills has been of foremost importance among English language learners to have a sustainable education. Hence, in this section the study focuses on the teachers' use of CALL and MALL in relation to four major language skills, namely speaking, listening, reading and writing. The analysis applies the sociocultural theory which plays a vital role in learning and more so in teaching of language skills. Both the teacher and peers are provide scaffolding,' or assistance that permits students to acquire the ZPD. It is presumed that the application of CALL and MALL necessitates social involvement and collaboration among learners.

Eighty (80) respondents participated in this research and the results and findings are presented in the subsections below. The age group of learners ranged from 10-15 and they were from school 5 and 6 (See Table 3.7). The participants that were chosen had limited levels of fluency, accuracy, and pronunciation basing on their end of term assessment.

The research was to take 8 weeks during 2023 second term: May to August. At the initial phase of the data collection procedures, during the first week, a pre-test was conducted. The pre-test was carried out to identify the level of pupils' speaking skills based on Harris's (1969) Oral Rating Scale (Appendix IV). Among the skills that were tested were pronunciation, grammar, vocabulary, fluency and comprehension. The results of the pretest were to be compared by the post test at the 8th week as will be

discussed in section 4.3.3. To test the use of CALL and MALL two main applications were used podcast and toontastic 3D as discussed in Chapter 3.

4.2.1 Using Podcast and Toontastic 3D Recording to Support the Development of Speaking Skills

The study sought to examine the contribution of CALL and MALL as new technologies to teach English speaking skills in upper primary. Bashir (2011) avers that speaking is an oral mode productive skill but it is very complex and complicated as it involves many more multiple abilities than just pronouncing words. Evidently, knowing English corresponds with being able to articulate the language. However, many upper primary learners still struggle to successfully master speaking skills. Yet, speaking is perceived as the most important skill to communicate effectively in this global world. One of the goals of English language teaching and learning in upper primary in Kenya is to encourage learners to speak and communicate the language effectively. Many learners in upper primary schools struggle to successfully master speaking skills. CALL and MALL have been advocated as innovative pedagogical practice that has the potential to be utilized in the acquisition of the speaking skills.

The study focuses on the use of CALL and MALL as an innovative pedagogical practice that has the potential to be utilized in the acquisition of the speaking skills. The analysis is close to the sociocultural theory in teaching speaking skills. The theory emphasizes that learning of a language obliges interactions. Therefore, to test the ability of CALL and MALL to support the development of speaking skills the research relied on podcast activities in class and recording on Whatsapp application as follow up assignment. This means that the achievement of learners depends on tasks performed inside or outside the classroom. The sessions on the use of CALL and CALL (podcasts and

digital narration through toontastic 3D were continuously carried out for six weeks (Week 2 through Week 7).

4.2.1.1 Podcast Competition

This section focuses on the use of podcasts activities to support the development of speaking skills junior primary English learners. Sze (2006) defines a podcast as modern technology used to construct learners listening and speaking skills. Podcasts are audio or video format that are available on the internet. Podcasts can easily be downloaded on the internet through the application using a computer or smartphone (Silmawati et al, 2018). The study used podcasts because they are innovative media that can be used by the teacher to facilitate student learning speaking inside or the outside classroom.

The use of podcast in enhancing the development of speaking skills was tested 6 times in 6 weeks. Each school had a total of 40 learners who were put in groups 3 and participated in CALL and MALL instruction aided class. Podcast is one of interactive Medias applied to support learning process in the classroom in developing listening and speaking skills.

The first podcast activity that the learners were engaged in was pre- speaking. The topic of discussion was proper use of leisure time. The goal of the lesson was to demonstrate to the learners the activities that reflect proper use of leisure time. The teacher displayed a picture on proper use of leisure time for the learners on each tablet as shown in image 1.



Image 4.1: An Image Showing Leisure Activities

Source: Grade 5 English course book

The speaking activities that participants were to engage in were: to describe what the children in the picture were doing. The pre-speaking activities were meant to prepare learners to participate in speaking activities. The state of being fully prepared is significant to learners' willingness to speak or communicate in any given situation. Any kind of hesitation will notably impede any signs of improvements in speaking skills. The pre-speaking activities are therefore important since they carry out a positive impression in the process of teaching and learning to support learners' involvement in the speaking process. The use pictures or presentations were in order to inspire the learners.

The second activity was for the learners to listen carefully to a song that the learners were to watch. The title of the song was leisure activities and the lyrics are given of the song are given below:

Walking the dog

Gardening is what I like to do

Go grocery, shopping,

Cooking with you

Playing sports all day

And visiting a zoo

My weekend activities with you

Playing a musical instrument

Learning a new language

That's what I like to do

Swimming I can do with you.

Walking the dog, gardening, cooking, go shopping, swimming

My weekend activities, activities with you

Song: Analysis of the song

After listening and watching the song. The participants were asked to discuss in their groups how the children in the song use their leisure time. The learners were also asked to identify from the song words that have sound 'ng'. Then they were also asked to practice saying the words that they had listed. The learners were asked to record their discussions when they spoke so that they could listen to themselves to discover pronunciation difficulties.

The next activity was podcast competition. The researcher downloaded the podcast on each device (6 tablets). The second step was for learners to produce a five minute

podcast on the topic '*My free time*'. The participants had a chance to repeat and correct their presentations before class discussions. This strategy encouraged learners to engage in speaking. Sze (2006) observes that repetition and practice in language learning is key for pronunciation and fluency. The researcher also observed active use of language during the recording sessions which is essential to fostering language awareness. Thus, the use of computers and mobile devices as a teaching–learning medium in language classrooms enables collaborative classroom activities and enriches authentic classroom activities via mobile applications and internet sites.

Each group's audio recordings were uploaded on the tablet for class discussions. To increase motivation, encourage creativity and give them a better understanding of their own abilities, the learners were required to listen to all the podcasts from other groups. The learners with the help of the researcher determined the best presentation. Therefore, the use of audio recordings enabled learners to focus on their weaknesses and gave them time to iron out their weaknesses in the next presentations which ultimately resulted in superior results. Furthermore, by listening to their own recordings' learners are able to identify language errors, particularly in pronunciation and grammar, and foster self-improvement.

The findings of activity 1 reveal the importance of CALL and MALL in development of speaking skills and pronunciation correction. The research reveals that several speaking tasks such as audio recording, presentations, responding to questions and spontaneous talks encouraged speaking. The learners in their recordings could be heard correcting themselves. This was an indicator of collaborative correction among learners. Recordings where learners helped each other imply prior preparation and reflection, the application of effective correction strategies, as well as simulation of

interaction between teacher and learner. When students produce this kind of recording, they are normally able to improve phonetic errors and acquire correct pronunciation. Thus, the oral activities have also an impact on pronunciation and intonation.

4.2.1.2 Digital Storytelling Through Toontastic 3D

The study also utilized the use of Toontastic 3D as both a CALL and MALL application to test the impact of technology in enhancing speaking skills. Toontastic 3D is both a CALL and MALL application that test the impact of technology in enhancing speaking skills. Toontastic 3D is a 3-dimensional narrative animation software with captivating narration and the ability to record its own voice to inspire and instruct kids or users. Toontastic 3D is suitable for youngsters aged 6 to 15 years and works both online and offline. This app therefore is appropriate in the classroom during face-to-face interaction and also for distance learning. Robin (2016) observes that digital storytelling is one of the approaches and it transforms the conventional style of delivering a story into a modern style that combines photographs, animations, videos, background music or sounds, text, and often a narrative voice with the use of technology.

The 4 steps of the digital storytelling process below adapted from Morra's (2013):

1) Step One: Research, Explore and Learn

Pupils were given a topic for creating the story. Then, they explored and learned about the topic as well as certain language focuses through lessons given by the teacher.

2) Step Two: Writing the Script

In this stage, pupils wrote the script for their story based on the topic given. They wrote in groups. Feedbacks were given by the teacher so that pupils could work on editing and revising their script constantly to produce the best script. Pupils were also required to memorize the script rather than read the script while recording the story.

3) Step Three: Creating the digital story

Pupils then used Toontastic 3D, to create their animated digital stories. They could choose settings and characters provided in the application, then narrate, animate and record their story in video form based on the script.

4) Step Four: Share and Feedback

Pupils submitted their digital stories in video form to their teacher. The teacher shared pupils' final products during classes and gave feedback to ensure better productions for the next round.

The stories were to last for 3 to 5 minutes in length and each week they could do a self-reflection of their recordings and redo the recordings. The learners were then asked to listen to at least two of their peers' recordings on toontastic 3D. The researcher then saved the stories on each tablet for analysis. In week 8 the learners were given a post test.

4.2.1.3 Analysis of the Results on Podcasting and Digital Storytelling Activities

The researcher used the pre- and post- tests as one of the instruments to collect data. The pre-test was done in week 1 while the post test was done in week 8. The findings of the oral evaluation rubric test (as adapted from Harris's Oral Rating Scale, 1969) reveals that the use of CALL and MALL support the development of speaking skills. A comparison of the test results of oral pretest and posttest indicate an improvement in oral performance. The results indicate the effectiveness of using both podcast and digital story telling through Toontastic 3D to support the development of speaking skills. The researcher measured pupils' speaking skills through the pre and post-test while focusing on five main aspects of speaking: pronunciation, fluency, grammar, vocabulary and comprehension (see Appendix VII). The findings of 80 respondents are presented in Table 4.5:

Table 4.5: Students' level of speaking ability (pre- and post-tests)

Test score	Level ability	Frequency		Percentage	
		Pre Test	Post Test	Pre Test	Post Test
80–100	Exceeding				
	Expectation	0	0	0	14.3%
60–79	Meeting				
	Expectation	11	14%	37	14.3 %
45.7%					
50–59	Approaching				
	Expectation	28	35%	23	34.3%
28.6%					
0–49	Below				
	Expectation	41	51%	9	51.4%
11.4%					

Table 4.5 shows the results of both the pre- and post-tests. The findings from Table 4.5 reveals that pupils were able to get better grades in the post-test after using Podcast and Toontastic 3D. This may have been due to active participation of learners in class. The researcher observed that the discussions and recordings on digital storytelling were a positive and inspiring process that can support learners and their learning environment significantly. The findings are in line with Costa and Han (2017) study that found that digital storytelling helps the teacher create an environment that makes the learning process easier for students to comprehend.

The current study also found that the use podcasts and digital storytelling inspired pupils to speak the language confidently. Pupils used podcasts and digital stories to share their ideas creatively, audibly, and kinaesthetically. The researcher was also able to control the learning process, improve confidence in learning, and inspire them to learn more. The researcher also observed that the respondents were motivated to speak

the language via podcast and Toontastic 3D as they have enjoyable features, and they can easily access the app on the tablets available and smartphones of their parents. The learners also found the use of MALL and CALL applications such as podcasts and Toontastic via computers and smart phones interesting. During the research sessions the heads of schools granted permission to the respondents who could access smart phones or tablets to avail them for research. The learners who could access the gadgets kept own recording digital stories. The study observes that the learners found the use of technology to learn English as a new exciting environment. A further analysis on paired t test was carried out and the findings are shown below:

Table 4.6: Comparison of paired sample t-test results

Paired Samples Statistic				
	Mean	N	Std. Deviation	Std. Error Mean
Post-test	62.9286	80	7.68804	1.29952
Pre-test	41.2143	80	8.00504	1.35310

The above results show the paired t-test that was done using SPSS software. The findings of the study reveals that there was a significant difference in the scores for participants' pre-test (M = 41.2143, SD = 1.35310) and participants' post-test (M = 62.9286, SD = 1.29952) conditions. Table 4.3.1.3 and 4.3.1.4 further support the findings above:

Table 4.7: Paired Samples Correlations

	N	Correlation	Sig
Pair 1: Post-test & Pre-test	57	0.898	0

Table 4.8: Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the difference Lower Upper	t	df	Sig. (2- tailed)
Post-test- Pre-test	21.7143	3.56264	0.6022	18.09047 20.5381	32.073	34	0

The results in table in Table 4.8 that $t(34) = 32.073$, $p = 0.000$. Since the test is statistically significant ($p < 0.05$), there is sufficient evidence to conclude that MALL and CALL applications such as podcast and digital storytelling did significantly improve the upper primary pupils' speaking skills. The researcher observed that respondents were excited about the new environment of using and learning language. The digital stories allowed respondents to combine digital images, text, recorded audio storytelling, video, and music. Moreover, the stories were two to three minutes long. Moreover, the features of both podcasts and toontastic 3D were user friendly, such as the touch screen feature, offline agent, and smooth operations, allowed respondents to adopt and display favorable attitudes towards speaking activities. Thus, CALL and MALL application such as podcast and toontastic 3D are sort of culturally sensitive training that helps English language learners improve their speaking abilities in a natural, engaging setting (cf. Jamissen, Hardy & Nordkvelle, 2017).

The quantitative analysis of each aspect of speaking shows that the use of podcasts and digital story telling via toontastic 3D reveal that such CALL and MALL applications are powerful educational tools that combine technology with stories, integrating text, pictures, and audio in creative stories. Thus, they may be used to help learners improve their English-speaking skills by allowing them to narrate tales in their own words. The results show that both recordings in podcasts and digital stories have a positive effect on the oral performance of learners. The findings of the study demonstrates that the use of podcasts and digital stories encourages the development of speech abilities and increases motivation towards language learning in general and speaking skills.

For instance, the findings below show that the pupils' speaking skills improved in their pronunciation and fluency following the intervention as shown in Table 4.9. The parameters and levels of ratings are given in table below:

Table 4.9: Levels of ratings of Pronunciation and Fluency

No	Criteria	Ratings	Comments
1	Pronunciation	5	The pronunciation is clear and quite understandable for elementary students.
		4	There are some pronunciation problems, but still quite understandable.
		3	Pronunciation problem necessitate listening and occasionally lead a misunderstanding.
		2	Very hard to understand because of pronunciation problem. Must frequently be asked to repeat.
		1	Pronunciation problem so severe as to make speech virtually unintelligible.
2	Fluency	5	Able to use the language fluently, rare skip, and the speed of speech are at the normal rate.
		4	Speed of speech seems to be slightly affected by language problem.
		3	Speed and fluency are rather strongly affected by language problem.
		2	Usually, hesitant often forced into silent by language limitation.
		1	Speech is so halting and fragmentary as to make conversation virtually impossible

The above is the criteria that was used to rate the learners pronunciation and fluency and the results are given in figure:

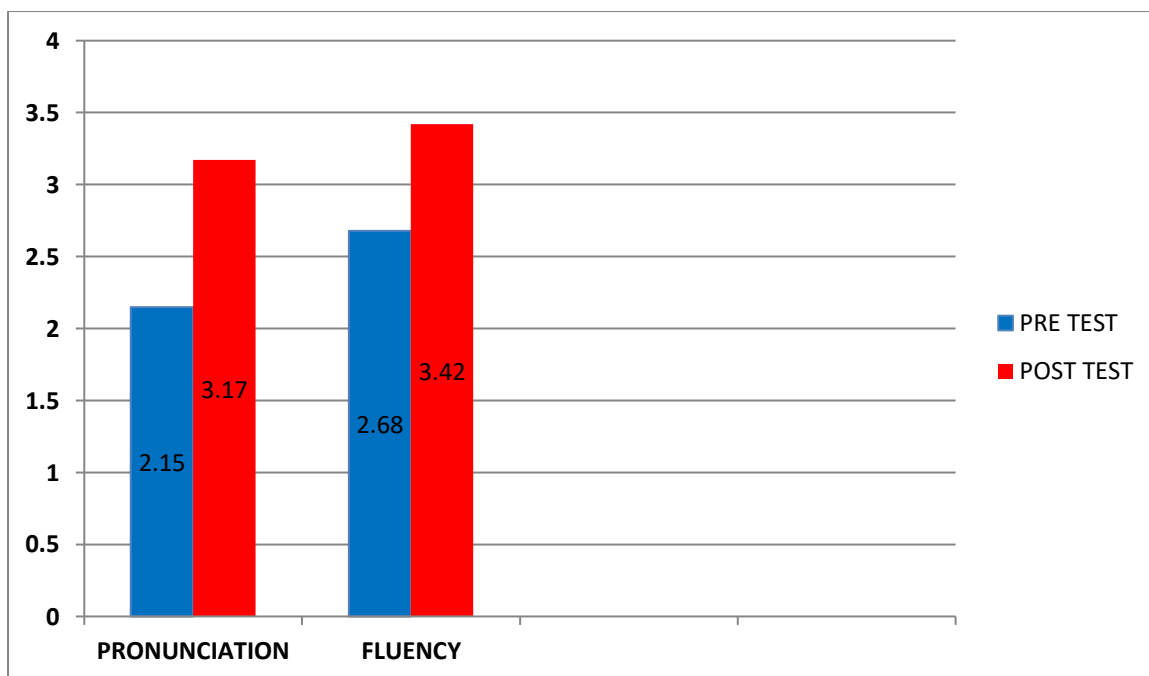


Figure 4.2: Comparison of Pre- and Post-Test Results on Pronunciation and Fluency

The results in Figure 4.2 shows there was a significant difference between the results of the pupils' pre and post-test mean scores in pronunciation and fluency. There was also an increase in the mean score. The researcher observed that the use of podcasts and toontastic 3D provided learners with adequate opportunities for speaking in order to enhance the acquisition of oral communicative competence. Both podcasting and digital story telling provided learners with the opportunities in the improvement of speaking skills or the correction of pronunciation. The researcher also assigned learners tasks that involved listening to individual native speakers, pairs and group presentations. This had an impact on respondents practicing to be fluent speakers.

The findings on grammar, vocabulary and comprehension were measured using the criteria in Table 4.1 shows the levels of ratings of vocabulary, grammar and comprehension:

Table 4.10: Levels of ratings of Grammar, Vocabulary and comprehension

No	Criteria	Ratings	Comments
1	Grammar	5	Errors in grammar are quite rare.
		4	There are few grammatical errors but still intelligible.
		3	Makes frequent errors grammar and word order occasionally obscure meaning.
		2	Grammar and word order errors make comprehension difficult. Must often rephrase sentences or restrict them to basic patterns.
		1	Errors in grammar and word order so severe as to make speech virtually unintelligible
2	Vocabulary	5	Almost all vocabularies used are in a proper use.
		4	Frequently use inappropriate terms or must replace ideas but still intelligible.
		3	Frequently uses the wrong word, conversation somewhat limited because of inadequate vocabulary.
		2	Misuse up words and very limited vocabulary make comprehension quite difficult.
		1	Vocabulary limitation so extreme as to make conversation virtually impossible.
3	Comprehension	5	Understand most of what is said at average speed.
		4	Understand what is said at average speed, but occasional repetition may be necessary.

3	Understand what is said is at slower than average speed repetition
2	Has great difficulty following what is said. Can comprehend only “social conversation” spoken slowly and with frequent repetition.
1	Cannot be said to understand even simple conversational English

The researcher rated the respondent’s grammar, vocabulary and comprehension basing on the guidelines adapted from (Harris, 1969) speaking scoring rubric. The findings reveal that there was a significant difference between the results of the pupils’ pre and post-test mean scores the three speaking aspects as shown in Figure 4.3:

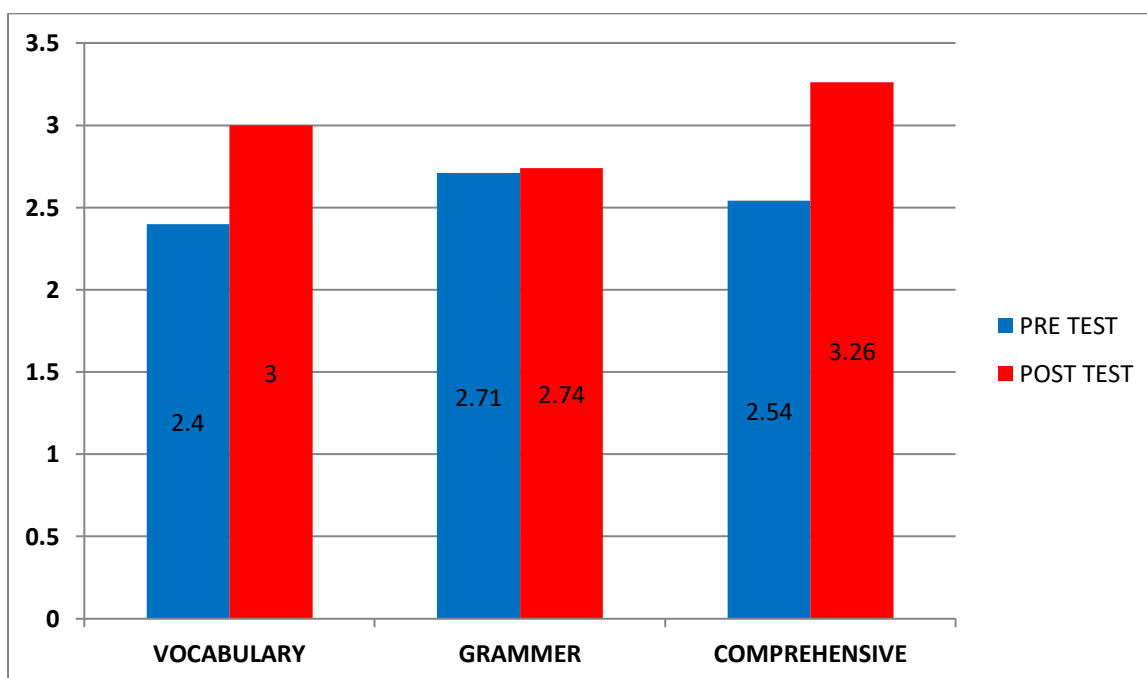


Figure 4.3: Comparison of Pre- and Post-Test Results on Vocabulary, Grammar and Comprehensive)

Figure 4.3 shows the level of pupils’ speaking skills aspects of grammar, vocabulary and comprehension based on the adapted Harris’s Oral Rating Scale (1969). The findings show there was a significant difference between the results of the pupils’ pre

and post-test mean scores in three speaking aspects. There was also an increase in the mean score for all the three speaking aspects. The results demonstrate that apart from podcasts and digital stories via Toontastic 3D assisting in speaking English effectively they also improve their vocabulary abilities. The researcher also observed that the use of the application also contributed to the pedagogical process by encouraging active involvement among learners.

Moreover, the findings reveal that using CALL and MALL may result in an improvement of comprehension skills. The researcher observed that CALL and MALL applications may be used to introduce new material, encourage conversation and make abstract or conceptual topics more intelligible. The voice recording on podcasts and digital stories reveal that learners were able to improve in terms of organization of thought. The learners by week 7 were able to voice their opinions about the topics given, develop narratives and communicate information in a relevant manner. A follow up was given to learners who could access the applications at home via smart phones. This enabled learners to produce their own recordings. Some learners completed the assignments by retelling the stories and through self-reflection. The findings indicate that both podcasts and Toontastic 3D enhance the learners' metacognitive skills and self-reflection by empowering them to share and articulate their thoughts.

Therefore, the findings reveal that CALL and MALL applications can improve oral production skills among young learners. The findings from the recordings reveal that both computer and mobile phone applications show great promise for fostering language production skills due to the high-level cognitive processes involved in producing podcasts and digital stories. The learners produce authentic language both

inside and outside classroom. The learners have the opportunities to express thoughts and ideas, share viewpoints and perspectives and produce authentic language.

4.2.2 Enhancing Listening Skills Through Podcasts

This section focuses on the use of podcast to develop upper primary listening English skills. Podcast is one of interactive application applied to support learning process in the classroom in developing both listening and speaking skills. Therefore, the use of podcast is seen as a way as a way of enhancing the learners acquisition of language skills by providing a rich and comprehensive input that is relevant in motivating them. Listening is one of the skills that have been relatively ignored in applied linguistics yet listening plays a more central role in language teaching, and speaking is the outcome of the listening process. For instance, Jafari and Hashim (2012) observe that listening provides the listeners information from which to develop their knowledge. This consequently results to speaking. Thus, listening has a crucial role in communication (cf. Vandergrift 2007; Nunan & Newton, 2009).

To investigate the impact of CALL and MALL in enhancing listening skills 80 respondents participated in the study. In week 1 all learners were given a pretest that tested on accuracy, fluency and comprehension.

In the quasi experimental the research aimed at exposing learners to literacy proficiency such viewing and interpreting visual representations. The study research began by having the participants listen to the three stages of instructional podcasts that were provided by the researcher. Those activities are divided into three main instructions; pre listening, whilst listening, and post listening. Each activity has different procedures and activities as shown in the sample of lesson 2 below:

4.2.2.1 Pre Listening Activities

The activities in this section includes the learner looking at pictures, predicting the content, going over the instructions and doing guided practice. The researcher provided the listening instructions to the learners using podcast. The title of the lesson is English podcast: Getting around the cities. Among the pre listening activities are:

- The teacher uploads the picture about “Nairobi city”.
- The teacher asks what the learners see whether it is the view of a city or countryside.
- The teacher asks the learners where they prefer to live in “a city or countryside”.
- The teacher asks the learners experiences living in the city or in the countryside.
- The teacher gives few vocabularies about the content of the programme that they will listen: sidewalks/pavements, zebra crossings, traffic, suburbs and malls
- The teacher asks the learners to predict what the speaker in will talk about in the programme.



Image 4.2: Nairobi City

Source: Grade six English course book

After giving a warming up about the English podcast: Getting around the cities, the teacher reminded the learners to move to the next procedures with some activities. This was done to conclude the oral lesson on Listening.

4.2.2.2: Whilst Listening Information Gathering

English podcast: Getting around the cities-15 minutes

Presenter: This is Jack from to fluency.com. It is fantastic to have you here listening to episode 12. In today's episode, you're going to learn English phrases and vocabularies related to getting around cities in Europe and the U.S. This will give you great. . .

Available at: <https://www.youtube.com> (sourced from English course book grade six)

The learners will listen to podcast. The topic is “Getting around the cities” with different activities (yes/no questions and comprehension questions).

Activity 1: Individual work: The teacher will introduce the speaker in the programme. Teacher distributes yes/no questions and asks the learners to read before listening.

Listen to this excerpt of English Podcast episode 12 about Getting around the cities.

Optional activity: While you listen, decide whether the following sentences are true or false.

Table 4.11: Listening skills activity

Sentences	True/False
Getting around the cities mean to move from one home place to another	
The speaker is from Spain	
The speaker has lived in America for ten years	
In the city there are pavements everywhere	
The speaker used to go to the city on a bike	
There are zebra crossings/ cross walks in the city	
Taking a bus in UK is common	

The researcher checked the learners work after listening and the number of learners had correct answers. The researcher motivated learners to prepare for a more changing activity that involved comprehension.

Activity 2:

In pairs work: The teacher distributes the comprehension questions and ask them to read the questions with their pairs first.

The researcher requested learners to relisten to English podcast: ‘Getting around the cities’. **Optional activity:** While you are listening, answer the following comprehension questions.

- i. What does the English podcast talk about?
- ii. What are the different ways of getting to the city?
- iii. How did the speaker get to the town Centre?
- iv. Why do people like taking buses in the US?
- v. What is a strip mall?
- vi. Explain the following words as used by the speaker: City Centre, suburbs, drive ways and Zebra crossings

After the first listening, the researcher asks the learners whether the teacher needs to replay the audio or not. (Listening again). And at the end, the teacher invites them to share their opinions.

4.2.2.3: Post Listening

In this section the researcher encouraged students in pairs to discuss different topics related to the city. Among the topics that were discussed were features of a city. The learners then exchanged their ideas or opinions about city environment. The writer asked the student to make sentences using new vocabulary they had got from what they had listened to/ watched.

The researcher requested learners to provide a list of questions they would like to ask about the topic of the podcast. The researcher informed the topic for the next class. -
The writer dismissed the class.

4.2.2.4: Podcast and the Outcomes of Learning

The findings consist of descriptive statistics and statistical analyses of the listening tests. Table 4.12 below:

Table 4.12: The results of listening tests

Variables	Pretest Mean	Post test Mean	Mean Dif	Std. Dev	p-value
Listening	52.5	76.2	23.6	3.2	.000

The findings of the study revealed that teaching listening skills using podcast created some activities and learning outcomes. Table 4.12 shows that the mean score of 80 learners' listening pretest was 52.5 and the mean score of learners' listening posttest was 76.2. Thus, the mean difference between students' listening pre-test and post-test was 23.633. In addition, the p value of listening was 0.000, lower than the alpha value 0.05. Hence, the learners' listening achievement improved significantly after being taught by using Podcast.

The findings of the study showed that there were significant differences in listening achievements between the pre-test and post-test and this was after the learners were taught using Podcast. This fact indicated that the use of Podcast in teaching listening and speaking to the students had improved the students' listening achievements. In addition, Podcast helped the students to gain significant improvement in their listening and speaking achievements. The results also supported the idea of teaching the language skills integrated. Podcasts could be used to integrate the learners' listening achievements. This result is in agreement with findings by Jain and Hashmi (2013) that there are significant differences in the learners' listening skills achievements when the learners were taught by using Podcasts.

An improvement in the learner's achievement may have been caused by the fact that Podcasts exposed the learners to the authentic materials which were relevant to their life. Moreover, podcasting is an interesting and engaging learning tool that provides a

valuable environment especially for an extensive listening activity (cf. Barber, 2007). Moreover, when the podcast was played in the treatment, the learners were provided opportunity to learn new vocabulary and content knowledge through accessing a lot of listening materials.

In summary, above results indicate that using podcasting as a teaching strategy supports the development of listening skills. The results show that podcasts provide users with a mixture of audio and visual texts, while other podcasts are a mixture of audio and still images which provide enhances literacy development in learners. Therefore, podcasting offers a way for teachers to deliver instructions that appeal to the auditory and visual learners. The findings indicate that using podcasts in English language class influences skills such as listening and speaking and contribute a lot to give some improvements both for the teachers and the learners.

Richards (2008) observes that the difficulties of listening for the EFL learners arise from seven main reasons: Speed, Repetition, Vocabulary, Signals, Interpretation, Concentration and Perfectionism. Therefore, learners need a great deal of exposure to spoken language and sufficient practice in various listening situations to develop their listening abilities. The results show that podcast provides learners with learning styles that might change their ways to practice listening, increase vocabulary level, grammatical sentence, intonation, and imitate pronunciation. Moreover, podcasts expose learners to practice since the listeners engage in the process of listening and develop their desires of understanding.

4.2.3 Developing Upper Primary Learners Reading Skills Through Moodle Reader

Temur, Kargin, Bayar and Bayar, (2010) observes that reading skills are essential for any language learner as the main means of acquiring information in order to construct meaning. However, the teaching of reading skills can pose significant challenges for educators over a range of different educational levels. For instance, reading skills is the most complex and interactive process based on an individual's perception of a text (Namjoo & Marzban, 2014). Moreover, reading oscillates between bottom-up processes, such as word recognition, decoding, and automaticity, and top-down processes, such as schema or background knowledge use. Choi, Moon, and Kang (2018) note that reading together and listening are considered receptive skills, rather than being connected to speaking and writing as productive skills, but more recent research has studied the relationship of reading to different skills, most importantly the correlation between reading and writing.

The current study addressed the challenges of teaching reading skills by setting objectives and learning tasks which shift the focus from the teacher to the student and utilizing technology. Therefore, the main hypothesis in this section is that MALL and CALL systems and applications may enhance reading skills among learners in upper primary learners. In order to test this hypothesis in upper primary, the study used a pretest–posttest study design. The pre and post-test consisted of 5 reading passages and with 6 each question focused on tasks such as scanning, finding the topics of reading passages, guessing meaning from context, comprehension, and pronoun references. The aim was to evaluate a learners' reading fluency, accuracy, expression and comprehension to make a determination of the reading ability of the learners.

The treatment included blended learning of reading skills using Moodle reader for 6 weeks. The treatment focused on improving reading skills including reading comprehension, guessing meaning from context, inferring, and summarizing. The dependent variable was the effect observed by the two application used during the research. Moodle-reader is an online media website that is designed for practicing extensive reading skills and training learners'/students' reading comprehension skills. This Moodle-reader could make it easier for teachers to test learners' skills and improve reading comprehension. Moodle-reader enables teachers to verify that learners' have read and understood graded reader books. Online reading activities included additional hours of reading practice and instruction outside the regular school timetable. The use of moodle reader for the six weeks addressed the problem of vocabulary recognition, word decoding, and inability to say words correctly. The system provided an easy-to-use automated speaking glossary. That was very effective and participants were able to recognize vocabulary and say words correctly by week 6. Participants also had the opportunity to separately read sentences and short passages with the help of their teacher.

4.2.3.1 Moodle Reader and the Learning Outcomes

The findings consist of descriptive statistics and statistical analyses of the reading skills tests. Generally speaking, all the participants in the pre-test were unable to respond positively to the test questions. They had noticeable problems with vocabulary recognition and word decoding. Results in the pre-test and post- test are represented below in Table 4.13.

Table 4.13: The Results of Reading Tests

Variables	Pretest Mean	Post test Mean	Mean Dif	Std. Dev	p-value
Reading	47.22	63.98	16.7	0.4	.000
Comprehension	15.8	21.20	5.4	0.4	.000
Accuracy	16.3	21.79	5.433	0.4	.000
Fluency	15.0	20.42	5.367	0.5	.000

The results of reading test, in Table 4.13 shows the reading pretest and its aspects mean scores. The pretest mean score of reading was 47.222, the scores of accuracy, fluency and comprehension aspects were 16.366, 15.062, and 15.802. Then, the reading posttest means score was 63.987 and its aspect mean scores; accuracy was 21.799, fluency was 20.429, and comprehension was 21.202. Hence, the mean difference between the learners' reading pretest and posttest was 16.767 and the mean differences of its three aspects orderly were 5.433, 5.367 and 5.4. In addition, the p value of speaking and it aspects was 0.000, smaller than 0.05.

The results above reflect clearly that the overall performance of learners was improved after the use of Moodle reader. The use of Moodle reader activities improved the learners' skills in relation to vocabulary recognition and word decoding. These findings are in line with Sato and Suzuki's (2013) argument that MALL systems, applications, and activities lead to better comprehension in L2 reading by means of enhancing vocabulary learning as shown by the results in Table 13. The Moodle reader has hyper media features such as pictures, audio, video, animation, or all of these in one combined material known as multimedia (cf. Ketabi, Ghavamnia & Rezazadeh, 2012) that attracted the learners and motivated them. These elements deemed helpful towards developing reading comprehension. Learning therefore implies that learners can read,

refer to, and learn not only from a simple electronic text but also from various kinds of materials.

The results improved significantly also since learners had the opportunity to explore, derive meaning, and extend their own comprehension of the reading materials resulting in active development of knowledge rather than passive. Thus, the use of Moodle reader had an impact on the reading proficiency of learners. The learners whose parents had advanced mobile phones stated that they could practice reading at home. This implies that incorporating MALL and CALL in learning of English language can be used in a variety of different locations, not only in classrooms. Consequently, learners' can develop their reading proficiency and improve their reading skills in a suitable location and at a convenient time.

Through direct observations the researcher noted that learners liked to be involved in doing tasks, watching images, and working independently. It was clear that learners showed increasing interaction in the classroom during Moodle reader sessions. This interaction was reflected in learner-learner and learner-teacher communication. It was evident that learner had a positive attitude towards Moodle reader activities.

In summary, the findings on the use of Moodle reader show that the APP is beneficial and has positive impact on teaching and learning of reading skills. It can improve learners' reading ability independently and outside the classroom. The learners can enjoy reading a text based on their levels. The second suggestion learners should be active as independent people.

4.2.4 Enhancing Upper Primary Learners Writing Skills Through Google Docs

Writing is a skill used by learners to express opinion with support evidence and depending on their knowledge. Therefore, in writing skill upper primary learners have to share their ideas and opinion in written form with detailed information. Celce-Murcia (2001, p. 305) state that writing skill is the ability to express one's idea in written form in a language with reasonable accuracy and coherence. The main reason for writing is the expression of ideas; the conveying of a message to the reader thus the ideas themselves should arguably be seen as the most important aspect of the writing.

Mastering the skill of writing can be very difficult for upper primary learners. The difficulty lies not only in generating and organizing ideas but also in translating these ideas into the readable text (cf. Richards & Renandya, 2002). In upper primary, learners are encouraged to focus on lower-level skills such as spelling and word choice. These skills may be enhanced through the use of Google docs. Therefore, the main hypothesis in this section is that Google docs may enhance writing skills among learners in upper primary learners.

In the application of CALL and MALL method by using Google document, the researcher conducted quasi experimental through classroom action research. Google docs are an online digital tool that provides exciting and interesting features. The features can help teachers in teaching writing skills. The feature is also very helpful for learners and students writing English such as searching words in English digital dictionary, antonym or synonym and provides spelling grammar checking.

In the application of CALL method by using Google document, the researcher through her Google Account always introduced learners the Google drive which is located at: <http://drive.google.com/> . The researcher then guided learners to go to Google Drive by

clicking on the word "Drive" along the taskbar at the top of your screen. The researcher introduced learners to Google Docs. In the researcher will Share a reading text (very short story) created by her, ask the learners to open short story and read, determine the different idea in the end the story, Pre writing: generating ideas from the short story, Drafting and writing in Google Docs, Sharing and commenting with the peers, Revising or editing by using tool checker and grammar and Publishing.

The pre-test and post in writing skills considered to determine the impact Google Docs in writing skills. The test was developed per the general guidelines and general learning outcomes of the 6th grade curriculum and scored using the writing scoring rubric of the Ministry of Education (MoE) along the criteria of content and ideas, organization and mechanics, vocabulary, and language use, as shown in Table 4.14:

Table 4.14: Criteria of content for testing writing skills and the scoring rubric

Criterion/ Level	Content and Ideas	Organization and Mechanics	Vocabulary	Language Use
Exceeding expectations 60-40	Complete Realization of the task Relevant Communicative	Well organized Clear, coherent Mechanics of writing are well observed	Demonstrate a wide range of vocabulary Effective use of word choice, idioms, etc.	Mostly accurate Few mistakes Communication is not impeded
Approaching expectations 20-39	Realization of the task Lack of ideas Not communicative but meaning is conveyed	Loosely organized No noticeable coherence Frequent errors in mechanics	Limited range of vocabulary No effective use of vocabulary to convey a message	Frequent grammatical errors Use of one straight pattern
Below expectations 0-19	Irrelevant ideas Not communicative Not conveyed messages	Disconnected ideas. Not organized No use of writing mechanics	Little use of vocabulary Vocabulary is insufficient to convey meaning	Global grammatical errors No mastery of sentence structure

Maximum score per component= 15; Maximum overall score= 60

4.2.4.1 Findings on Pre-Test and Post-Test

The descriptive statistics concerning the mean scores of in pre- and post- are presented in Table 4.15 below: n=80.

Table 4.15: Descriptive Statistics

Variables	Pretest Mean	Post test Mean	Mean Dif	Std. Dev	p-value
Content and Ideas	12.92	13.03	0.11		.000
Organization and Mechanics	12.31	12.80	0.49		.000
Vocabulary	11.15	12.03	0.88		.000
Language Use	10.15	10.63	0.48		.000
Overall	46.23	48.50	2.27		

Table 4.15 above shows statistically significant differences (at $\alpha=0.05$) among the participants' mean scores on the overall writing achievement post-test. To determine the learners overall achievement scores on the pretest and post-test for the four variables means and standard deviations were calculated. The observed difference between the means of pretest and posttest in all variables was found statistically significant (at $\alpha=0.05$), as was that between the mean scores of both in favor of the quasi-experimental groups.

The results above showed a considerable amount of performance progress in terms of content and ideas, organization, mechanics, vocabulary, and word choice. The results may be so because the use of CALL applications which offers learners opportunities for autonomous learning. For instance, learners may gain autonomy, learning ownership and self-confidence. During the treatment, Google Docs allowed learners to take decisions about their own learning, especially during self-learning activities. In addition, allowing the, learners to use CALL in classroom may have catalyzed their sense of autonomy and learning ownership which has translated into more time-on-task and, consequently, more expedient learning. The researcher and the teacher of English observed first-hand how the same learners, who did not usually make much effort in the regular classroom, were eager to collaborate with each other and, eventually, to develop their writing performance.

The study therefore finds CALL and MALL as an effective mean that may be used by teachers to develop the writing skills of upper primary learners. Google Docs were found to have positive effects on learners writing skills in terms of content and structure; in fact, results strongly suggest that Google Docs facilitate and enhance the teaching of writing because of their ability to motivate learners.

4.3 Chapter Summary

This chapter focused on application of Computer Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL) in support of the development of different English language skills in upper primary. Various applications were applied such as CALL vocabulary Instruction, podcasts and Digital Storytelling Toontastic 3D for testing listening and speaking, Moodle reader for reading skills and Google docs for writing skills. Participants consisted of 80 learners studying English as a second language in upper primary in Kyuso sub county, Kitui County. The results of the pre- and post- tests revealed that CALL and MALL applications were effective in helping learners develop language skills. The results showed significant improvement in all language skills. The findings of the results show that many advantages of computer and mobile-based reading activities such accessibility; usability and functionality motivate learners to learn language skills. The study revealed that CALL and MALL activities are stimulating, motivating, entertaining and even funny which have consequences on their English learning process. The next chapter (5) will focus on the benefits of computers and mobile assisted language learning in English language teaching and learning in upper primary

CHAPTER FIVE

BENEFITS OF COMPUTERS AND MOBILE ASSISTED LANGUAGE LEARNING APPS IN ENGLISH LANGUAGE TEACHING AND LEARNING

Introduction

This chapter focuses on the benefits of Computers and Mobile Assisted Language Learning Apps in English language teaching and learning in upper primary. The use of CALL and MALL has become an essential factor in the process of language learning. This research synthesis aimed to analyze the benefits of CALL and MALL in English language and teaching. Thus, the analysis unveils the use of CALL and MALL technology in teaching and learning in English classrooms in upper primary. The focus areas within this chapter are: CALL and MALL on language learners' motivation, collaborative language learning with CALL and MALL and CALL and MALL assessment. The specific CALL and MALL applications that were utilized in this study are: CALL vocabulary learning, podcasts and toontastic 3D recording, Moodle readers and Google docs.

The data in this section was adopted from semi structured interviews that was done after the post-test and through direct observation. One pupil from 13 groups from each school was chosen randomly to participate in the interviews to reflect on their engagement in the experience of using CALL and MALL in English classroom. Interviews lasted 10 minutes each and they were recorded and then transcribed verbatim. The interviews included five questions that investigated the engagement aspects, the benefits, and the challenges of using the CALL and MALL Apps in English classroom.

5.1 CALL And MALL on Learners' Motivation and Confidence

Second language learners' emotional states like motivation have played influential roles in English language learning. Zhu (2012) observes that motivation is normally characterized as a learner's willingness or desire to be engaged in or commit effort to complete a task. Without the desire to learn learners are likely to cooperate, take self-responsibility or fully engage in language learning process. Moreover, motivation is regarded as critical emotional state that affects second language achievement.

In Chapter 4 the findings of the results revealed significant difference in the performance of pre-test and post-test. The findings revealed that due to CALL and MALL applications such as CALL vocabulary learning, podcasts, Moodle readers and Google docs in the teaching and learning of English language skill the Pupils performance improved significantly. The study correlates the significance differences in results to academic motivation as propagated by the use of CALL and MALL applications.

The analysis of the use of podcasts in development of listening and speaking skills illustrated that podcast motivated the learners to learning speaking. Podcasts have an impact on learners, motivation because they take learners closer to the target language. The learners gained confidence to speak in English by recording themselves. This implies that CALL and MALL builds a classroom environment in which learners' social and emotional needs as well as their academic needs are met. Through the questionnaires the teachers reported how the use technology helps create a classroom environment that is less threatening and English language learners feel safe to interact with others and the language. Some teachers explained how pupils develop their self-confidence in their abilities to use technology:

“The use of technology allows the learners to freely explore and apply their existing speaking skills and gain confidence in their abilities by recording themselves.

The researcher observed that motivation and confidence depend on how the teacher organizes the class. The findings show that the teaching activity identified by the teacher during the speaking skills lesson must support the learner and create enjoyable learning. The researcher observed that podcast motivated less confident learners to participate in speaking. This was achieved by the teacher/researcher giving learners opportunity in making their own podcast and share with other learners. Moreover, the use of computer and mobile based activities helped learners to build confidence since a safe and authentic learning environment was provided by the researcher. Some learners recorded themselves while at home and sent their recordings to the researcher. This showed that CALL and MALL can make learners to be more focused and confident in speaking English using podcast. Therefore, the learners believe that by using podcasts they can increase their confidence in speak English. Through interviews the learners reported that podcast is certainly very useful for speaking skills and that they give them opportunities to become more confident to speaking English.

Podcast were efficient in helping learners in pronunciation and vocabulary since they recorded themselves, repeat and delete the podcast that they felt that was bad. This was also seen in the creation of digital story telling. Podcast also can be reflection place and correction for learners' speaking proficiency. The learners enjoyed recording their voices on the podcast; they even imitated how the native speakers speak English especially on the speaking aspect such as the pronunciation, intonation, fluency. The recorded audios were later shared with the peers and the researcher for listening purposes. The emotional and intellectual support from peers encouraged learners

learning and promoted self-confidence. Therefore, CALL and MALL activities provided a way for teachers to support the self-confidence and self-esteem of English language learners, in terms of their language learning and mastery of content. Consequently, when self-esteem is heighten English language learners become more motivated to learn language and the learners can develop speaking English performance. Moreover, the learners received in-person immersion which is a desirable way to speed up language training since all activities must be completed using the English language. The use of podcasts increased the quality of language learning in traditional environments since the learners could record themselves in the English language and other learners could listen and provide feedback in the classroom.

Learners also found the use of podcast very enjoyable since podcast are easy to use. This then implies that CALL and MALL applications are important motivational pieces that encourage language learning. The researcher observed that the learners were less emotional or anxious when expressing ideas in English which implies that the use of podcast provided a technologically advanced environment that enhanced classroom conditions. The presence of Ipads, phones and computers, videos were seen as essential motivational components to language learning. Thus, CALL and MALL provides a risk-free environment that encourages Learners to Learners to explore and experiment with language.

The assignment on Digital storytelling through Toontastic 3D recording to support speaking skills involved using computer-mediated tools to tell stories which provided rich opportunities for self-reflection that are difficult to accomplish through written assignments. Self-reflection was made possible since in their narrations learners were not put on the spot and could think about what they want to say before recording it or

even go back, delete, edit and re-record it. The researcher gave learners the opportunity to listen to all of the podcasts from other groups which increased motivation, encouraged creativity and gave learners a better understanding of their own abilities. The learners would then suggest the best recording. The researcher observed that the integration of digital story telling into English upper primary classroom fosters participant learning. Digital story telling gave learners the opportunity to practice new vocabulary and listening comprehension, feedback, improvement of oral competence, confidence and also digital literacy. Through a one on one interview in week 8 one pupil reported the following about digital story telling:

'I think it is a great opportunity to improve your skills in speaking. It was an interesting experience and a good way to practice speaking skills because we had to record it many times before it was perfect. I could improve my English because I could hear my own mistakes. It seems to me if I would produce podcasts more often, I could really improve my English' the use of videos helped me to recognize words when listening.'

RESPONDENT 1(pupil)

The above opinions show that CALL and MALL contexts of learning is very important to motivating the learner and gaining language development. The pupils therefore appreciate podcasts as a tool for learning. This gives CALL and MALL applications the same status as any other educational material, generating the same motivation and language development as other tools. CALL and MALL applications offers learners an environment where they can develop the ability to use the language in the real world rather than only to make grammatically correct, and propositional sentences. The use of podcasts gives learners opportunities to practice using English, especially orally, get

them speaking in the classroom, and teach them where to find opportunities to practice speaking English outside class.

The analysis on Moodle reader for supporting the development of reading skills illustrated how effective use of CALL and MALL can increase motivation and engagement of English language learners. The findings in section 4.2.3 revealed that Moodle readers and other CALL and MALL applications such as hypermedia can be used to motivate and engage English language learners in the development of literacy and reading skills. The researcher observed that Moodle reader can help motivate learners to be more engaged in reading, especially when they interact with the text using certain interactive technological tools such as hypermedia. The researcher used Moodle readers to introduce comprehension activities to learners. The use of CALL and MALL applications can be used to enrich instructional activities which motivate the learners. Moreover, the use of Moodle reader helped learners to understand and develop their knowledge with enthusiasm.

The findings suggest that through the use of short reading passages on Moodle reader site with accompanied supplementary technology driven activities motivated the learners and the authentic materials helped them to build up interest for other cultures. Therefore, the study concludes that through the utilization of CALL and MALL language learners gain a “sense of freedom, motivation, and encouragement they need for learning. The researcher one-on-one interviews reveal that CALL and MALL empowered the learners. The learners appreciated the use of audio-visual technology available which they stated gave them an understanding and a confidence that would not have had from the reading of the passages only.

Thus, providing authentic literature to English language learners is crucial in motivating them to read. However, literature in combination with multiple technologies such as Moodle readers can offer additional support for English-language learners. The use of CALL and MALL for teaching and learning motivates learners to a much greater degree than print-based literacies alone. The researcher observed that excitement over the digital tools available made learners eager to work on reading assignments. The use of Moodle readers as an application for teaching reading skills at upper primary was efficient because it supports the teaching and learning skills such as reading, comprehension, accuracy and fluency. Moodle readers have a positive impact on reading fluency which is important in the linguistic development of English language learners. These findings are in line with Krashen and Torrel, (1983) natural theory in the sense that reading creates a valuable influence to developing language acquisition, benefiting the confidence and competence of learners. Therefore, the integration of computer and mobile-assisted language learning programs into English language instruction in English language creates new and effective practice environment.

Combining technological tools or devices with passages have a positive effect on English language learners' motivation to learn a second language. It can be claimed that conventional teaching methods only are not effective in reading instruction. Many studies also show that second language learners struggle with comprehending reading passages in English. These problems were attributed to many reasons including lack of confidence, lack of linguistic knowledge, vocabulary recognition and retention, boring reading materials, poor question design in student textbooks, and traditional teaching practices. Traditional teaching methods are not motivating since learners are passive recipients and have on opportunities to communicate in English as the way Moodle

readers does. This clearly reveals that computer and mobile-based activities should be incorporated in traditional teaching methods as a mean of motivating and for the purpose of getting the desired achievement of teaching reading skills. The findings reveal that students enjoy the use of computers and mobile applications especially if the content is interactive and simulates real-life situations.

The analysis of Google docs in support of the development of writing revealed that Google docs is an online digital tool that provides exciting and interesting features that motivated learners. During the treatment, Google docs allowed learners to take decisions about their own learning, especially during self-learning activities. For instance, the feature was very helpful for learners writing English such as searching words in English digital dictionary, antonym or synonym and provides spelling grammar checking. In addition, allowing the learners to use CALL and MALL applications and phones in the classroom, which are usually banned altogether, may have catalyzed their sense of autonomy and learning ownership which has translated into more time-on-task and, consequently, more expedient learning. Google docs therefore provided learners with opportunities for autonomous learning that are inherent in computer and mobile learning which consequently may help them gain autonomy, learning ownership and self-confidence.

The findings therefore reveal that CALL and MALL exposes learners to contextualized activities that require greater involvement by learners than occurs in drill and practice exercise. Moreover, through the use of word processors, language learners can develop language and communication skills. By utilizing various kinds of Google docs, language learners gain a “sense of freedom, motivation, and encouragement they need

for learning. One teacher expressed “the integration of technology has had a very positive effect on learning of English language...

My pupils are extremely enthusiastic and very motivated to work. Another one stated the use of CALL and MALL as pre-teaching strategies can support and motivate learning a second language. RESPONDENT2 (Teacher)

In analysis of listening skills and vocabulary the researcher observed that the use of videos excited and motivated learners. The findings in chapter four revealed that due to the use of videos in both vocabulary and listening skills there was an improvement in listening skill, vocabulary, and pronunciation. This was because the learners were exposed to authentic video materials. Moreover, by listening to video materials, the English language sounds would be familiar to them which itself led to an improvement in their listening comprehension. Videos also prepared learners with the real spoken language.

The analysis above reveals that CALL and MALL applications foster the academic motivation required for learning and understanding English as a second language. CALL and MALL applications provides teachers with opportunities to create proper methods of instructions. The findings reveal that CALL and MALL applications provide purposeful attractiveness and usefulness that can positively affect the Learners motivation. The results show that the different CALL and MALL applications exhibit a positive outlook on technologies among the participants. This positive outlook of CALL and MALL applications strategy is enough to generate motivation and confidence in a learner. Thus, CALL and MALL applications provide learners with competent support to learn language. Moreover, CALL and MALL can provide a

learner-centered approach to teaching, granting the teacher more time to support each pupil (cf. Vahdat & Eidipour, 2016). Therefore, in spite of using traditional mode of teaching opportunities of individualization within CALL and MALL must be considered broader than with regular text books, thus motivating different proficiency levels.

5.2 CALL And MALL in Collaborative Learning

This section is based on the tenets of Sociocultural Theory that emphasizes that the language process necessitates social involvement and collaboration among learners and their social surroundings (peers, instructors, and parents), with sociocultural approaches to mediation and the ZPD assisting in this process. The findings of the study reveal that one of the benefits of using CALL and MALL based activities is that they support Collaborative Learning (CL). CL stems from the principles of sociocultural theory and the constructivist approach. According to Vygotsky (1978), cognitive development is the result of learners' interaction during collaborative activities to advance their Zone of Proximal Development (ZPD); the difference between what a learner can achieve individually and what he/she can attain due to guidance provided by more capable skillful peers.

A collaborative (or cooperative) learning approach involves pupils working together on activities or learning tasks in a group small enough to ensure that everyone participates. Collaboration is a powerful and authentic instructional method used to engage, improve, and direct student/pupils learning. Pupils in the group may work on separate tasks contributing to a common overall outcome, or work together on a shared task. In the study CL was characterized by the sharing and construction of knowledge among participants using technology as a common resource in a classroom learning

environments. Thus, CL is a teaching strategy for group instruction that emphasizes learning that is facilitated by learners rather than the teacher.

The analysis on CALL and MALL applications such as; CALL vocabulary learning, podcasts, toontastic 3D recording, Moodle readers and Google docs in support of language skills development revealed that all these applications give learners free and unlimited opportunity to participate in the learning process, minus the usual drawbacks of individuals being unable to cope with curricular pressures, peer fear and inhibition owing to an inability to perform in the class, and, most importantly, losing interest as an outcome of poor motivation.

5.2.1 Videos in Collaborative Learning

The analysis on the use of CALL vocabulary learning where videos were utilized to teach vocabularies revealed that that group work and collaborative activities contributed the greatest to the learning experience, which was supported by the post-test results. A total of six videos were watched in six weeks to introduce learners on children rights and responsibility, Cultural and Religious celebrations, Etiquette telephone, Emergency Rescue Services and Our tourist attractions. The use of Videos in class served the purpose of providing comprehensible input (cf. Krashen, 1985). The researcher observed that the integration of videos for vocabulary teaching enhanced the linguistic competence of the learners by providing extra-linguistic information. When learners watch videos, they can comprehend the message using their background knowledge and also, they can use extra-linguistic factors in movies. The learners in groups of three were then asked to make meaning from the videos they had watched.

The results indicated that pupils became engaged and motivated when asked to complete assignments in a team setting. The findings illustrate how CALL vocabulary

learning gives teachers an opportunity to let pupils create their own learning. CALL and MALL applications provide learners with many opportunities to work in groups. The learners after watching the relevant videos together they engaged in group work discussion with a common purpose of sharing their thoughts. The study observed that group discussions to deduce meaning encouraged the social aspect of education and enhanced learners understanding. In this sense, CL is a necessary contributor to active learning (Kieser and Golden, 2009; Zeng, 2017).

The group nature of CL also promotes interactions as was seen in the classroom. The activity was also beneficial for upper primary learners since they practiced using English language. The researcher also observed that learners discussed with their peers with reduced anxiety. The findings depict Lantolf's (2000) idea of mediation, the zone of proximal development (ZPD), 'scaffolding', and collaborative engagement aspects of Sociocultural Theory. The use group discussions after watching videos the pupils enhance social and collaborative interaction in classroom setting, where peers provide 'scaffolding,' or assistance that permits pupils to acquire the ZPD.

Therefore, CALL and MALL collaborative activities have a positive impact on learners' English vocabulary. The study observed using video watching increased collaborative activities in class hence; learners were able to expand their interests while also learning English vocabulary. By week seven learners' interest in using online learning environments had grown, and this can be an excellent supportive agent to learn English language inside and outside the classroom. The learners were developed interest in the video material for specific lesson since they provided learners with visual, contextual, and non-verbal features and these features helped learners to compensate any lack of comprehension.

5.2.2 Podcast and Digital Story Telling Device in Collaborative Learning

The analysis on the use of podcast for supporting the development of listening and speaking skills revealed that classrooms generate the most intellectual excitement when they serve as “learning communities” in which pupils share responsibility for knowledge production, invite each other into dialogue, and learn from each other’s diverse perspectives. In listening and speaking skills lessons pupils worked on structured activities in small groups at the pre listening and speaking stage, whilst listening and speaking stage and at post listening and speaking stage by dividing the work equitably, and join together to meaningfully engage in the podcast, video material and pictures exposed to them.

The study observed that podcast gave learners opportunities to work together and generate new ideas. The pupils in interpretation of the pictures exposed to them engaged in conversations that encouraged them to use the target language. Therefore, CL offered learners the opportunity to complete a task together and to increase their own and each other’s learning. The learners in different groups also encouraged each other to work together on lesson activities as well as helped each other with classroom assignments since they wanted their groups to be the best. Podcast provided opportunities for deep discussions since the pupils agreed, disagreed, and mutually criticized reasoning, allowing them to take advantage of the social aspect of learning with the ultimate objective of allowing members of the small group to ‘scaffold’ one another.

The researcher also asked pupils to create “learner-created podcasts”. The study observed that podcasts allow pupils to “construct and represent knowledge” by narrating about the lesson. In this way, podcasts gave the participants opportunities for

“enhanced reflection, self-expression, enriched communication, increased self-knowledge, and creativity. Moreover, through one on one interviews the pupils shared that they enjoyed the chance to explore a new medium, to experiment with technology, and to make something of their own. They appreciated an assignment that allowed them to speak rather than write and to engage with course material in a more “casual” way. In creation of learner-created podcasts the participants developed clear and creative thinking in their videos and even shared their personalities and senses of humour. In a nut shell, podcasting certainly offered participants the kinds of opportunities for argument-building, knowledge production, and creative self-expression.

The study observed that CL in podcasts was fruitful due to participants listening to one another. The participants had the following sentiments about listening to another recorded videos:

“Podcasting was simply more “fun” and “easier” than reading each other’s work. Another participant noted that: “hearing each other’s voices was fun.”

RESPONDENT 3(pupil)

From the above data, it is observed that the participants appreciated the opportunity to listen than read. Moreover, listening to their peers’ podcasts also provided participants with models for their future thinking and writing. One participant remarked that

“One thing I liked about group x work is on the way they had organized their story. I think it was really connected well,” X’s decision to talk about examples of child labor improved their work.’ *RESPONDENT 4(Teacher)*

Therefore, by participants listening to how their classmates organized and presented their thoughts, they were able to see (or rather, hear) examples of successful approaches to thinking and writing and ponder how they might use similar strategies in their own work. Hence, the podcast assignment promoted CL since participants were able to work together on their podcasts more than they would on traditional papers; they created work in collaboration and engaged in constructive dialogue about the specific topics of discussion such as child labour, the city, culture and festivals among others. Moreover, the podcast assignment also urged the participants to practice critical listening skills. By listening to each other's podcasts, they had to get used to hearing each other's voices at length and sitting with others' ideas before they respond. These sustained listening practices and gave participants opportunities to encounter other ways of writing and thinking, expand their own views on the topic of discussion.

Finally, and perhaps most importantly, the assignment on listening to leisure activities song encouraged participants to share their affective responses to the songs they were discussing. In this way the podcast gave participants a medium to communicate their emotional reactions to the song they heard listened, learn from, and reflect on each other's feelings. In short, the podcast assignment allowed participants to build the kind of community that associates with the "liberatory" pedagogy. The study observed that through podcasting, participants created intimate, relational webs based on collaborating, listening, and sharing intellectual and affective ties. The analysis above illustrates that CL is particularly useful in keeping the learners' schematic knowledge alive by encouraging the process of thinking together in their classrooms.

Therefore, CALL and MALL applications through collaborative learning are crucial for development of liberal classroom that enabled pupils to build a "classroom

community". The study observed that CL through podcasts made the classroom a communal place that allowed pupils to take interest in one another, in hearing one another's voices, in recognizing one another's presence. This was clearly illustrated in creation of digital story telling through toontastic 3D recording. The learners in groups of three were requested to create a story on *My family, A wedding I attended and Children rights*. The stories were to last 3 to 5 minutes in length and each week they could do a self-reflection of their recordings and re-do the recordings. The learners were then asked to listen to at least two of their peers' recordings on toontastic 3D. The recordings on toontastic 3D gave pupils the opportunities and environment to converse and engage in the English language.

The findings in chapter 4 demonstrated that digital storytelling engaged pupils in the story's content not just by encouraging motivation and curiosity but also by instilling confidence in their ability to speak in English. The results from one on one interview indicate that digital storytelling facilitates 21st-century learning by allowing interactive and CL that encourages pupils to speak English. The study observed that the participants cooperated, engaged, shared ideas, assisted, and encouraged one another during digital storytelling hence it was a significant and successful social approach to improve learners' speaking abilities. The findings are in line with Vievitsou et.al (2017) who claimed that collaborative tasks in digital storytelling improve students' knowledge because they are required to work in groups to capture content and to actively interact in a natural and technological environment for knowledge generation and skill development.

The study observes that the activities utilized in digital storytelling such as conversations, peer discussion about telling and performing tales with a competent third

party allow pupils to collaborate on the creation and organization of multimedia resources for storytelling. The findings revealed that collaborative digital storytelling enhanced motivation and engagement, particularly among upper primary learners. Collaboration allowed pupils in the digital storytelling assignments to share their ideas which are a fundamental element of learning in sociocultural theories. Thus, the digital story telling assignments gave learners a chance to improve communication skills within their groups resulting in enhanced group dynamics and CL.

Moreover, collaborative activities enable pupils of all levels of skill to work towards the same goals while allowing for various sorts of participation to increase pupils' engagement. By using digital storytelling, pupils could work together in groups with fewer members. The posttest results in Chapter 4 showed a positive improvement in results after the digital storytelling treatment. The results may be attributed to the fact that digital storytelling activities eventually permits individuals to develop their speaking abilities by organizing thoughts, communicating points of view, assessing, and synthesizing information. The participants used the language as in natural communication and the pupils were expected to discuss collaboratively and communicate actively in an informal setting, collaborative activities in digital storytelling which enhanced pupils' understanding and communication skills.

The findings are in line with Shahala's (2018) research that demonstrates how digital storytelling may be used to blend instructional materials with learning activities, resulting in more engaging and fascinating learning settings. Therefore, digital storytelling for teaching and learning is based on constructivism, which can be a powerful tool for combining digital media into creative teaching and learning (cf. Okumu, 2020). Thus, CL fosters the skills of cooperation, collaboration, and

interaction among the learners, skills which are not merely language-oriented but are life skills in the real world of growing internationalism. Technology-integrated classrooms are yet another way of empowering the learners for this world.

5.2.3 Moodle Readers in Collaborative Learning

Moodle readers for supporting reading skills are another exciting technique that the study focused on that foster collaboration in the classroom. Moodle reader's activities allowed peer based activities rather than traditional methods of teaching. The findings in Chapter 4 indicated that integrating a Moodle reader into the teaching and learning of reading skills resulted in remarkably significant achievements among students. The analysis of the quantitative data revealed the value of Moodle program in promoting students' reading skills in terms of comprehension, motivation, convenience, participation and satisfaction.

The results showed that the posttest of pupils were much better as compared to the pre-test results. Throughout the research, the activities using Moodle were both beneficial and enjoyable in promoting a habit of English reading outside and inside the classroom and providing a valuable platform of English language input. The findings are in line with (Jones, 2007) who states that collaborative tasks can maximize learning inside and outside of the classroom by allowing learners to go beyond what they would have learned alone, to share perspectives, and to accomplish tasks more effectively. In this experiment, pupils' general involvement and peer learning was significantly affected by the grade weighting which boosted the pupils' enthusiasm and motivation to complete the assignments.

The study observed that using groups in Moodle reader allows the teacher to add an additional dynamic to interactive activities: giving groups of pupils a private or shared

space to discuss and collaborate. Depending on the goals the teachers have for an activity, the teacher can determine how public the actions of groups can be. Overall, the participants indicated a high satisfaction of using the Moodle program due to peer interaction with the text. This then implies that computer based reading instruction such as Moodle reader allows for "increased interaction with texts, attention to individual needs, and increased independence through an ability to read texts they would not otherwise be able to read" (Robb, 2013).

The study observed that the use of technological based activities such as Moodle reader are beneficial to young readers with reading difficulties or for English-language learners as they help improve comprehension, phonological awareness, and encourage reluctant readers to read. Therefore, teachers are encouraged to use computer technology as an intervention strategy to reverse pupils' negative attitudes toward reading books in English. The pupils reported that Moodle reader was "beneficial for them and they had the desire and ambition to keep reading" which had a cognitive effect to them. They also reported that they regained confidence and interest in English and this was due to Moodle reader features such as oral reading, highlighting, animations, and music/sound effects. Moreover, Moodle reader provides learners with opportunities to receive massive amount of comprehensible input, and reading material is a primary way to receive such input.

5.2.4 Google Docs in Collaborative Learning of Writing Skills

The study evaluated the effectiveness of using Google Docs in an out-of-class collaborative writing activity. The findings of the study revealed that Google Docs enables collaborative activities and projects that can occur inside or outside of the instructional day. The study focused on lower-level skills such as spelling and word

choice. The findings revealed that the learners can collaborate more efficiently on assignments involving writing skills using web-based word processing, spreadsheet, and presentation programs. Some of their sentiments are given below:

‘I learned to work in a team, negotiate and communicate, and be a good listener.’

Learning writing skills using Google Docs is interesting and free of stress.’

RESPONDENT 5(pupil)

The study observed that by using tools available through Google Docs the classroom was more productive, more engaging, and more effective. The pupils in their groups were able to use document creation tools to contribute, edit, and interact together. The pupils in groups of three were asked to complete tasks of writing using Google Docs. The power of Google Docs was seen in the learner’s ability to share, edit, and work together in one virtual workspace. The study observed that Google Docs “made collaboration much easier,” “was simple to use,” and “encouraged editing and sharing among peers” as further revealed in the sentiments below:

“Google Docs helped keep everyone’s work together,” “provided an effective way for sharing and correcting the work among group members,” and “is an easy and interesting method for communication.

Therefore, Google Docs encourage socially structured exchange of information between learners in groups and in which each learner is accountable for his or her own learning and is motivated to increase the learning of other. Through the use of Google Docs learners engaged highly in writing skills tasks by utilizing a variety of strategies that encouraged active participation and meaningful involvement. The learners worked together in small groups toward a group goal. Google Docs supported collaboration

through smart spell checker with grammar support and by sharing and commenting for collaboration and immediate feedback.

Furthermore, findings showed that participants who used Google Docs engaged cognitively by asking questions that need explanations, giving examples and reasons, agreeing or rejecting modifications, providing justifications and explanations, making explicit and implicit revisions, and using dictionaries and Google resources. The findings are similar to Zheng et al. (2015) study that concluded that students felt that Google Docs helped learners to be more organized and facilitated the process of editing and making revisions.

5.3 CALL And MALL and Assessment

Assessment and feedback are a part of the learning environment in school and one of the duties of the teacher is to show to which degree the individual pupil has reached the knowledge requirement within various subjects. The findings of the study revealed that CALL and MALL Apps offered learners with opportunities to assess themselves. Villada's (2009) prognosis for the future regarding the assessment opportunities within CALL and MALL Apps was positive. For instance, the participants indicated a high satisfaction of using the Moodle reader since the assessment it contained were more convenient for them in terms of time and place. Moreover, the learners were encouraged to complete the reading skills tasks because Moodle reader met their interests and preferences in the digital error, provided more exposure to the English language, increased their reading autonomy and provided them with an immediate feedback and marks.

Through interviews the learners reported the following about Moodle reader:

'It was easy to submit the assignment,

My work was marked instantly

It was easy to respond to the many quizzes in the Moodle reader'

RESPONDENT 6(pupil)

The researcher observed that due to the above reasons the learners in their groups attempted to as many quizzes as possible using *Moodle reader*. Therefore, the use of Moodle reader to teach reading skills stimulates pupils' involvement and interest reading. Moreover, the *Moodle reader* assessments meet the learners' interests and preferences since the new generation is more technology-oriented. This encouraged both the motivated and less motivated learners to complete the Moodle reader assessments using the online Moodle mechanism. The study observes that motivation was a fundamental factor for learners to accomplish their assessment.

The analysis on digital storytelling for development of speaking skills revealed that: the integration of digital storytelling could improve CL, as pupils were reliant on one another for a variety of reasons, prompting them to create their own stories. The study observed that during the recording of digital storytelling, group discussion, collaboration, peer correction, and self-learning were all observed. Therefore, learners enhanced the opportunities for communication by peer correction. The post test result showed a significant improvement which may be attributed to the instant feedback provided by the teacher/researcher and other group members.

CALL and MALL Apps are especially well suited to different environments simply because they are available in different contexts, and so can draw on those contexts to enhance the learning activity. Context-aware CALL and MALL devices can support students by allowing a learner to maintain their attention on the word and by offering

appropriate assistance when required (Caballe et al., 2010). Therefore, through peer correction and self-learning the pupils learned how to organize, cooperate, and collaborate to achieve their goal throughout the narrative process. By week 7 the study observed that the learners who were engaged in the study gained confidence in their communicative skills.

The analysis on podcasts revealed that podcasts is motivating, as it gives learners opportunities to confront with a lot of authentic tasks that require them to solve a problem, make a comparison, or construct a hypothesis in relation to real life situation (Peterson, 2010). The learners found that the activities and the tasks in the Podcasts were appropriate, interesting and meaningful which could attract their attention, increase their motivation, and improve their comprehension. Therefore, they enjoyed learning listening and speaking through Podcasts. They believed that Podcasts supported them in improving their listening and speaking achievement. The learners reported that:

'Podcasts gave me fun learning experience

We could listen to our voices and correct the mistakes we made

We deleted the videos we had created and perfected the final one '

RESPONDENT 7(pupil)

These statements inferred that using podcasts in learning listening and speaking had given the learners useful learning experience which led them to have positive perception towards the use of Podcasts in learning listening and speaking. The uses of podcasts simultaneously with peer interaction can be used to improve students' speaking skills of language. Therefore, podcasts not only facilitated them in learning

listening and speaking but also helped them in improving their listening and speaking achievements. The task based activities that allowed learners to record their speaking provides a useful way of allowing learners to listen and make the corrections in order to improve their pronunciation where needed hence promoting their speaking skills. This then implies that pupils can improve their pronunciation through interaction with computer programs and voice recognition software (cf. Levis, 2009).

The assignments on writing skills through the use of Google Docs enabled pupils to discover and automatically detect grammatical errors by technology such as spell check among other auto corrections when writing. Thus, pupils were compelled to make corrections when they are writing. In this vain, the use of Google Docs encouraged cooperative writing. Learners in their groups could review their writings and of other groups and give feedback to each other. This encouraged learners to cooperate in writing of a language to improve to the next level.

5.4 Chapter Summary

This chapter focused on the benefits of Computers and Mobile Assisted Language Learning in English language teaching and learning in upper primary. Basing on the findings of the study it is concluded that CALL and MALL could be great motivator for English language development when used with deliberate planning. The findings revealed that within some areas, such as podcasts, Moodle reader and Google Docs that offers authentic experiences CALL and MALL is an unparalleled motivator. The analysis shows that teachers must know how and when and what to use to be able to motivate the pupils to further develop their language proficiency. That is, it is not enough to use a digital tool and expect a beneficial outcome. Therefore, teachers must carefully consider their options and act accordingly. The study shows that if CALL and

MALL is used correctly and with explicit strategies the teacher can give the pupils an enhanced learning experience that will motivate them in their second language acquisition. The study revealed that new teaching methods and assessments surely will emerge with the growth of CALL and MALL. Consequently, this may promote motivation and development of English language learning and teaching. Finally, in this chapter the study concludes that since the results illustrates positive utilization of CALL and MALL as a teaching method schools should consider embracing digital tools since they are not only an integral part of our world but also our future. Thus, both pupils and teachers need to move with the times.

The findings of the study revealed that CALL and MALL Apps encourage both independent and collaborative learning experiences. This learner-centered learning helps the learners to be more engaged and develop personal intellectual structures that foster a deeper understanding of the content at hand. The study shows that CALL and MALL Apps enhance, extend and enrich the concept and activity of learning. The study observes that CALL and MALL support contingent learning, where learners can react and respond to their environment and their changing experiences. The findings revealed that the learners also engaged in situated learning, where learning takes place in an environment that makes learning meaningful. The next chapter (six) focuses on teachers' and learners' attitudes towards using computer and mobile assisted language learning in English language teaching classes at upper primary level.

CHAPTER SIX

LEARNERS' AND TEACHERS' ATTITUDES TOWARDS USING COMPUTER AND MOBILE ASSISTED LANGUAGE LEARNING IN ENGLISH LANGUAGE TEACHING CLASSES

Introduction

The aim of this chapter was to investigate learners' and teachers' attitudes towards the use of computer and mobile-assisted language learning among grade 5 and 6 learners in Kyuso Sub-County. An individual's attitudes determine an individual's actual or potential perceptions of the outside world and reflect the process of changing personal psychological perception (cf. Allport, 1933). Hovland and Rosenberg (1960) on the other hand argue that there are three main components of attitude cognition, affect, and readiness for action. Therefore, an investigation on learners' and teachers' attitudes researchers tries to explain their behavior.

Learning English as a second language in the recent years has been accompanied with the revolution of changes in the field of technologies. One of these changes is the use of computers and mobile phones in learning English or technically speaking, CALL and MALL. Both quantitative and qualitative approaches are utilized in this section. The study investigates how both learners and teachers feel about the use of CALL and MALL in classrooms. The analysis is based on the assumption that attitudes of learners and teachers play a great role in adopting CALL and MALL. The data analyzed in this section is primarily from an attitude questionnaire that was given to the participants (Pupils and teachers) in order to ascertain their' attitudes towards the use of computer and mobile-assisted language learning. This section is therefore divided into two

sections: learners' attitudes towards using CALL and MALL in classes and teachers attitudes towards using CALL and MALL in classes.

6.1 Learners' Attitudes Towards using CALL and MALL in English Classroom

This section provides an analysis and a discussion on learners' attitudes towards the use of CALL and MALL in English classroom. The researcher tries to find out the feeling of the pupils about their experience on the use of CALL and MALL in English classroom. The data were collected from the close-ended questionnaire as shown in Appendix V. The quantitative data gathered from the questionnaire helped the researcher to explore learners' attitudes towards the use of CALL and MALL in English language classroom.

The questionnaire included 20 items and was given options on a Likert Scale that followed three-points; agree, neutral and disagree. Pickens (2005) claims that attitudes help us determine how people see and behave in relation to a situation or objective. Moreover, there are three description models of attitudes: an affect (a feeling), a cognition (a thought or belief), and behavior (an action) (Pickens, 2005). This section is thus based on the assumption that learners' attitudes toward using CALL and MALL to learn the target language can also affect the efficiency of the learning process. According to Liu (2017) attitude includes four components of perceived usefulness, affection, control, and behavior. The data analyzed in this section revealed three forms of attitude; Perceived Usefulness (PU), affective, and behavioral components of pupils' attitudes towards the use of CALL and MALL in English classroom.

6.1.1 Perceived Usefulness

This section focuses on the factor of perceived usefulness; the perspective of using computers and mobile devices for participants' in English language learning. Perceived

usefulness is the degree to which an individual believes that using a particular system would enhance his or her productivity (cf. Davis, 1989; Adams et al., 1992). In this study perceived usefulness refers to the degree to which pupils believe that using the Internet would enhance their learning. The respondents' perceptions on the perceived usefulness (PU) of CALL and MALL for 9 items were analyzed. The analysis indicates that the learners expressed attitudes towards the use of CALL and MALL that included the perceived usefulness component.

The first element was motivation. A big percentage of learners in the current study believe that technology in English Language classrooms motivates them as shown in Table 6.1:

Table 6.1: Use of CALL and MALL Apps in our language classrooms increases my motivation

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	28	70%	12	30%	0
Female	40	33	82.5%	7	17.5%	0
Total	80	61	76.25%	19	23.75%	0

The analysis in Table 6.1 above, illustrates that both female and male learners believe that technology in English classrooms motivate them. 70% of the male students and 82.5% of the female learners think that the use of CALL and MALL Apps in their language classrooms increases their motivation. The findings reveal that there is not a statistically significant relationship between male and female pupils ideas on CALL and MALL and motivation ($P > .05$). Moreover, cumulatively 76.25% of the learners agree that CALL and MALL motivates them.

The next analysis focused on CALL and MALL support for teaching and learning of different language skills as shown in Table.

Table 6.20 Use of CALL and MALL Apps can be helpful to develop my language skills

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	72.5%	7	17.5%	4	10%
Female	40	87.5%	4	10%	1	2.5%
Total	80	80%	11	13.75%	5	6.25%

The findings in Table 6.2 indicate that 72.5% % of male and 87.5 % of female pupils believe that they can develop their language skills with authentic CALL and MALL Apps. Cumulatively, 80% of learners agree that the use of CALL and MALL Apps can be helpful to develop my language skills.

The findings on perceived usefulness on authentic materials downloaded from the internet are presented in Table 6.3 below:

Table 6.3: Authentic materials downloaded from the internet make me active in the learning process

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	70%	7	15.5%	5	12.5%
Female	40	85%	3	7.5%	2	5%
Total	80	78.75	10	12.5%	7	8.75%

The results in Table 6.3 reveal that 70 % of male and 85. % female pupils think that authentic materials which are taken from the internet make them active. The results further indicate that there is a significant difference about authentic materials between male and female pupils ($\chi^2 = 11.105$; $P < .05$).

The next perceived usefulness was based on their views on whether they should use CALL and MALL Apps in every English lesson. The results are presented in Table 6.4:

Table 6.4: We should use CALL and MALL Apps for every English lesson

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	37.5%	15	25%	10	37.5%
Female	40	50%	20	32.5%	13	17.5%
Total	80	43.75%	35	28.75%	23	27.5%

The analysis in Table 6.4 indicate that 50 % of female pupils want to have CALL and MALL Apps in all their lessons which on the other hand 37.5 % of male pupils want CALL and MALL Apps in their every lesson. As it is seen here there is a significant difference between male and female pupils ideas on CALL and MALL ($\chi^2 = 13.38$; $P < .01$). The findings shows that female pupils want to use CALL and MALL in every lessons more than male pupils. Cumulatively, 43.75% of the grade 6 learners want to utilize CALL and MALL Apps in their lessons. This shows the results of question on whether CALL and MALL enhance their understanding of English language:

Table 6.5: I can understand language better when my teacher uses CALL and MALL Apps in the class

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	35%	14	22.5%	9	65%
Female	40	45%	18	35%	14	40%
Total	80	40%	32	28.75%	25	31.25%

The analysis in Table 6.5 shows that 35 % of male and 45 % of female pupils think that they can understand language better when the teacher uses CALL and MALL Apps in the classrooms. Cumulatively, 75% of pupils think that they can understand language

better when the teacher uses CALL and MALL Apps in the classrooms. As it can be understood from the table there is a statistically significant difference between female and male pupils 'ideas ($\chi^2=14.756$; $P < .01$). Female pupils can understand the language better if the teacher uses CALL and MALL Apps.

In the current study the researcher used different Apps to teach English language. The Apps included: CALL vocabulary learning which made use of videos, podcasts and toontastic 3D recording, Moodle readers and Google docs. The researcher then was set to measure the respondent's attitude towards the use of different applications and the results are given in Table 6.6 below:

6.6 Different CALL And MALL Apps Should Be Used In The Class To Increase My Motivation For Learning English

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	67.5%	8	20%	5	12.5%
Female	40	75%	6	15%	4	10%
Total	80	71.25%	14	17.5%	9	11.25%

The results in Table 6.6 shows that 67.5 % of male and 75.0 % of female pupils want different CALL and MALL Apps for motivation. Cumulatively, 71.25% of learners want different CALL and MALL Apps for motivation. The results also reveal that there is a significant difference between two genders ($\chi^2 =2.659$; $P>.05$).

The next analysis focused on visual presentation of content and the analysis is as shown Table 6.7 below.

Table 6.7: Authentic Films and Videos Can Provide a More Clear View of the Content and Help in Understanding of Language

Gender	Agree		Neutral		Disagree		
	N	%	N	%	N	%	
Male	40	31	77.5%	5	12.5%	4	10%
Female	40	32	80%	6	15%	2	5%
Total	80	63	78.75%	11	13.75%	6	7.5%

The results from Table 6.7 above shows that 77.5 of % male and 80 % of female learners think that authentic films and videos can provide a more clear view of the content and help in understanding of language. Cumuativey78.75% of learners think that authentic films and videos can provide a more clear view of the content and help in understanding of language. The results also show that there is not statistically significant difference between two genders ($\chi^2 = 1.699$; $P > .05$).

The study also sought to determine the learner’s perception on the presence of CALL and MALL Apps in language classroom and the findings are presented below:

Table 6.8: We should always have CALL and MALL Apps in language classrooms

Gender	Agree		Neutral		Disagree		
	N	%	N	%	N	%	
Male	40	16	40%	12	30%	12	30%
Female	40	14	35%	12	30%	14	35%
Total	80	30	37.5%	24	30%	26	32.5%

The results above reveal that 40 % of male and 35 % of female learners say that they should always have CALL and MALL Apps in language classrooms. Basing on the above findings there is no significant difference between two genders on technological material usage in the classrooms ($\chi^2 = 1.843$; $P > .05$).

The learners also recognize CALL and MALL as Apps that enable them to interact in the target language as shown by the results below:

Table 6.9: The use of CALL and MALL encourages interaction in English classrooms

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	31 77.5%	6	15%	3	7.5%
Female	40	32 80%	5	12.5%	3	7.5%
Total	80	63 78.75%	11	13.75%	6	7.5%

The results above reveal that 77.5% of male and 80 % of female learners say that they the use of CALL and MALL encourages interaction in English classrooms. There is no statistically significant difference between two departments ($\chi^2 = 1.699$; $P > .05$).

The findings of this study reveal that most of the respondents had positive perceptions toward the usage of CALL and MALL in regard perceived usefulness (PU). The pupils show a general agreement on the potential of CALL and MALL as a convincing approach for English as Second Language English (ESL). The analysis of ten items has shown that participants have moderately high perceived usefulness. Pupils believe that CALL and MALL can help them get more ideas for learning English and that CALL and MALL Apps support learners' English learning. The findings revealed that both CALL and MALL Apps can motivate students to learn English and increase their motivation. These results are in line with Itayem's (2014) findings that the students' perceived usefulness and perceived ease of use are significant when establishing the students' attitude towards the iPad.

In addition, learners think viewing learning resources through computer and mobile devices provides a more clear view of the content. The aspect of visual display of content makes learning more interesting. Consequently, the use of films and videos to display content enhances learners' interest in learning English and allow them to be more imaginative in completing activities or tasks. Basing on the findings it can be

concluded that the respondents have positive perceptions on the usefulness of CALL and MALL for them. Majority of the respondents as shown by item 1 to 10 stated that they agreed with all the statement items of perceived usefulness with the highest percentage for each item. Therefore, the findings explain that the respondents believed using CALL and MALL brings a lot of benefits for them while learning English as a second language. Cumulatively, most respondents in the current study demonstrated a positive perception towards the integration of CALL and MALL for language learning. Therefore, the positive perception of the respondents in the current study provides a positive environment for the integration of CALL and MALL among teachers for delivering English in schools in Kenya and for attaining the objectives of CBC such as Digital literacy.

The findings of the study also revealed that there is a significant difference between female and male learners' ideas on using CALL and MALL. Female learners want to use CALL and MALL Apps in the classroom more than male students and they think that computer-based classrooms make the lessons more enjoyable. Female students also said that authentic films and videos help them to understand English content more.

6.1.2 Affective Factor

The affective component of attitude can be defined as the emotions and feelings one has toward an object. Emotions and feelings can be positive or negative, such as liking or disliking an object, or favoring one object over another. The analysis in this section focused on 6 items that revealed the affective factor of attitudes. The first affective component was based on computer and mobile -based classroom atmosphere as presented below in Table: 6.10.

Table 6.10: Computer and mobile based teaching activities make the lessons more enjoyable

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	67.5 %	5	12.5%	8	20%
Female	40	75%	7	17.5%	3	7.5%
Total	80	71.25%	12	15%	11	13.75%

The findings in Table 6.10 indicate that 67.5 % of male and 75.0 % of female learners agreed that computer and mobile based classrooms make the lessons more enjoyable.

The findings further indicate that there is a significant difference between female and male students ($\chi^2 = 8.334$; $P < .05$). In other words, learner's ideas on computer-based lessons can be changeable depending on their gender.

The analysis next affective components measure the learner's ideas on CALL and MALL.

Table 6.11: CALL and MALL can be boring and unnecessary

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	27.5%	8	20%	21	52.5%
Female	40	17.5%	8	20%	25	62.5%
Total	80	22.5%	16	40%	46	57.5%

The results in Table 6.11 illustrates that 52.5 % of male and 62.5 % of female pupils do not agree with the idea that CALL and MALL can be boring and unnecessary. The findings from the table 34 shows that there is no statistically significant difference with respect to the pupils' genders ($\chi^2 = 5.368$; $P > .05$).

The researcher also investigated about how learners feel about power point presentations as a method of content delivery and the findings are in Table 6.12 below:

Table 6.12: If my teacher uses power point presentations, lessons can be more enjoyable.

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	55%	22	25%	8	40%
Female	40	60%	24	22.5%	7	17.5%
Total	80	57.5%	46	23.75%	15	18.75%

The results in Table 6.12 indicate that 55% of male and 60 % of female learners think that lessons can be more enjoyable with power points. There is no statistically significant difference between male and female learners ideas on using PowerPoint in the classrooms ($\chi^2 = 0.517$; $P > .05$). Cumulatively, 57.5% of learners think that lessons can be more enjoyable with power points.

The study also sought to measure the CALL and MALL learning environment in terms of stress and the results are presented in Table 6.13 below:

The results in Table 6.13 demonstrate that CALL and MALL provides learners with a comfortable environment where they can freely learn language without anxiety. The results in table 6.13 reveal that 70 % of male and 77.5 of female learners think that CALL and MALL provide a stress free environment for learning language. Cumulatively, 73.75% of learners think that CALL and MALL provide a stress free environment for learning language. The findings reveal that CALL and MALL is a stress-free environment to learn English.

Table 6.13: CALL and MALL provide a stress free environment for learning language

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	70%	28	15%	6	15%
Female	40	77.5%	31	5%	5	12.5%
Total	80	73.75%	59	10%	11	13.75%

The study further analyzed the learner's perception towards CALL and MALL versus the traditional methods of teaching English and the results are as shown in Table 6.16 below:

Table 6.14: Computer and mobile-based lessons are more enjoyable and effective than traditional lessons

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	60%	9	22.5%	7	17.5%
Female	40	62.5%	7	17.5%	8	20%
Total	80	61.25%	16	20%	15	18.75%

The results in Table 6.14 reveal that 60 % of male and 62.5 of female learners say that computer and mobile-based lessons are more enjoyable and effective than traditional ones. However, there is no significant difference between two genders ($\chi^2 = 1.824$; $P > .05$).

The respondents had the following to say about having CALL and MALL every time in class:

Table 6.15: When we use CALL and MALL every time, it makes the lessons boring

Gender	Agree		Neutral		Disagree	
	N	%	N	%	N	%
Male	40	60%	6	15%	10	25%
Female	40	65%	5	12.5%	9	22.5%
Total	80	62.5%	11	13.75%	19	23.75%

60 % of male and 65 % of female learners think that CALL and MALL can be boring when it is used every time. There is not a significant difference between two departments ($\chi^2 = 0.764$; $P > .05$).

The analysis of the affective factor reveals that all respondents that participated in this research agreed that CALL and MALL authentic materials which are available on the

internet were effective, enjoyable, interesting and useful for them. The respondents in this research also believe that it could be boring when the teacher uses CALL and MALL every time. Therefore, technological-based classrooms, internet may be good solutions for de-motivated learners.

6.1.3 Behavior Factor

The findings of the study reveal that learners have moderately high behavior in CALL and MALL. Behavior is the way that learners acted due to the presence of CALL and MALL environment in English classroom. The first behavior regards to speaking skills as shown below:

Table 6.16: I have the opportunity to speak with everybody in pairs in speaking lessons

Gender	Agree			Neutral		Disagree	
	N	N	%	N	%	N	%
Male	40	28	70%	12	30%	0	
Female	40	33	82.5%	7	17.5%	0	
Total	80	61	76.25%	19	23.75%	0	

The analysis in Table 6.16 above illustrates that both female and male learners believe that CALL and MALL gives them the opportunity to speak with others in groups. 70% of the male students and 82.5% of the female learners think that they have the opportunity to speak with everybody in pairs in speaking lessons. The findings reveal that there is not a statistically significant relationship between male and female pupils ideas on CALL and MALL and motivation ($P > .05$). Moreover, cumulatively 76.25% of the learners agree that CALL and MALL motivates them to speak orally with the others. The findings of this investigation show that participants have positive attitudes towards the use of CALL and MALL for teaching oral skill, speaking and listening. A further analysis is given in the below behavior:

Table 6.17: I feel comfortable in expressing what I want to say orally

Gender	Agree		Neutral		Disagree			
	N	%	N	%	N	%		
Male	40	72.5%	29	72.5%	7	17.5%	4	10%
Female	40	87.5%	35	87.5%	4	10%	1	2.5%
Total	80	80%	64	80%	11	13.75%	5	6.25%

The findings in Table 6.17 indicate that 72.5% % of male and 87.5 % of female feel comfortable in expressing what they want to say orally. Cumulatively, 80% of learners agree that the use of CALL and MALL Apps enable them to express themselves orally. The findings of this study therefore reveals that that technology improves learners' oral communication skills and their perception of integrating technology were positive in lessons.

The data collected also reveals behavior factors in reading skills as shown in the analysis below:

Table 6.18: I use dictionaries while reading in CALL and MALL classes

Gender	Agree		Neutral		Disagree			
	N	%	N	%	N	%		
Male	40	67.5 %	27	67.5 %	5	12.5%	8	20%
Female	40	75%	30	75%	7	17.5%	3	7.5%
Total	80	71.25%	57	71.25%	12	15%	11	13.75%

The findings in Table 6.18 indicates that 67.5 % of male and 75.0 % of female learners agreed that they used dictionaries while reading in CALL and MALL classes. The findings further indicate that there is a significant difference between female and male students ($\chi^2 = 8.334$; $P < .05$). The findings reveal that participants demonstrated a positive attitude towards use of CALL and MALL for teaching reading skills. Cumulatively, 71.25% made use of a dictionary which means that CALL and MALL gives an opportunity for learners to learn the meaning of words while reading in a CALL and MALL based class. This was further illustrated in the analysis below:

Table 6.19: I check the meaning of words while reading in CALL and MALL classes

Gender	Agree			Neutral		Disagree	
	N	N	%	N	%	N	%
Male	40	28	70%	6	15%	6	15%
Female	40	31	77.5%	2	5%	5	12.5%
Total	80	59	73.75%	8	10%	11	13.75%

The results in Table 6.19 demonstrate that CALL and MALL affords the learners the opportunity to check the meaning of words while reading in CALL and MALL classes.

The results in Table 6.19 reveal that 70 % of male and 77.5 of female learners say that they check the meaning of words while reading in CALL and MALL classes.

Cumulatively, 73.75% of learners think that CALL and MALL provides them with the opportunity to check the meaning of words while reading in CALL and MALL classes.

The findings showed that for the reading skill, participants have positive attitudes towards using CALL and MALL for the development of reading skill.

Table 6.20: Computers help me self-correct my spelling, grammar and errors

Gender	Agree			Neutral		Disagree	
	N	N	%	N	%	N	%
Male	40	28	70%	7	15.5%	5	12.5%
Female	40	35	85%	3	7.5%	2	5%
Total	80	63	78.75	10	12.5%	7	8.75%

The results in Table 6.20 reveal that 70 % of male and 85. % female pupils report that computers help me self-correct my spelling, grammar and errors. The results further indicate that there is a significant difference about authentic materials between male and female pupils ($\chi^2 = 11.105$; $P < .05$). Cumulatively, 78.75 of the learners revealed that they used computers to help them self-correct their spelling, grammar and errors.

The findings show that learners demonstrated a positive attitude towards the use of CALL in teaching writing skills.

6.2 Teachers' Attitudes towards Using CALL And MALL in English Classroom

The participants in this section were 72 teachers from Kyuso Sub County. Kyuso sub-county was found appropriate for the supply of the necessary data since efforts have been made to provide technology in schools. According to the curriculum of primary education, English lessons are compulsory and English learning is daily. This lesson is taught by teachers of English. However, teachers have the opportunity to enhance their learners' ability to learn English language in the classroom through technology such as CALL and MALL. The time for CALL and MALL is decided by teacher's course book.

This section focuses on the instructor attitudes toward the use of computers and mobile devices in second language (L2) learning contexts. The use of technology by teacher in education, in general and in teaching, in particular, depends strongly upon their support and attitudes. Various studies suggest that if teachers believed or perceived proposed computer programs as fulfilling neither their own or their learners' needs, they are not likely to attempt to introduce technology into their teaching and learning (Kalanda, 2005). Among the factors that affect the successful use of computers in the classroom are teachers' attitudes towards computers. Attitude, in turn, constitutes various dimensions.

The researcher attempts to identify to what degree language instructors/teachers value the use of computers and mobile devices in their teaching. The data analyzed in this section is primarily from an attitude questionnaire that was given to the teachers in order to ascertain their' attitudes towards the use of computer and mobile-assisted language learning. The survey was comprised of 20 questions based on the Likert scale five-item response type (1 "Strongly Disagree" to 5 "Strongly Agree").

6.2.1 Teachers' Attitudes towards CALL And MALL In Support for Teaching English Skills

The first area of inquiry sought to ascertain the skills that teachers focus on with their learners when using mobile devices and computers. The findings of the study are presented in Table 6.23:

Table 6.21: CALL and MALL support the teaching of the following English areas

No	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree		
		N	N	%	N	%	N	%	N	%	N	%
1	Vocabulary	72	57	79.16	15		0		0		0	
					20.83							
2	Pronunciation	72	55	76.38	17		0		0		0	
					23.61							
3	Listening Skills	72	56	77.77	16		0		0		0	
					22.22							
4	Speaking skills	72	59	81.74	13		0		0		0	
					18.05							
5	Reading skills	72	48	66.66	20		4	5.55	0		0	
					27.77							
6	Writing skills	72	31	43.05	21		20		0		0	
					29.16		27.77					
7	Grammar	72	19	26.38	24		29		0		0	
					33.33		40.27					
	Mean	72					9.727		0		0	
			64.44		29.99							

The analysis in Table 6.21 indicates that overall, all teachers recognize support of CALL and MALL in teaching of both receptive and productive skills when using mobile and computer devices. The teachers responded positively as it can be seen in table 6.21. The score of teachers' attitudes towards CALL and MALL support is indicated by a mean of 79.52% and in general, participants chose 'strongly agree' as a response to question and they completely rejected the strongly disagree and disagree categories. This is because they thought that CALL and MALL will promote learners to engage in independent learning. The findings reveal that teachers are more in agreement that CALL and MALL

can be effectively utilized to improve learners English language skills. However, the percentages for the support of CALL and MALL receptive skills were higher than that of productive skills.

As illustrated by Table 6.21, the majority of respondents (79.61%) believe that CALL and MALL support the teaching of vocabulary. The respondents in an open ended question reported that CALL and MALL encourages peer interaction and that learners give feedback each other. Moreover, learners discuss the vocabulary used in the tasks, helping their friends, finding new information relating to the words introduced to them, or, sometimes, even coming up with linguistic jokes by using some of these words which enhances vocabulary retention. Generally, the use of CALL and MALL enhances great cooperation and collaboration toward improved learning helping the peers learn.

The results in Table 6.21 indicate that 55(76.38%) participants strongly agree that CALL and MALL support the teaching of Pronunciation while 17(23.61%). The teachers reported that CALL and MALL offers SL learners with many novel opportunities in a personalized and effective way. Among the opinions that were given are:

'Learners can receive audio feedback on their utterances and performance after comparing them with simulated native speakers, they can see their lips' positions and manoeuvres in the oral cavity (manner and place of articulation) when they produce different sounds and compare their pitch contours with those of the native speakers and modern technologies create a game-like atmosphere for pronunciation practices that do not exist in traditional classroom settings' RESPONDENT 8(Teacher)

The above data reveals that if learners are exposed to digital technology tools, they will learn pronunciation better in comparison to the conventional method of teaching. Pronunciation is a prerequisite for a clear understanding between the interlocutors while poor or bad pronunciation, on the contrary, can cause pragmatic misunderstandings. Therefore, correct speech production is critical to understanding a language. Its basic utterances, from sounds to words, must be spoken appropriately and intelligibly.

The percentage 77.77% of the teachers strongly agreed while 22.22% agreed that CALL and MALL can be exploited to practice listening activities. Cumulatively, all respondents reported to have positive attitudes towards using CALL and MALL for listening skill. Through an open ended question, the teachers reported that learner's find their listening skills improved when supported by visual information and that computers helped them in recognizing words when listening with support from visual activities. Thus, CALL and MALL exposes the learners to the authentic materials which are relevant to their life. Moreover, the use of CALL and MALL is an interesting and engaging learning tool that provides a valuable environment especially for an extensive listening activity (cf. Barber, 2007).

The 81.74% of the respondents strongly consider the mobile and computer device as a material for teaching certain speaking activities while 18.05% agreed. The findings indicate that the respondents believe that CALL and MALL is better than traditional classroom methods for speaking lessons. The respondents reported that they prefer teaching speaking skills via CALL and MALL since learners find it enjoyable and they express themselves without any stress. Moreover, the respondents indicated that CALL and MALL gives learners meaningful and interesting tasks and activities. In short, those activities could stimulate them to improve their listening and speaking achievements.

CALL and MALL in learning of both listening and speaking gives pupils useful and fun learning experience which makes them to have positive perceptions towards the use of CALL and MALL in learning listening and speaking.

In addition, 48(66%) of participants strongly agree that mobile devices are suitable for practicing a certain reading activity while 27(77%) agree. This was a fair percentage as compared to listening and speaking. This means that the respondents demonstrated a positive attitude towards use of CALL and MALL for teaching reading skills. The respondents in the open ended question reported that they teach learners to utilize a dictionary since CALL and MALL gives an opportunity for learners to learn the meaning of words while reading in a CALL and MALL based class. Further, reading via computers is more interesting to learners since it is supported with visual information. Others respondents indicated that CALL and MALL improves learners' vocabulary recognition and word decoding which lead to better comprehension in L2 reading by means of enhancing vocabulary learning.

By contrast, a low percentage, about 43.05% of participants strongly agreed while 29.16% agreed that learners can practice any writing activities by using their mobile and writing technologies. 27.77% were neutral. The participants reported that CALL and MALL supports the use of correct grammar and spelling when they typed English words and they have learnt style error. Furthermore, Microsoft word program helps users when they want to write paragraphs in computers as it can give feedback directly regarding writing mistakes. The researcher observed low response in this area might have been due to lack of skills in the Apps that support writing skills.

The findings above reveal that CALL and MALL promotes interaction inside the classroom and that computer devices can help learners to interact easily inside the

classroom. Another advantage of CALL and MALL increase motivation which makes learners to engage in learning activities.

The findings on teachers' attitude towards CALL and MALL support for teaching grammar reveal that 19(26.38%) of teachers strongly agreed, 24(33.33%) agreed while 29(40.27%) were neutral. The findings in grammar were low as compared to other English language skills. The findings in grammar may be attributed to the fact that grammar teaching with technology offers unique challenges as well as opportunities. The teachers find it challenging since they lack skills and knowledge on how communicative competence can be expanded to include technology.

6.2.2 Perceived Usefulness

In order to have a better understanding of participants' opinions towards CALL and MALL as language aids this section focuses on Perceived Usefulness by the teachers. 7 items were analyzed in this section on whether teachers deem CALL and MALL to be a net benefit to the teaching and learning of English language. The findings on Perceived Usefulness of CALL and MALL were analyzed as shown in Table 6.24 below:

Table 6.22: CALL and MALL support the teaching of the following English areas

No	Statements	Strongly agree			Agree		Neutral		Strongly disagree		Disagree	
		N	N	%	N	%	N	%	N	%	N	%
1	Vocabulary	72	57	79.16	15	20.83	0	0	0	0	0	0
2	Pronunciation	72	55	76.38	17	23.61	0	0	0	0	0	0
3	Listening Skills	72	56	77.77	16	22.22	0	0	0	0	0	0
4	Speaking skills	72	59	81.74	13	18.05	0	0	0	0	0	0
5	Reading skills	72	48	66.66	20	27.77	4	5.55	0	0	0	0
6	Writing skills	72	31	43.05	21	29.16	20	27.77	0	0	0	0
7	Grammar	72	19	26.38	24	33.33	29	40.27	0	0	0	0
	Mean	72		64.44		29.99		9.727	0	0	0	0

The findings in Table 6.22 indicate that the majority of participants strongly agreed (46%) and 44% also agreed to CALL and MALL devices successfully enable language learning, cumulatively 90% of the participants believe that CALL and MALL enhances the teaching and learning of English language. This implies that teachers have a positive attitude towards the use of CALL and MALL. These results indicate that participants perceive CALL and MALL devices to be beneficial to pupils.

The findings in Table 6.22 indicates that 30 (41.66%) of respondents strongly agreed that the use producing CALL and MALL by teachers facilitates the process of teacher development while 29 (40.27%) agreed. 7(9.72%) of participants were neutral while 6 (8.33%) disagreed. The findings revealed that the majority of the respondents believe that the use of CALL and MALL in classroom support TPD (Teacher Professional

Development). The findings in this section are supported by the fact that one area emphasized in TPD by the MOE, is imparting teachers with knowledge and skills on how to use technology to improve learning outcomes. TPD program is also designed to help teachers learn how to integrate technology into the curriculum since they are in control of the classroom settings. The study observes that teachers enhance digital literacy skills acquired when producing podcasts, digital stories and other CALL and MALL materials which are essential in the modern knowledge society.

The results on item 3 revealed that 19 (26.38%) of strongly agreed that CALL and MALL are more authentic than traditional materials such as text books while 32 (44.44%) agreed. Cumulatively, 70.82% of the participants believe that CALL and MALL are more authentic than traditional materials such as text books. In a pen-ended question the participants demonstrated a favorable attitude to using such authentic CALL and MALL materials videos in their future English learning programs. Below are the responses of the teachers regarding the use of CALL and MALL materials:

The use of cartoons, animations and music videos enhance comprehension. Videos provide learners with the chance to see and hear speakers' gestures, facial expressions and other paralinguistic features which can lead to improving second language learning. Such materials expose learners to the language in its real context. Such materials provide contextual instances of using language.

The findings in the data above reveal that teachers have positive attitudes of regarding the use of CALL and MALL materials. The findings reveal that CALL and MALL materials help learners comprehend information via different channels and that CALL

and MALL materials result in better learning outcomes since they provide learners with multiple channels of delivery.

The results on item 4 reveal that one of the benefits of CALL and MALL devices is that they can provide learners with the ability to enhance learning collaborations. The results in Table 45 indicate the majority of participants (70%) either agreed or strongly agreed that that CALL and MALL devices are able to increase collaboration between learners in the classroom. Increasing collaboration between learners has pedagogical benefits, as collaboration in classroom allows peer/group interaction and the teacher can interact with all learners simultaneously with the use of CALL and MALL while online, which may result in more manageable and efficient teaching. However, 20% of participants also indicated that they neither agree nor disagree. Reasons for this could be that the participant lacks experience with CALL and MALL devices.

Low results were also reported in the statement 'I have faith in computer-based language tests' where 17(23.6%) participants strongly agreed while 18 (25%) agreed. 28(38.88) of the participants were neutral while 9 (12.5%) disagreed with the statement. The reasons for the above results were because of the challenges that teachers faced when it came to integrating technology into their classrooms such as: a lack of electricity, infrastructure and connectivity and lack of skills.

The sixth item was on immediate feedback provided when using CALL and MALL. The results show that majority of teachers believe that CALL and MALL affords learners with immediate feedback; 32(44.44%) strongly while agreed 33 (45.83%) agreed. The teachers in the open ended question reveal that the use of technology in their cases helps them deliver timely and effective feedback which enables them to

achieve greater learning. This is achieved through Computer Assisted Assessment, audio recording and audio capture.

The findings of the study in the last item reveal that teachers believe that innovative technologies empower traditional space. 33(45.83%) strongly agreed while 31(43.05%) agreed that computer and mobile-assisted language learning is a valuable extension of traditional learning methods. The findings from item 1 to 7 above reveal that the future of classrooms will be an amalgamation of both digital as well as face-to-face learning and that technology is empowering second language learners and teachers at every stage of their journey and promise to cater to the demands even more in the near future.

6.2.3 Affective Factor of Teachers on CALL And MALL

This section focused affective component of attitude. The analysis in this section focused on 4 items that revealed the affective factor of attitudes as presented in Table 6.25.

Table 6.23: Affective Factor of teachers on CALL and MALL

No	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree		
		N	N	%	N	%	N	%	N	%	N	%
1	I am confident to use CALL and MALL devices for language learning purposes	72	20	27.27%	22	30.55%	13	18.05%	6	8.33%	11	15.27%
2	Teachers do not have time for CALL and MALL	72	5	6.94%	7	9.72%	12	16.66%	19	26.38	28	38.88
3	Interacting via CALL and MALL is often frustrating.	72	0%	0%	20	27.77	31	43.05	21	29.16		
4	Using CALL and MALL will empower learners and teachers to be more autonomous.	72	40	55.55%	20	27.77%	8	11.11%	0%	4	5.55%	

The findings on item 1 shows mixed reaction to item 1 which is ‘I am confident to use CALL and MALL devices for language learning purposes. Perceived self-confidence in technology is an important predictor of teacher’s future or present performance quality. Table 6.2.3.1 indicates that the majority of the participants (57.77%) answered positively: agreed (30.55%) and strongly agreed (27.27%). This suggests that the majority of participants feel confident enough in their digital literacy that they would be able to use CALL and MALL devices successfully within their teaching practices. However, (18.05%) of participants also stated that they neither agree nor disagree, (8.33%) strongly disagreed while (15.27%) disagreed. This could be due to participants not feeling sufficiently competent in their ability to successfully adopt technology, and

may require training or support in how to implement such devices successfully, thus achieving digital competency.

The participants had varied responses on item 2 which was a negative statement: 'Teachers do not have time for CALL and MALL'. Table 6.23 indicates that the majority of the participants answered negatively: (38.88%) disagreed while (26.38%) strongly disagreed. This implies that majority of teachers believe that they have time for CALL and MALL. However, a significant number of participants (23.6%) believe that 'Teachers do not have time for CALL and MALL'; (6.94% strongly agreed while (16.66%). This implies that there are tough barriers to the use of technologies other than required resources including lack of time available in classes.

The results on item 3 show that majority of respondents (43.05%) strongly disagreed with the statement that interacting via CALL and MALL is often frustrating while (29.16%) disagreed. A significant number of respondents (27.77%) were neutral about this statement. This implies that the teachers have a positive affective attitude towards interacting with learners CALL and MALL.

The results on item 4 shows that majority of respondents (83.32%) believe that Using CALL and MALL will empower learners and teachers to be more autonomous. However (11.11%) were neutral while 5.55% disagreed. The teachers reported that CALL and MALL empowers them to be autonomous outside the classroom. The teachers reported that they join language social groups where they discuss English language teaching matters. CALL and MALL gives them the opportunity to choose the best learning resources for their learners.

6.2.4 Perceived Ease of Use

According to Davis (1989) an individual's behavioral intention to adopt a system is determined by two beliefs, perceived usefulness and perceived ease of use. Perceived ease of use is defined as "the degree an individual believes that using a particular system would be free of effort. Davis (1986) stated that the user would put less effort with a tool which is easy to use, thus they will be able to spare efforts to accomplish other tasks. Perceived ease of use could help improving one's performance. In this study, perceived usefulness and perceived ease of use were used to analyze teachers' perceptions on the usage of CALL and MALL in English as a Second Language Learning (ESL).

Table 6.24: Teachers Perceived ease of use of CALL and MALL

Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree	
	N	N %	N	%	N	%	N	%	N	%
1 CALL and MALL lessons can be easily developed	72	30 41.66%	29	40.27%	7	0.09%	6	0.08%		0%
2 Teachers do not have the expertise to develop CALL and MALL lessons	72	25 34.72%	32	44.44%	15	20.83%	0	0.08%		0%
3 Teachers should be able to develop CALL and MALL materials for teaching	72	17 23.6%	18	25%	28	38.88%	9	0.125%		0%
4 Producing CALL and MALL materials requires a lot of mental effort.	72	19 26.38%	24	33.33%	29	40.27%		0%		0%
5 I find it takes a lot of effort to become skillful at using CALL and MALL	72	0	21	29.16%	20	27.77%	31	43.05%		%

Table 6.24 demonstrates the frequency distribution of perceived ease of use (PEoU) which shows different frequency of each item. The findings reveal that indeed CALL and MALL lessons can be easily developed. Most of the, respondents 30 (41.66%) strongly agree while 29 (40.27%) agree that that CALL and MALL lessons can be easily developed. However, a significant number of respondents 6 (0.08%) disagreed. The findings show that teachers are willing to create CALL and MALL lessons. The findings of item two show the need for training of teachers in the application of technology in the curriculum. The findings in Table 6.26 indicate that majority of

teachers that is 25 (34.72%) strongly agree and 32 (44.44%) agreed that teachers do not have the expertise to develop CALL and MALL lessons. However, 15 (20%) of the respondents were neutral that the statement that teachers do not have the expertise to develop CALL and MALL lessons. The findings reveal that very few teachers implement the integration of technology in the teaching of English classes. This was further revealed in their attitude towards their role in development of CALL and MALL materials for teaching. The findings revealed laxity of teachers in preparation of CALL and MALL materials for teaching; while 17(23.6%) strongly agreed 18(25%) agreed and 28(38.88) remained neutral and a significant number of respondents 9(0.125%) disagreed that teachers should be able to develop CALL and MALL materials for teaching.

A good number of respondents still feel that producing CALL and MALL materials requires a lot of mental effort. This shows the need for training of teachers in the use of technology. As far as Item 4 is concerned, 19(26.38 %) chose strongly disagreed that it requires a lot of mental effort to produce CALL and MALL while 24 (33.33%) agreed and 29(40.27%) were neutral. Finally, for Item 5(43.05 %) of the respondents strongly disagreed that it takes a lot of efforts to become skillful at using CALL and MALL while 20(27.77%) were neutral 21(29.16%) agreed. This implies that respondents have mixed reactions on ease of use of CALL and MALL.

There the findings for perceived ease of use items on the questionnaire showed that the respondents have positive perceptions on the usage of CALL and MALL. However, a small number of respondents showed their disagreement on certain items. This variety of responses given by the respondents could be because of different level of skills in using CALL and MALL. The teachers' attitude towards usage of CALL and MALL

affects their perception. The most important finding in this study is was in overall a high proportion of the respondents strongly agreed with the statement about the easiness in development of using CALL and MALL lessons. This is an indication of the positive perception of the role of MALL in enhancing learners' English. This implies that if the teachers acquire the necessary skills CALL and MALL are the promising devices future of language learning since these devices are changing the language learning process become more genuine, personalized as well as situated.

6.3 Chapter Summary

This chapter has presented, analyzed and discussed learners' and teachers' attitudes towards using computer and mobile assisted language learning in English language teaching classes at upper primary level. The findings of this study indicate that both pupils and teachers' have a positive attitude toward the use of CALL and MALL in English language teaching classes. The study found that pupils' attitudes towards the usability, effectiveness, and satisfaction of CALL and MALL were quite positive. In general, pupils of the study thought that computer and mobile technologies are effective and useful for language learning, and easy to use. The teacher's believe that CALL and MALL has the potential to leverage the teaching of English skills such as Vocabulary, pronunciation, listening, speaking reading, writing and grammar. The findings revealed that there is a consensus among participants, upon the likelihood of using CALL and MALL in teaching English language skills. The results show the respondents have positive perception on the usage of CALL and MALL. Majority of the respondents showed overall agreement on both constructs Perceived Usefulness (PU) and Perceived Ease of Use (PEoU) of CALL and MALL. They believed the usage of CALL and MALL will enhance the teaching and learning process. Generally, the results in this

section show that the majority of pupils and teachers show their readiness to adapt computer and mobile assisted language learning. The findings in this section thus reveal some implications of this study. It is in this vein that the next chapter (Seven) focuses on the implications on the use of computers and mobile assisted language learning in upper primary.

CHAPTER SEVEN

IMPACTS OF THE USE OF COMPUTERS AND MOBILE ASSISTED LANGUAGE LEARNING

Introduction

Basing on the findings in Chapter 4,5and Chapter 6 we can deduce some impacts of this study. This chapter therefore focuses on the impacts of the use of Computers and Mobile Assisted Language Learning in upper primary. This chapter is hence set out to advance understanding of practices of CALL and MALL integration among English learners and teachers and the factors influencing the implementation of this process. The analysis in Chapter 4 to 6 indicate that the use of CALL and MALL has profound impacts on language teaching given that there is a possibility for both pupils and teachers to use language outside the classroom mediated through digital technologies. Therefore, pupils should be able to use digital technologies to support their social practices through language learning processes (cf. Kessler, 2018).

Moreover, having experienced and gone through the context of COVID this study offers some implications on the issue of adopting digital technologies in the classroom, both off line and online learning environment. This Chapter therefore relies on the data collected via attitudinal questionnaire and open ended questions. The analysis is based on seven (7) items in the attitudinal questionnaire that reflects some implications on the use of CALL and MALL

7.1 Teacher Training Technology

In order to establish the level of digital competency teachers currently have, the following statement was provided: ‘I need training/further training on how to use

computer and mobile devices for language learning purposes'. Results are provided in Table 7.1.

Table 7.1: I need training/further training on how to use computer and mobile devices for language learning purposes'

No	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree	
		N	N %	N	%	N	%	N	%	N	%
1	I need training//further training on how to use computer and mobile devices for language learning purposes	72	33 45.83%	31	43.05%	8	11.11 %	0	0%	0	0%

The results in Table 7.1 indicates that a majority of teachers (88.88%) (that is 45.83% Strongly agreed while 43.05%) agreed that they need training/further training on how to use computer and mobile devices for language learning purposes. The findings implicate the need for teachers to be trained and imparted with knowledge and skills on how to use computer and mobile devices for language learning purposes. Training teachers in content areas help them to be confidence for using technology in their classes. Moreover, teacher training technology may foster connections and applications to curricular content that would strengthen teacher methodology courses. Teachers of English need training in specific language areas and relevant APPS that are applicable in language learning. This was further reflected in the results in item 2 Table 7.2:

Table 7.2: There is not enough training/education on CALL and MALL materials development for teachers of English in Kenya

No	Statements	N	Strongly agree		Agree		Neutral		Strongly disagree		Disagree	
			N	%	N	%	N	%	N	%	N	%
2	There is not enough training/education on CALL and MALL materials development for teachers of English in Kenya	72	37	51.38%	31	43.05%	4	5.55%	0	0%	0	0%

The findings in Table 7.2 indicate that majority of respondents (94.43%) observe that there is not enough training/education on CALL and MALL materials development for teachers of English in Kenya. These results were further confirmed in the open ended questions where the respondents reported a lack of practicality in the training sessions they receive on technology. The participants expressed dissatisfaction with the training being general, and requested more practical training relevant to their personal and professional needs. Cheung's (2021) study shows that a demand for practical training might stem from one's own teaching context. Teachers therefore must be exposed to the new teaching styles that they should adapt to meet the needs of the generation of digital society. The use of different APPS by both teachers and learners enhances their digital skills. The teachers should therefore be trained to produce podcasts, Moodle reader lessons, videos and how to use Google Docs which consequently contribute to their confidence, competence and the development of digital literacy.

7.2 Teachers Professional Development

The finding on item 3 reveals implications on programs on Teachers' Professional Development. (TPD) The results on item 2 indicate that teachers' proficiency of using computers in language learning largely defines their own attitude to CALL and MALL. This then shows that there is need teacher professional development in learner-focused technology use since the learning of English increases greatly with the integration of technology in academic classes. The results are presented in table 7.2.1 below:

Table 7.3: Teachers' proficiency of using computers in language learning largely defines their own attitude to CALL and MALL

No	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree	
		N	%	N	%	N	%	N	%	N	%
3	Teachers' proficiency of using computers in language learning largely defines their own attitude to CALL and MALL	72	55.55%	40	38.88%	28	5.55%	4	0%	0	0%

The results on item 3 shows that majority of respondents (94.5%) believe that teachers' proficiency of using computers in language learning largely defines their own attitude to CALL and MALL. This implies that teachers' use of digital technologies is affected by their knowledge and skills in CALL and MALL. That is, English teachers' competence and motivation to use digital technologies have emerged as one determining factor in digital technologies adoption. The study observes that professional development remains one of the most critical factors in enhancing teachers' competence and confidence in the use of digital technologies. Therefore, TPD

programs should focus on providing technology training, either in teacher education or in-service professional development that can enable teachers to fully explore the affordances of digital technologies and meaningfully integrate them in their classroom. TPD programs are an important way of enhancing teachers' proficiency in digital technologies. These findings are in support of Katamba (2020) study that found that inadequate and irregular technology-related training caused the participants to feel ill-equipped to integrate ICT into their practices. This situation is even more pronounced in a modern language classroom where learners are increasingly tech-savvy, and teachers with low technological self-efficacy may accordingly feel discouraged.

The study also urges that TPD and especially English teacher education programmes prepare prospective teachers to be ready for future challenges related to technology in language teaching. The programs may shed light on how to learn English from available online sources. TPD should focus on how technology could be maximized for their future English classroom and especially in context of COVID 19 that heightened the role of technology in the lives of billions of learners around the world. In chapter six teachers reported that they lack the expertise to operate the many APPS for teaching English language. Hence, the training of English teacher educators could address how to teach specific learning materials by using several technology devices. The student teachers' first-hand experiences in using the technology for their own learning may, in turn, determine the success of technology integration in their future teaching.

7.3 Teacher Instruction

The emergence of digital technology into classrooms is expected to revolutionize the ways teachers educate learners. With regard to English language learning, the expectation to make the most use of digital technology is growing in parallel with the

increased demand for improved digital skills and competencies. However, the results in Chapter six showed that majority of teachers believe that teachers do not have the expertise to develop CALL and MALL lessons as shown in Table 7.4 below:

Table 7.4: Teachers do not have the expertise to develop CALL and MALL lessons

No	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree		
		N	N	%	N	%	N	%	N	%	N	%
4	Teachers do not have the expertise to develop CALL and MALL lessons	72	25	34.72%	32	44.44%	15	20.83%	0	0%	0	0%

The analysis in Table 7.4 indicates that the use of digital technology comes with some demands for both the English language learners and the teachers. For instance, the adoption of technology in the classrooms suggests that language instructors re-examine their role in teaching and learning activities. As observed in section 7.1 and 7.2 language instructors are required to explore various teaching styles and media for learning, which are more engaging to their pupils (see Chapter 5).

Moreover, adapting to new technologies means that teachers shift their role ‘from matters of “teaching” to matters of coordinating and designing processes of “delivery”’ (Cf. Katamba, 2020). For instance, teachers need to make classroom instructions interesting and participatory due to digital education. As discussed in Chapter 4 the use of CALL and MALL lessons demands that children listen to what the teacher says and they also watch it on the screen. Thus, CALL and MALL facilitates visual learning for pupils. Teachers, therefore need to be trained to produce instructional material that are practical in digital classrooms (offline and online) that allow pupils to pay greater attention to details through interactive presentations. Moreover, using CALL and

MALL may help teachers build their curriculum and support materials, employing their most creative side to personalize learning. For instance, teachers need to determine why their learners want to use technology in the classroom rather than need it. This will surely assist teachers in tracking pupil's progress and developing innovative lesson strategies.

The analysis in chapter 4 revealed that the integration of CALL and MALL in classroom improves the development of English language skills. The study observed that this was due to systematic approach to instructional procedures and resources that digital technology affords. Teachers, therefore, must select appropriate technology for the curriculum delivery and track outcomes to determine the success of the measures. For instance, teachers can use information offered by digital activities to address individual needs of pupils.

7.4 Availability of Resources

The study observes that accesses to resources including availability of digital technologies as well as technical assistance are key element of digital technologies adoption. The results of the current study reveal that despite the respondents expressing positive attitudes towards adopting CALL and MALL in classroom which is a constructivist approach to learning majority of respondents expressed concerned about the accessibility of computer suites as shown in Table 7.5 below:

Table 7.5: Implications on availability of resources

	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree	
		N	%	N	%	N	%	N	%	N	%
5	Producing CALL and MALL materials cost less	72	0%	0%	7	0.09%	33	45.83%	32	44.27%	
6	There is not enough funding for teachers to develop CALL and MALL.	72	37 51.38%	32 44.45%	3	4.16%	0%		0%		
7	There are not enough computer-based facilities for the English Language teachers to use/produce CALL and MALL materials and lessons	72	40 55.55%	32 44.45%	0%		0%		0%		

The analysis on item 4 in Table 7.5 indicates that majority of respondents (90.1%) disagree with the statement that producing CALL and MALL materials cost less. This implies that teachers are faced with insufficient access to technology and internet which relate to teachers' practices of digital technologies integration. In fact, through the open ended questions the respondents reported that buying bundles was expensive.

This is further shown by the results in item 6 where majority of respondents (95.83%) express concern that there is not enough funding for teachers to develop CALL and MALL. This implies that various components and elements are needed to incorporate technologies in language classrooms. For instance, lack of incentive and support are significant challenges in applying CALL and MALL in educational settings in general.

Through open ended questionnaires the participants reported that among the challenges that they faced in implementing CALL and MALL: lack of reliable access to electricity,

limited knowledge base and technology infrastructure especially internet access, bandwidth, hardware and software provision, language of instruction and available software. Some participants mentioned demographic factors such as population size, density and dispersion and geographical factors such as poor network in some areas.

The data above reveals that there is also a general insufficiency in learning resources and materials that are needed in the incorporation CALL and MALL as was further revealed in the results of item in table 7.5 all respondents (100%) reported that there are not enough computer-based facilities for the English language teachers to use/produce CALL and MALL materials and lessons.

The analysis shows that Kenyan government needs to improve affordability of digital resources in schools. According to the United Nations, governments can become powerful instruments in bridging the digital divide by ensuring affordable, easy-to-use technologies. The findings of the study revealed that the cost of internet connectivity was high and the price of technological devices and electricity tariffs were major contributors to the digital divide for both teachers and learners.

7.5 Stakeholders

The findings of the current study reveal implications for stakeholders. The study shows lack of support on implementation of digital learning by various stakeholders as shown below:

Table 7.6: English language teachers receive support from various stakeholders on how to implement CALL and MALL learning

No	Statements	Strongly agree		Agree		Neutral		Strongly disagree		Disagree	
		N	%	N	%	N	%	N	%	N	%
8	English language teachers receive support from various stakeholders on how to implement CALL and MALL learning	72	0%	0%		15	20.83%	25	34.72%	32	44.44%

The findings in Table 7.6 reveal that most respondents (79.16%) disagreed that they receive support from various stakeholders on how to implement CALL and MALL. This is worrying since as English instructors are required to adapt to the changes in teaching with the advancement of digital technology, it is no doubt that substantial support for the English teachers, lecturers, and other instructors should also be provided by relevant stakeholders.

Therefore, given the rapid development of digital environment, the MOE should encourage both pre-service and practicing teachers to make use of frameworks such as TPACK (Technological, Pedagogical, and Content Knowledge) and SAMR (Substitution, Augmentation, Modification and Redefinition) that focus at effective integration of technology into their teaching. Such efforts will increase digital capabilities of teachers that consequently increase their confidence in using new technologies and facilitate positive learning outcomes.

The current study has implications for the government. The government should play an important role in funding and supporting this form of learning. The government should create policies that help shape education and by providing resources that promote e-learning such as virtual labs. Positive government policies can help accelerate adoption of digital learning solutions across schools. The data collected revealed that some of the challenges that impede the implementation of digital technology are financial hardship, limited 'competent' human resources, and lack of government support.

The government, through the MOE, should ensure regular training by inviting competent practitioners that may take teachers through continuous professional development that is useful to maintain English teachers to be updated with current changes so that teachers and learners could be maximizing new technology products for the benefits of their English classroom. The government should supply teachers with a variety of technological tools and computer especially that they can use in school. In this context, the teachers can follow technology and develop their attitudes towards technology; and in parallel, the removal of at least one of the obstacles in the use of technology and education may be provided.

Curriculum developers on the other hand should ensure that the use of digital technology is a central consideration in the planning and delivery of any learning and teaching across curriculum for excellence. The content in upper primary should provide a range of opportunities for learners to develop their digital skills. Lynch (2018) observes that from early learning through adulthood digital literacy is showing the most promise for success. Hence, curriculum developers should focus on well-designed lessons and content where learners are exposed to information literacy. The curriculum developers should create technological enhanced curriculum and allow teachers to

incorporate technology-assisted instruction to enhance the quality of their lesson delivery (e.g., using PowerPoint to display content about vocabulary or grammar), prepare customized learning materials (e.g., using PowerPoint to create reading comprehension tasks), and engage in professional learning (e.g., sharing self-made materials with others using an online teacher forum).

Alternatively, the curriculum must be designed to include blended learning. The blended learning program must be appropriately designed for a specific course or specific set of target skills. Learning objectives are a priority, followed by course content, and subsequently, materials, resources and technology selection. Ensuring these key features are undertaken in order, would prevent the use of blended learning from becoming technocentric, which may undermine the helpfulness and effectiveness of blended learning for developing reading skills and other language learning skills. Various studies show that the implementation of blended learning effected significant improvements in the English language reading skills and development of English language.

The Ministry of Education on the other hand needs to organize training courses for teachers who have not been exposed to CALL and MALL. A formal training course helps teachers better understand CALL and MALL and to provide help when they encounter learners seeking help and to make better use of CALL and MALL in the classroom to support teaching and learning. The study observed that most of the teachers do not make use of CALL and MALL in teaching due to technological phobia. So there is a need for teachers to improve their skills through frequent use, and practice, in order for them to successfully use any technology in teaching. This is because there is no reason to believe that the technology evolution will stop. Therefore, training

programmes must be added, removed or revised, as new technologies evolve. The heads of institutions should develop training schedules for teachers on the usage of technologies in general in their schools and particularly in the department of languages due to the unique characteristics of language teaching.

Learners should also be exposed to pre-training sessions that would increase their confidence in using CALL and MALL. Moreover, the mobile device satisfies visual and auditory needs and adds to learning fun. The addition of a teacher helps pupils plan and use CALL and MALL to learn the language properly.

7.6 Pedagogical Implications

The findings of the study reveal pedagogical implications. First, technology enables differentiated instructional approaches and individualized delivery systems. The study reveals that learners may use mobile devices as one of the tools to help improve their English learning after school which leads to self-learning. This implies that teachers should shift to a progressive-constructionist in pedagogy which is needed to help young people. Moreover, teachers should create learner centered environment where learners own and co-design their learning actively. The study thus observes that teachers have to rethink how learning spaces such as CALL and MALL should be configured shifting from an instructor led education to a learner based environment (Parsons and Mac Callaum, 2017).

Such innovative pedagogies address practices of teaching, learning and assessment for the technology-enabled world. Teachers therefore need to have enough knowledge of CALL and MALL to maximize their use to help pupils learn English. Technology advancements have allowed more interesting learning materials to be used in the learning process to increase students' interest and motivation. The better the teacher

understands CALL and MALL's learning resources, the better they can advise and assist learners in their learning of English language. Furthermore, by providing information on new technological developments and opportunity of application periodically to teachers can make them develop more positive attitudes towards technology which consequently increase the quality of education through more active and effective use of technologies concerning education and training.

Finally, CALL and MALL has many pedagogical implications, especially in the establishment of English language skills such as formal or informal instructions due to its popularity in English language teaching. In chapter 4 the findings of the study revealed that CALL and MALL enhances the development of English language Skills in upper primary. Moreover, literacy deficits in language learners' early years of education will follow a downward spiral as they progress from one level of language proficiency into another.

7.7 Chapter Summary

This chapter investigated the implications of integrating CALL and MALL in upper primary. The findings of this chapter suggest several implications about CALL and MALL. The integration of CALL and MALL helps teachers and pupils to have more conducive learning environment and complement the traditional style of teaching. There are plenty applications in mobile phone and computers that could make learning process much more interesting and easily attract pupils' attention as well as having better understanding on the lesson. The study reveals that curriculum designers and teachers need to rethink and redesign the learning materials to integrate both CALL and MALL mobile language opportunities for pupils to explore. Furthermore, the integration of CALL and MALL also calls for support from various stakeholders such

as the government, curriculum developers, school heads and MOE. Both teachers and pupils are faced with pedagogical implications that emphasizes on constructivism, learner based instruction and conducive learning environment. The next and last chapter presents the summary of the findings, conclusions, recommendations and suggestions for further research.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This study assessed the development of English language through technological applications in upper primary, Kitui County. The study was based on the assumption that the application of CALL and MALL APPS enhances development of English language in upper primary learners. The study was guided by four objectives which were to: Investigate whether the use of Computers and Mobile Assisted Language Learning Apps support the development of different English language skills in junior primary, describe the role of computers and mobile assisted language learning in English language teaching and learning in junior primary, determine teachers' and learner's attitudes towards the using of Computers and Mobile Assisted Language Learning devices in English language teaching classes ,and establish the implications on the use of Computers and Mobile Assisted Language Learning in upper primary.

The study applied the Sociocultural theory (SCT) that focuses on ZPD and learning schemata (constructivism).The key constructivist concepts were applied in deducing how CALL and MALL APPS can be used by teachers to allow pupils create their own learning by providing learners with many opportunities to work in groups. The application of CALL and MALL was seen as a form of scaffolding and collaborative engagement that would allow learners to acquire ZPD. The findings of the analyses for each objective are presented in the sections that follow.

8.1 Summary

This section presents a summary of the findings of each of the objectives of the study as follows:

8.1.1 Application of Computers and Mobile Assisted Language Learning in Support of the Development of Different English Language Skills

This section focused on application of different Computers and Mobile Apps in support of the development of different English language skills in upper primary. The specific skills that were investigated were vocabulary, speaking skills, listening skills, reading and writing skills.

In regard to the development of vocabulary the analysis revealed that I pads and CALL vocabulary instruction support of English language learners' vocabulary development. The study measured the usefulness of CALL and MALL in improving learners' vocabulary. The findings of the study revealed that test scores in vocabulary assessment improved considerably among the learners after the CALL and MALL based intervention. The CALL and MALL based intervention included some activities that had visuals attached to them. The initial exercises were simpler seeking passive inputs such as selecting the correct answer from the options given, and progressed to more complex ones, such as collaborating with others to complete the dialogues by substituting English definitions with words. The comparative descriptive statistics showed a change in scores in immediate post-test and delayed posttest. The results showed learners' immediate post-test scores ($M = 98.57$, $SD = 16.34$) were higher than their pre-test scores ($M = 59.46$, $SD = 5.70$), as it was shown in Table 4.2.

The findings demonstrated an upward trend in the performance of the group as whole. The upward trend showed that the collaborative learning achieved via CALL and MALL is beneficial to the learning objectives. The findings of the study revealed that participants improved their vocabulary scores by an average of nearly 39 points (98-59) on the immediate post-test. This indicated that learners maintained a high number

of vocabularies and kept them for an extended length of time that implied that information that is presented in a multi-modal fashion including visual and audio improves vocabulary knowledge and retention (cf. Traore & Kyei-Blankson, 2011). The findings also showed that both CALL-based and MALL based approaches significantly increased learners' lexical knowledge in short and long period of time. Therefore, it is concluded that CALL and MALL technology may assist learners in increasing their vocabulary knowledge and that the words acquired while performing technology-assisted activities were maintained without substantial attrition two weeks later

The study demonstrated how the use of ipads, digital games and mobile phones foster vocabulary learning in an English language class by engaging learners into collaborative learning. The study observed that learner motivation was high by week 8 and there was great cooperation and collaboration toward improved learning helping the peers learn. Thus, the findings are pegged to learners' interest in using online learning environments which can be an excellent supportive agent to learn English language in and outside the classroom. Moreover, the application of iPad, provided learners with access to crucial digital literacies while working to improve vocabulary. The findings of present study are in line with the results of some previous studies by Horst, Cobb, Nicolae (2005) and Kabilan et al., (2010) on the importance of vocabulary instruction through digital games on improving English learners' vocabulary learning and retention.

The study also measured the use of Podcast and toontastic 3D recording to support the development of English speaking skills in upper primary learners. The findings of descriptive statistics and statistical analyses of the pretest and posttest listening tests

indicated an improvement in oral performance. The findings of the study showed that there were significant differences in speaking achievements after the pupils were taught by using Podcast. The findings showed that the use of podcasts and digital storytelling can inspire pupils to speak the language confidently. The pupils used podcasts and digital stories to share their ideas creatively, audibly, and kinaesthetically. The findings of the study revealed that there was a significant difference in the scores for participants' pre-test ($M = 41.2143$, $SD = 1.35310$) and participants' post-test ($M = 62.9286$, $SD = 1.29952$) conditions.

This fact indicated that the use of Podcast in teaching speaking may help them develop their skills. The results indicated the effectiveness of using both podcast and digital story telling through Toontastic 3D to support the development of speaking skills. The results of this study showed that teaching speaking using podcast and Toontastic 3D App created some activities and learning outcomes. The study observed that using podcasting as the meaning of supporting and providing a multimodal form of communication was another recurring theme that emerged from my data. The study observed that several speaking tasks such as audio recording, presentations, responding to questions and spontaneous talks encouraged speaking. It was observed that the research participants were motivated to speak in English language via Toontastic 3D as it has enjoyable features, and they could easily access the app via their smartphones. The results showed that both recordings in podcasts and digital stories have a positive effect on the oral performance of learners. The findings of the study demonstrated that the use of podcasts and digital stories encourages the development of speech abilities and increases motivation towards language learning in general and speaking skills.

Among the skills that were developed were pronunciation and fluency. The results showed there was a significant difference between the results of the pupils' pre and post-test mean scores in pronunciation and fluency. This is because of podcasting and digital story telling provided learners with the opportunities in the improvement of speaking skills or the correction of pronunciation. The learners were also involved in listening to individual native speakers in pairs and group presentations. This had an impact on respondents practicing to be fluent speakers.

Speaking skills were also measured in terms of levels of ratings of grammar, vocabulary and comprehension. The findings revealed that there was a significant difference between the results of the pupils' pre and post-test mean scores in the three speaking aspects as shown in Figure 4.2. The results demonstrated that apart from podcasts and digital stories via Toontastic 3D assisting in speaking English effectively they also improves their vocabulary abilities. The researcher also observed that the use of the application also contributed to the pedagogical process by encouraging active involvement among learners. The findings revealed that using CALL and MALL may result in an improvement of comprehension skills by the applications being used to introduce new material, encourage conversation and make abstract or conceptual topics more intelligible.

The findings of the study showed that there were significant differences in listening achievements between the pretest and posttest and this was after the learners were taught using Podcast. This fact indicated that the use of Podcast in teaching listening and speaking to the students had improved the students' listening achievements. In addition, Podcast helped the students to gain significant improvement in their listening and speaking achievements. The results also supported the idea of teaching the language

skills integratedly. Podcasts could be used to integrate the learners' listening achievements. This result is in agreement with research done by Jain and Hashmi (2013) which found significant differences in the learners' listening skills achievements when the learners were taught by using Podcasts.

An improvement in the learner's achievement may have been caused by the fact that Podcasts exposed the learners to the authentic materials which were relevant to their life. Moreover, podcasting is an interesting and engaging learning tool that provides a valuable environment especially for an extensive listening activity (cf. Barber, 2007). Moreover, when the podcast was played in the treatment, the learners were provided opportunity to learn new vocabulary and content knowledge through accessing a lot of listening materials.

In regard to listening skills, the findings of the study indicated that using podcasting as a teaching strategy supports the development of listening skills. The results indicated that podcasts provide users with a mixture of audio and visual texts, while other podcasts are a mixture of audio and images which enhance literacy development in learners. The results showed that podcast provides learners with learning styles that might change their ways to practice listening, increase vocabulary level, grammatical sentence, intonation, and imitate pronunciation.

The current study also investigated whether MALL and CALL systems and applications may enhance reading skills among learners in upper primary learners. The main application that was measured was Moodle reader. The aim was to evaluate learners' reading fluency, accuracy, expression and comprehension to make a determination of the reading ability of the learners. The results in the post test indicated that the overall

performance of learners was improved after the use of Moodle reader (see table 4.3). The study observed that the hyper media features of Moodle reader such as pictures, audio, video, animation attracted the learners and motivated them. These elements are deemed helpful towards developing reading comprehension. The study observed that results improved significantly also since learners had the opportunity to explore, derive meaning, and extend their own comprehension of the reading materials resulting in active development of knowledge rather than passive.

The study also measured the use of Google docs in enhancing Upper primary learners Writing Skills. The focus was on lower-level skills such as spelling and word choice. The results showed of post-test showed a considerable amount of performance progress in terms of content and ideas, organization, mechanics, vocabulary, and word choice. The results were so because the use of CALL applications which offers learners opportunities for autonomous learning. The study observed that learners gained autonomy, learning ownership and self-confidence. The study therefore finds CALL and MALL as an effective mean that may be used by teachers to develop the writing skills of upper primary learners. Google Docs were found to have positive effects on learners writing skills in terms of content and structure. The findings suggested that Google Docs facilitate and enhance the teaching of writing because of their ability to motivate learners.

8.1.2 Benefits of Computers and Mobile Assisted Language Learning in English Language Teaching and Learning

The second objective sought to investigate the benefits of computers and mobile assisted language learning in English language teaching and learning in upper primary. The findings of the study revealed that CALL and MALL has an impact on learners'

motivation, collaborative language learning, a teaching and assessment. The specific CALL and MALL applications that were utilized were CALL vocabulary learning, podcasts and Toontastic 3D recording, Moodle readers and Google docs.

The analysis of the use of podcasts in development of listening and speaking skills illustrated that podcast motivated the learners to learning speaking. The study observed that podcasts have an impact on learner's motivation because they take learners closer to the target language. The learners gained confidence to speak in English by recording themselves. The teachers reported that the use technology helped create a classroom environment that was less threatening and English language learners feel safe to interact with others and the language.

Some teachers described how learners developed their self-confidence in their abilities to use technology. The researcher observed that podcast motivated less confident learners to participate in speaking. The use of computer and mobile based activities on the other hand helped learners to build confidence since a safe and authentic learning environment was provided by the researcher. The study observed that learners enjoyed recording their voices on the podcast; they even imitated how the native speakers speak English especially on the speaking aspect such as the pronunciation, intonation, fluency. The findings showed that CALL and MALL activities provided a way for teachers to support the self-confidence and self-esteem of English language learners, in terms of their language learning and mastery of content. Consequently, when self-esteem is heightened, English language learners become more motivated to learn language. The study also observed that the integration of digital story telling into English upper primary classroom fosters participant learning. Digital story telling gave

learners the opportunity to practice new vocabulary and listening comprehension, feedback, improvement of oral competence, confidence and also digital literacy.

The analysis on Moodle reader for supporting the development of reading skills illustrated how effective use of CALL and MALL can increase motivation and engagement of English language learners. The findings in section 4.2.3 revealed that Moodle readers and other CALL and MALL applications such as hypermedia can be used to motivate and engage English language learners' in the development of literacy and reading skills. The researcher observed that Moodle reader motivated learners to be more engaged in reading, especially when they interacted with the text using certain interactive technological tools such as hypermedia. The study observed that providing authentic literature to English language learners is crucial in motivating them to read. The findings of the study revealed that computer and mobile-based activities should be incorporated in traditional teaching methods as a mean of motivating and for the purpose of getting the desired achievement of teaching reading skills. The findings revealed that pupils enjoyed the use of computers and mobile applications especially if the content is interactive and simulates real-life situations.

The analysis of Google docs in support of the development of writing revealed that Google docs is an online digital tool that provides exciting and interesting features that motivated learners. Google docs exposed learners to contextualized activities that require greater involvement by learners than occurs in drill and practice exercise. The findings revealed that by utilizing various kinds of Google docs, language learners gain a "sense of freedom, motivation, and encouragement they need for learning.

In analysis of listening skills and vocabulary the findings indicated that the use of videos excited and motivated learners. This was because the learners were exposed to authentic video materials. Videos also prepared learners with the real spoken language. Moreover, CALL and MALL applications foster the academic motivation required for learning and understanding English as a second language. CALL and MALL applications provides teachers with opportunities to create proper methods of instructions. The findings revealed that CALL and MALL applications provide purposeful attractiveness and usefulness that can positively affect the learners' motivation.

The findings of the study also revealed that CALL and MALL enhances Collaborative Learning. The analysis on the use of CALL vocabulary learning where videos were utilized to teach vocabularies revealed that the group work and collaborative activities contributed the greatest to the learning experience, which was supported by the post-test results. The results indicated that pupils became engaged and motivated when asked to complete assignments in a team setting. The findings illustrated how CALL vocabulary learning gives teachers an opportunity to let pupils create their own learning and how group nature of collaborative learning also promotes interactions as was seen in the classroom. The study observed that group discussions after video watching enhanced social and collaborative interaction in classroom setting.

In analysis of podcast and digital story telling in Collaborative Learning, the study observed that podcast gave learners opportunities to work together and generate new ideas. The pupils in interpretation of the pictures exposed to them engaged in conversations that encouraged them to use the target language. Podcast provided opportunities for deep discussions since the pupils agreed, disagreed, and mutually

criticized reasoning, allowing them to take advantage of the social aspect of learning with the ultimate objective of allowing members of the small group to ‘scaffold’ one another. The study observed that collaborative learning in podcasts was fruitful due to participants listening to one another. Through podcasting, participants created intimate, relational webs based on collaborating, listening, and sharing intellectual and affective ties.

Therefore, CALL and MALL applications through collaborative learning are crucial for development of liberal classroom that enabled pupils to build a “classroom community”. The findings in chapter 4 demonstrated that digital storytelling engaged pupils in the story’s content not just by encouraging motivation and curiosity but also by instilling confidence in their ability to speak in English. The study observed that pupils cooperated, engaged, shared ideas, assisted, and encouraged one another during digital storytelling hence it was a significant and successful social approach to improve learners’ speaking abilities. The findings revealed that collaborative digital storytelling enhanced motivation and engagement, particularly among upper primary learners. The analysis on Google Docs in collaborative learning of writing skills revealed that Google Docs enables collaborative activities and projects that can occur inside or outside of the instructional day. That is learners can collaborate more efficiently on assignments involving writing skills using web-based word processing, spreadsheet, and presentation programs. The study observed that by using tools available through Google Docs the classroom was more productive, more engaging, and more effective. Furthermore, findings showed that participants who used Google Docs engaged cognitively by asking questions that need explanations, giving examples and reasons,

agreeing or rejecting modifications, providing justifications and explanations, making explicit and implicit revisions, and using dictionaries and Google resources.

The findings of the study revealed that CALL and MALL Apps offered learners with opportunities to assess themselves. For instance, the learners were encouraged to complete the reading skills tasks because Moodle reader met their interests and preferences in the digital error, provided more exposure to the English language, increased their reading autonomy and provided them with an immediate feedback and marks. The researcher observed that due to the above reasons the learners in their groups attempted to as many quizzes as possible using Moodle reader. The analysis on digital storytelling for development of speaking skills revealed that: the integration of digital storytelling could improve collaborative learning, as pupils were reliant on one another for a variety of reasons, prompting them to create their own stories. The study observed that during the recording of digital storytelling, group discussion, collaboration, peer correction, and self-learning were all observed. The assignments on writing skills through the use of Google Docs on the other hand enabled pupils to discover and automatically detect grammatical errors by technology such as spell check among other auto corrections when writing. Learners in their groups could review their writings and of other groups and give feedback to each other. This encouraged learners to cooperate in writing of a language to improve to the next level.

8.1.3 Learners' and Teachers' Attitudes Towards Using Computer and Mobile Assisted Language Learning in English Language Teaching Classes

Objective three investigated learners' and teachers' attitudes towards the use of Computer and Mobile-assisted Language Learning among grade 6 learners in Kyuso

Sub-County. The summary of findings is presented below, beginning with the teachers and then learners.

8.1.3.1 Learners' Attitudes towards using Computer and Mobile Assisted Language Learning Apps.

The findings of the study revealed three forms of attitude Perceived Usefulness (PU), affective, and behavioral components of pupils' attitudes towards the use of CALL and MALL in English classroom.

In terms of PU 70% of the male students and 82.5% of the female learners thought that the use of CALL and MALL Apps in their language classrooms increases their motivation. The findings also indicated that 72.5% of male and 87.5% of female pupils believed that they can develop their language skills with authentic CALL and MALL Apps. Cumulatively, 80% of learners agreed that the use of CALL and MALL Apps can be helpful to develop my language skills. The results also revealed that 70% of male and 85% female pupils thought that authentic materials which are taken from the internet make them active. The results further indicated that there was a significant difference about authentic materials between male and female pupils ($\chi^2 = 11.105$; $P < .05$). The analysis also revealed that 35% of male and 45% of female pupils believed that they can understand language better when the teacher uses CALL and MALL Apps in the classrooms. Cumulatively, 75% of pupils thought that they could understand language better when the teacher uses CALL and MALL Apps in the in the classrooms. The results also showed that 67.5% of male and 75.0% of female pupils want different CALL and MALL Apps for motivation purposes. The results also reveal that there is a significant difference between two genders ($\chi^2 = 2.659$; $P > .05$). The study also revealed that 77.5% male and 80% of female learners think that authentic films and videos can

provide a more clear view of the content and help in understanding of language. The results also show that there is not statistically significant difference between two genders ($\chi^2 = 1.699$; $P > .05$). The findings of the study as revealed that 77.5% of male and 80% % of female learners say that the use of CALL and MALL encourages interaction in English classrooms. There was no statistically significant difference between two departments ($\chi^2 = 1.699$; $P > .05$).

In summary the findings of this study revealed that most of the respondents had positive perceptions toward the usage of CALL and MALL in PU.

The study also analyzed the affective attitude of learners. The findings of the study indicated that 67.5 % of male and 75.0 % of female learners agreed that computer and mobile based classrooms made the lessons more enjoyable. The results further illustrated that 52.5 % of male and 62.5 % of female pupils did not agree with the idea that CALL and MALL can be boring and unnecessary. The results also indicated that 55% of male and 60 % of female learners think that lessons can be more enjoyable with power points. The results also demonstrated that CALL and MALL provides learners with a comfortable environment where they can freely learn language without anxiety. Cumulatively, 73.75% of learners think that CALL and MALL provide a stress free environment for learning language. The findings reveal that CALL and MALL is a stress free environment to learn English. Moreover, the results revealed that 60 % of male and 62.5% of female learners believed that computer and mobile-based lessons are more enjoyable and effective than traditional ones. In summary, the affective factor revealed that all respondents that participated in this research agreed that CALL and MALL authentic materials which are available on the internet were effective, enjoyable, interesting and useful for them.

The findings on behavior factor revealed that learners have moderately high positive behavior on CALL and MALL. The findings of the study revealed that 76.25% of the learners agreed that CALL and MALL motivates them to speak orally with the others. The findings of this investigation showed that participants have positive attitudes towards the use of CALL and MALL for teaching oral skill, speaking and listening. The data collected also revealed behavior factors in reading skills. The findings indicated that 67.5 % of male and 75.0 % of female learners agreed that they used dictionaries while reading in CALL and MALL classes. Cumulatively, 71.25% made use of a dictionary which means that CALL and MALL gives an opportunity for learners to learn the meaning of words while reading in a CALL and MALL based class. The results further demonstrated that CALL and MALL affords the learners the opportunity check the meaning of words while reading in CALL and MALL classes. The results revealed that 70 % of male and 77.5 of female learners said that they check the meaning of words while reading in CALL and MALL classes. The findings showed that for the reading skill, participants have positive attitudes towards using CALL and MALL for the development of reading skill. The results revealed that 70 % of male and 85. % female pupils report that computers helped them to self-correct their spelling, grammar and errors. The findings showed that learners demonstrated a positive attitude towards the use of CALL in teaching writing skills.

8.1.3.2 Teachers' Attitudes towards using CALL and MALL in English Classroom

The study also investigated the teachers attitude towards computers and mobile devices in their teaching.

The findings of the study revealed that overall, of all teachers recognized the support of CALL and MALL in teaching of both receptive and productive skills when using

mobile and computer devices. The findings revealed that teachers are more in agreement that CALL and MALL can be effectively utilized to improve learners English language skills. However, the percentages for the support of CALL and MALL receptive skills were higher than that of productive skills. The majority of respondents (79.61%) believed that CALL and MALL support the teaching of vocabulary since the use of CALL and MALL enhances great cooperation and collaboration toward improved learning helping the peers learn. The results also indicated that 55(76.38%) participants strongly agreed that CALL and MALL support the teaching of Pronunciation while 17(23.61%) were neutral. The teachers reported that CALL and MALL offers SL learners with many novel opportunities in a personalized and effective way.

The percentage (77.77%) of the teachers strongly agreed while 22.22% agreed that CALL and MALL can be exploited to practice listening activities. Cumulatively, all respondents reported to have positive attitudes towards using CALL and MALL for listening skill. 81.74% of the respondents strongly consider the mobile and computer device as a material for teaching certain speaking activities while 18.05% agreed. In addition, 48(66%) of participants strongly agreed that mobile devices are suitable for practicing a certain reading activity while 27(77%) agreed. By contrast, a low percentage, about 43.05% of participants strongly agreed while 29.16% agreed that learners can practice any writing activities by using their mobile and writing technologies. 27.77% were neutral. The researcher observed that low response in this area might have been due to lack of skills in the Apps that support writing skills. The findings on teachers' attitude towards CALL and MALL support for teaching grammar reveal that 19(26.38%) of teachers strongly agreed, 24(33.33%) agreed while

29(40.27%) were neutral. The findings in grammar may be attributed to the fact that grammar teaching with technology offers unique challenges as well as opportunities.

The study also analyzed the Perceived Usefulness of CALL and MALL in order to have a better understanding of participants' opinions towards CALL and MALL as language aids. The findings of the study indicated that the majority of participants strongly agreed 46% and 44% also agreed to CALL and MALL devices successfully enable language learning. This implies that teachers have a positive attitude towards the use of CALL and MALL. The findings also indicated that 30 (41.66%) of respondents strongly agreed that the use of CALL and MALL by teachers facilitates the process of teacher development while 29 (40.27%) agreed. Moreover, the results revealed that 19 (26.38%) of strongly agreed that CALL and MALL are more authentic than traditional materials such as text books while 32 (44.44%) agreed. Cumulatively, 70.82% of the participants believe that CALL and MALL are more authentic than traditional materials such as textbooks. The results also indicated that the majority of participants (70%) either agreed or strongly agreed that that CALL and MALL devices are able to increase collaboration between learners in the classroom. The results also showed that majority of teachers believe that CALL and MALL affords learners with immediate feedback; 32(44.44%) strongly while agreed 33 (45.83%) agreed. The findings on PU revealed that the future of classrooms will be hybrid learning.

The analysis on affective factors revealed mixed reactions towards the use of CALL and MALL. The findings of the study revealed that the majority of the participants (57.77%) fee confident to use CALL and MALL devices. However, (18.05%) of participants also stated that they neither agree nor disagree, (8.33%) strongly disagreed while (15.27%) disagreed. This could be due to participants not feeling sufficiently

competent in their ability to successfully adopt technology, and may require training or support in how to implement such devices successfully, thus achieving digital competency. The results indicate that majority of respondents (43.05%) strongly disagreed with the statement that interacting via CALL and MALL is often frustrating while (29.16%) disagreed. This implies that the teachers have a positive affective attitude towards interacting with learners CALL and MALL. Moreover, majority of respondents (83.32%) believed that Using CALL and MALL will empower learners and teachers to be more autonomous. The teachers reported that CALL and MALL empowers them to be autonomous outside the classroom.

The results also revealed that teachers' attitude was determined by perceived ease of use. The findings revealed that indeed CALL and MALL lessons can be easily developed. Most of the, respondents 30(41.66%) strongly agreed while 29 (40.27%) agreed that that CALL and MALL lessons can be easily developed. However, a significant number of respondents 6 (0.08%) disagreed. The findings showed that teachers are willing to create CALL and MALL lessons. The findings of item two showed the need for training of teachers in the application of technology in the curriculum. The findings indicated that majority of teachers that is 25 (34.72%) strongly agreed and 32 (44.44%) agreed that teachers do not have the expertise to develop CALL and MALL lessons. The findings revealed laxity of teachers in preparation of CALL and MALL materials for teaching; while 17(23.6%) strongly agreed 18(25%) agreed and 28(38.88) remained neutral and a significant number of respondents 9(0.125%) disagreed that teachers should be able to develop CALL and MALL materials for teaching. The findings of the study revealed that 19(26.38 %) strongly disagreed that

it requires a lot of mental effort to produce CALL and MALL while 24 (33.33%) agreed and 29(40.27%) were neutral.

8.1.4 Impacts of the use of Computers and Mobile Assisted Language Learning

The last objective focused on some implications of the study. The analysis indicated that the use of CALL and MALL has profound implications for language teaching. Moreover, having experienced and gone through the context of COVID this study offers some implications on the issue of adopting digital technologies in the classroom, both off line and online learning environment.

- i. Teacher training on technology
- ii. Access to technology and internet
- iii. School funding
- iv. learning resources and materials

The findings showed that the study has implications on teacher training technology. The findings revealed that a majority of teachers (88.88%) that is (45.83%) strongly agreed while 43.05% agreed that they need training/further training on how to use computer and mobile devices for language learning purposes. The findings implicate the need for teachers to be trained and imparted with knowledge and skills on how to use computer and mobile devices for language learning purposes. Moreover, majority of respondents (94.43%) observed that there is not enough training/education on CALL and MALL materials development for teachers of English in Kenya.

The results showed the need for teachers being trained to produce podcasts, Moodle reader lessons, videos and how to use Google Docs which consequently contribute to their confidence, competence and the development of digital literacy. The study

revealed the need for teacher professional development in learner-focused technology use since the learning of English increases greatly with the integration of technology in academic classes. The results showed that majority of respondents (94.5%) believe that teachers' proficiency of using computers in language learning largely defines their own attitude to CALL and MALL. The study observed that professional development remains one of the most critical factors in enhancing teachers' competence and confidence in the use of digital technologies. The study also revealed implications on teacher instruction. The study revealed that the use of digital technology comes with some demands for both the English language learners and the teachers.

The findings of the study revealed that teachers are faced with insufficient access to technology and internet which relate to teachers' practices of digital technologies integration. Moreover, respondents expressed concern that there was not enough funding for teachers to develop CALL and MALL. The study revealed that there was a general insufficiency in learning resources and materials that are needed in the incorporation CALL and MALL as was further revealed in the result. Therefore, the findings of the current study revealed implications for Stakeholders.

The findings showed that most respondents (79.16%) reported that they did not receive support from various stakeholders on how to implement CALL and MALL. Therefore, the MOE should encourage both pre-service and practicing teachers to make use of frameworks such as TPACK (Technological, Pedagogical, and Content Knowledge and SAMR (Substitution, Augmentation, Modification and Redefinition. The government on the other hand should play an important role in funding and supporting digital learning. The government should also create policies that help shape education and by providing resources that promote e-learning such as virtual labs. Curriculum developers

on the other hand should ensure that the use of digital technology is a central consideration in the planning and delivery of any learning and teaching across curriculum for excellence. School heads on the other hand need to organize training courses for teachers who have not been exposed to CALL and MALL. The findings of the study also revealed pedagogical implications for both teachers and learners. The study showed that teachers should shift to a progressive-constructionist in pedagogy which is needed to help young people.

8.2 Conclusions

Having presented summary from 8.1, the study can now conclude as follows:

- i. The use of Computers and Mobile Assisted Language Learning in support of the development of different language skills in upper primary schools in Kitui.
- ii. The role of the Computers and Mobile Assisted Language Learning Apps in English language teaching and learning in upper primary schools in Kitui.
- iii. The teachers and learners attitudes towards the use Computers and Mobile Assisted Language Learning Apps as support for teaching and learning language skills in Kitui
- iv. The impact of the use of Computers and Mobile Assisted Language Learning in upper Primary schools in Kitui

This study assessed the development of English language through technological applications in upper primary, Kitui County. Objective one focused on measuring CALL and MALL devices in the teaching of English skills. The findings revealed that CALL and MALL devices had a significant effect on English language learning. The findings revealed that pupils' performance in English skills significantly improved after

use of CALL and MALL apps such as CALL vocabulary instruction, Podcast and toontastic 3D recording, Moodle reader and Google Docs.

The significant improvement is attributed to the fact that CALL and MALL devices expose pupils to the authentic materials which attract pupils' attention. Second, CALL and MALL devices provide meaningful tasks which help pupils to have better comprehension. Third, CALL and MALL devices supports pupils in enriching their vocabulary and knowledge which contribute to their skill improvement. Fourth, Podcast facilitates the integration of technology into teaching and learning activities which increase pupils' motivation. The study therefore concludes that the use of technology in English language classrooms provides meaningful and interesting process in language learning and learners can be more motivated with this technological development in English language classrooms.

Objective two analyzed the benefits for incorporating CALL and MALL apps in English language classrooms. Learning a language is complex process therefore pupils need motivation and encouragement. The study found that CALL and MALL apps increased the engagement level of pupils in classrooms hence leading to collaborative language learning. The study concludes that technological-based classrooms and digital classes are good solutions for de-motivated pupils. Thus, CALL and MALL apps are a strong and effective tool for educating pupils and teachers should strive to include it in their classrooms and assignments in a variety of ways. All the APPS measured in the current study are successful technological tools for building academic abilities and motivation in pupils. Further, CALL and MALL apps provide meaningful means for instructors and pupils to learn how to use technology effectively, both in and out of the classroom.

The study sets out to with regard to objective three that both teachers' and pupils' attitudes were generally positive toward the implementation of more technology in the classroom. It was found that their views tended to suggest that technology is crucial to improved success in the classroom. The study observed that CALL and MALL apps provide pupils useful and fun learning experience which leads them to have positive perceptions towards the use of different devices in learning English skills. Teachers in 21st-century classrooms must therefore properly integrate technology into their instruction. Therefore, enough training periods should be provided for teachers to know how, when, and where to use these technologies in teaching language skills.

8.3 Recommendations

- i. The current study revealed that CALL and MALL has a great importance for the education system, particularly in the process of learning and language teaching. The findings of the study illustrated that CALL and MALL has a good impact and seemed to improve the development of English language skills when it is integrated within a class. The study therefore recommends that CALL and MALL should be integrated in English language curriculum, because it creates a lively classroom atmosphere and facilitates learning especially for those in upper primary schools. From the conclusions above, the study makes the following recommendations:
 - i. Use of authentic and interactive materials in classroom teaching
 - ii. To have increased number of hours of CALL and MALL usage in classes
 - iii. Well designed technological classrooms and pedagogical considerations for learners motivation.

- iv. Teachers to be involved in modern technology courses to aid in working with CALL and MALL Apps.

The study revealed that CALL and MALL helps to promote knowledge of learners. The usage of CALL and MALL would be beneficial for the development of pronunciation, vocabulary grammar and all language skills. Hence, English language teachers in schools should focus on the importance of using technology and use authentic and interactive activities for maximum success in English language classrooms. The teachers should be able to select materials which are available on the internet according to the needs and interests of the pupils and incorporating CALL material into their classes would be a good way to see the results of CALL on the progress of the students or even incorporate CALL material into their classes. The findings also suggest it may be worthwhile to increase the number of hours of CALL and MALL usage in classes and in the curriculum to raise the level of learning and language teaching.

The study revealed pedagogical implications; the teachers should not think that using technology is the solution for good motivation but the lessons should be based on well-designed technological classrooms and pedagogical considerations. The study revealed that CALL and MALL seem more valuable to teachers as it empower their education practice. The findings of the study indicated that English language teachers may need more training in instruction of teaching using CALL and MALL. Therefore, English language teachers should be involved in modern technology courses to aid in working with CALL and MALL.

8.4 Limitations of the Study

This study has several limitations, which can be summarized as follows:

This study focused only on measuring the effectiveness of digital technology tools mentioned in the study that is podcasts, CALL vocabulary Instruction, Digital Storytelling through Toontastic 3D, Moodle reader and Google docs. There are a number of other digital tools that may be integrated to test different effects on improving the development of English language. The study used a small scale sample that represents only 80 pupils of two Schools in Kyuso sub county, Kitui County which could be considered as a limitation due to the fact that the conclusions drawn from this particular case hardly could be applied elsewhere. The results were not generalizable because the researcher can never know whether the case is representative of the wider body of "similar" instances or not (Creswell, 2014). Therefore, to understand further how CALL and MALL devices are actually being used in English language learning it is suggested that a bigger sample should be included for future study in order for the results to be generalized to bigger population. The use of CALL and MALL devices in schools and in Kenya is still at an embryonic stage.

The study only collected data from pupils and teachers. Further research should involve more educational stakeholders, such as policy-makers, head teachers and MoE in order to gather primary data on usage of CALL and MALL devices, more diverse perspectives, and determine these stakeholders' perceptions of digital technology, including their opinions about the benefits, barriers and concerns of using mobile devices for educational purposes.

8.5 Suggestions for Further Research

The current research opens up a number of avenues for future research.

First, though the study measured the use of podcasts, CALL vocabulary Instruction, Digital Storytelling through Toontastic 3D, Moodle reader and Google docs in development of different English language skills in offline classrooms there was no measurement of how much pupils actually used these Apps. Future research could utilize these applications among larger groups of participants, such of pupils from different subjects and geographical areas.

The study shows that CALL and MALL support Collaborative language learning. A future study may monitor groups' actual usage of these Apps and measure the contribution of each individual in collaborative assignments such as digital story telling. The evaluation of group members may have failed to reflect the contribution of each group member to the digital story making. Further research can compare pupils' engagement and interaction patterns in various modalities, such as face-to-face, blended, and online settings. It is also significant to investigate the relationship between pupils' competence and their engagement level. A future study may also examine the impact of teacher feedback and peer feedback on pupils' competence and level of engagement.

The findings of the study revealed that various stakeholders are involved in implementation of digital education. Therefore, further research should involve more educational stakeholders, such as policy-makers, curriculum developers and head teachers, to gather primary data on the digital learning situation in schools from more diverse perspectives, and determine their perceptions including their opinions about the benefits, barriers and concerns of using digital devices for educational purposes. Thus, further research is a needed about the implementation of this practice and replicating the results in multiple sett

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APPENDICES

Appendix I: Consent Form for Teachers

Dear teachers,

I invite you to participate in a research study entitled: ASSESSING THE DEVELOPMENT OF LANGUAGE SKILLS THROUGH TECHNOLOGICAL APPLICATIONS IN KITUI COUNTY. I am a PhD student of Applied Linguistics at MACHAKOS UNIVERSITY and am in the process of writing my PhD Thesis. The purpose of this study is to assess the development of language skills through technological applications in Kitui County. The study will make a contribution to Applied Linguistics and specifically on teaching and practice of Second Language Acquisition. The study will also inform language policy making and will provide a good resource especially language teaching and technology. It is also hoped that the findings of this study will inform policy-makers and teachers of English on existing practices in global world.

Your participation in this research project is completely voluntary. You may decline altogether. There are no known risks to participation. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total.

If you agree to participate in this project, please note we shall conduct discussions on the questions on interviews and Focus group that I have attached on this form. If you have any questions about this project, feel free to contact me using my mobile number below or Machakos University on the person stated below.

Thank you for your assistance in this important endeavor.

Sincerely yours,

DEBORAH, K .MUTUA

C80/6841/2020

MOBILE NUMBER: 0727367892

If you agree to participate in this research kindly sign below:

APPENDICES

Appendix I: Consent form for teachers

Dear teachers,

I invite you to participate in a research study entitled **LANGUAGE TEACHING AND LEARNING WITH TECHNOLOGY: ASSESSING THE DEVELOPMENT OF LANGUAGE SKILLS THROUGH TECHNOLOGICAL APPLICATIONS IN KITUI COUNTY.**

I am a PhD student in Applied Linguistics at MACHAKOS UNIVERSITY and am in the process of writing my PhD Thesis. The purpose of this study is to assess the development of language skills through technological applications in Kitui County. The study will make a contribution to Applied Linguistics and specifically on teaching and practice of Second Language Acquisition. The study will also inform language policy making and will provide a good resource especially language teaching and technology. It is also hoped that the findings of this study will inform policy-makers and teachers of English on existing practices in global world.

Your participation in this research project is completely voluntary. You may decline altogether. There are no known risks to participation. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total.

If you agree to participate in this project, please note we shall conduct discussions on the questions on interviews and Focus group that I have attached on this form. If you have any questions about this project, feel free to contact me using my mobile number below or Machakos University on the person stated below.

Thank you for your assistance in this important endeavor.

Sincerely yours,



DEBORAH, K .MUTUA

C80/6841/2020

MOBILE NUMBER: 0727367892

If you agree to participate in this research kindly sign below:



Appendix II: Consent Form for Pupils

Dear pupils,

I invite you to participate in a research study entitled LANGUAGE TEACHING AND LEARNING WITH TECHNOLOGY: ASSESSING THE DEVELOPMENT OF LANGUAGE SKILLS THROUGH TECHNOLOGICAL APPLICATIONS IN KITUI COUNTY.

I am a PhD student in Applied Linguistics at MACHAKOS UNIVERSITY and am in the process of writing my PhD Thesis. The purpose of this study is to assess the development of language skills through technological applications in Kitui County. The purpose of your participation in the study is to provide information concerning the learners' attitudes toward the use of technology Computers and mobile phones in English language classes at Kyuso Sub-county. Thus the study will provide valuable information on teaching and learning of English skills.

Your participation in this research project is completely voluntary although necessary. There are no known risks to participation. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total.

If you agree to participate in this project, please note you will be required to write as you will be instructed. If you have any questions about this project, feel free to contact me using my mobile number below.

Thank you for your assistance in this important endeavor.

Sincerely yours,

DEBORAH K .MUTUA

C80/6841/2020

MOBILE NUMBER: 0727367892

If you agree to participate in this research kindly sign below:

Appendix II: Consent Form for pupils

Dear pupils,

I invite you to participate in a research study entitled **LANGUAGE TEACHING AND LEARNING WITH TECHNOLOGY: ASSESSING THE DEVELOPMENT OF LANGUAGE SKILLS THROUGH TECHNOLOGICAL APPLICATIONS IN KITUI COUNTY**.

I am a PhD student in Applied Linguistics at MACHAKOS UNIVERSITY and am in the process of writing my PhD Thesis. The purpose of this study is to assess the development of language skills through technological applications in Kitui County. The purpose of your participation in the study is to provide information concerning the learners' attitudes toward the use of technology Computers and mobile phones in English language classes at Kyuso Sub-county. Thus the study will provide valuable information on teaching and learning of English skills.

Your participation in this research project is completely voluntary although necessary. There are no known risks to participation. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total.

If you agree to participate in this project, please note you will be required to write as you will be instructed. If you have any questions about this project, feel free to contact me using my mobile number below.

Thank you for your assistance in this important endeavor.

Sincerely yours,



DEBORAH K .MUTUA

C80/6841/2020

MOBILE NUMBER: 0727367892

If you agree to participate in this research kindly sign below:



Appendix III: Permit from Parents

Dear Parent:

My name is **DEBORAH K .MUTUA** a student from Machakos University pursuing PhD in the department of Languages and Linguistics. I invite your child to participate in a research study entitled **LANGUAGE TEACHING AND LEARNING WITH TECHNOLOGY: ASSESSING THE DEVELOPMENT OF LANGUAGE SKILLS THROUGH TECHNOLOGICAL APPLICATIONS IN KITUI COUNTY.**

You are being contacted to help in the study which will be carried out in primary schools in Kyuso sub-county. The main purpose for your child to participate in the study is to provide information on the learners' attitude towards the use of technology in the teaching and learning of English language.

If you agree that your child should participate in the study then I would kindly request that you fill the permission Form below.

Sincerely

DEBORAH K .MUTUA

C80/6841/2020

MOBILE NUMBER: 0727367892

I give my permission for my child to participate in this study.

Signature

Date

Appendix III: Permit from Parents

Dear Parent:

My name is **DEBORAH K .MUTUA** a student from Machakos University pursuing in the department of Languages and Linguistics. I invite your child to participate in a research study entitled **LANGUAGE TEACHING AND LEARNING WITH TECHNOLOGY: ASSESSING THE DEVELOPMENT OF LANGUAGE SKILLS THROUGH TECHNOLOGICAL APPLICATIONS IN KITUI COUNTY**. You are being contacted the study will be carried out in primary schools in Kyuso sub-county. The main purpose for your child to participate in the study is to provide information on the learners attitude towards the use of technology in the teaching and learning of English language.

If you agree that your child should participate in the study then I would kindly request that you fill the permission form below.

Sincerely



DEBORAH K .MUTUA

C80/6841/2020

MOBILE NUMBER: 0727367892

I give my permission for my child to participate in this study.



Signature



Date

Appendix V: Teacher Questionnaire

Dear Teacher,

The following questionnaire is part of a research that investigates language teaching and learning with technology specifically this questionnaire focuses on the teachers' attitudes toward the use of Computer-Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL) in English language classes at Kyuso sub county, Kitui County. Filling out the questionnaire is optional. Your cooperation in completing this questionnaire is greatly appreciated and needless to say, all responses will be kept confidential and be used for research purposes only.

Gender: Male ---- Female -----

School: -----

4. Age: 22-28 () 29-34 () 35-40 () + 40 ()

Teachers Attitudes in regard to language skills development

NO	Statements	Strongly agree	Agree	Neutral	Strongly disagree	Disagree
1	CALL and MALL support teaching and learning of listening skills					
2	CALL and MALL support teaching and learning of speaking skills					

3	CALL and MALL support teaching and learning of writing skills					
4	CALL and MALL support teaching and learning of Reading skills					

Teachers' attitudes on CALL and MALL

No	Statements	Strongly agree	Agree	Neutral	Strongly disagree	Disagree
1	The use of CALL and MALL facilitates English language teaching					
2	Producing CALL and MALL by teachers facilitates the process of Teacher Professional Development TPD					
3	CALL and MALL materials are more authentic than traditional materials such as text books					
4	The use of CALL and MALL encourages interaction/ collaboration in English classrooms					
5	I have faith in computer-based language tests					

6	Immediate feedback can be provided by using CALL and MALL					
7	Computer and mobile-assisted language learning is a valuable extension of traditional learning methods					
8	I am confident to use CALL and MALL devices for language learning purposes					
9	Teachers do not have time for CALL and MALL					
10	Interacting via CALL and MALL MALL is often frustrating.					
11	Using CALL and MALL will empower learners and teachers to be more autonomous.					
12	CALL and MALL lessons can be easily developed					
13	Teachers do not have the expertise to develop CALL and MALL lessons					
14	Teachers should be able to develop CALL and MALL materials for teaching					
15	Producing CALL and MALL materials requires a lot of mental effort					
16	I find it takes a lot of					

	effort to become skillful at using CALL and MALL					
17	I need training//further training on how to use computer and mobile devices for language learning purposes					
18	Teachers' proficiency of using computers in language learning largely defines my own attitude to CALL and MALL					
19	Producing CALL and MALL materials cost less					
20	English language teachers receive support from various stakeholders on how to implement CALL and MALL learning					
21	There is not enough funding for teachers to develop CALL and MALL.					
22	There is not enough training /education on CALL and MALL materials development for teachers of English in Kenya					
23	There are not enough computer-based facilities for the EL teachers to use/produce CALL and MALL materials in Kenya					

Teachers' attitudes on CALL and MALL

Section B: OPEN ENDED QUESTIONS

i) Has your knowledge and skills in teaching English benefited from the use of technology?

a. If Yes, in what ways (Please provide examples):

b) If No, why not? (Please write what kind difficulties you have experienced):

ii) Would you prefer a traditional classroom or a technology-enhanced classroom for teaching English? Why?

iii) Are there certain or specific technologies that you prefer to other technologies when teaching English language skills? What are they? Please provide examples.

Appendix IV: Teacher Questionnaire

Dear Teacher,

The following questionnaire is part of a research that investigates language teaching and learning with technology specifically this questionnaire focuses on the teachers' attitudes toward the use of Computer-Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL) in English language classes at Kyuso sub county, Kitui County. Filling out the questionnaire is optional. Your cooperation in completing this questionnaire is greatly appreciated and needless to say, all responses will be kept confidential and be used for research purposes only.

Gender: Male ---- Female

School: ----- Kyuso Primary School

4. Age: 22-28 () 29-34 () 35-40 () + 40 (x)

Teachers Attitudes in regard to language skills development

NO	Statements	Strongly agree	Agree	Neutral	Strongly disagree	Disagree
1	CALL and MALL support teaching and learning of listening skills		<input checked="" type="checkbox"/>			

2	CALL and MALL support teaching and learning of speaking skills		✓			
3	CALL and MALL support teaching and learning of writing skills			✓		
4	CALL and MALL support teaching and learning of Reading skills	✓				

Teachers' attitudes on CALL and MALL

No	Statements	Strongly agree	Agree	Neutral	Strongly disagree	Disagree
1	The use of CALL and MALL facilitates English language teaching		✓			
2	Producing CALL and MALL by teachers facilitates the process of Teacher Professional Development TPD	✓				
3	CALL and MALL materials are more authentic than traditional materials such as text books	✓				
4	The use of CALL and MALL encourages interaction/ collaboration in English classrooms			✓		
5	I have faith in computer-based language tests			✓		
6	Immediate feedback can be provided by using CALL and MALL	✓				

7	Computer and mobile-assisted language learning is a valuable extension of traditional learning methods	✓				
8	I am confident to use CALL and MALL devices for language learning purposes		✓			
9	Teachers do not have time for CALL and MALL					✓
10	Interacting via CALL and MALL is often frustrating.					✓
11	Using CALL and MALL will empower learners and teachers to be more autonomous.		✓			
12	CALL and MALL lessons can be easily developed		✓			
13	Teachers do not have the expertise to develop CALL and MALL lessons		✓			
14	Teachers should be able to develop CALL and MALL materials for teaching		✓			
15	Producing CALL and MALL materials requires a lot of mental effort			✓		
16	I find it takes a lot of effort to become skillful at using CALL and MALL	✓				
17	I need training/further training on how to use computer and mobile devices for language learning purposes	✓				
18	Teachers' proficiency of using computers in language learning largely defines my own attitude to CALL and MALL		✓			
19	Producing CALL and MALL materials cost less					✓
20	English language teachers receive support from various stakeholders on how to implement CALL and MALL learning			✓		
21	There is not enough funding for teachers to develop CALL and MALL.		✓			

22	There is not enough training /education on CALL and MALL materials development for teachers of English in Kenya		✓			
23	There are not enough computer-based facilities for the EL teachers to use/produce CALL and MALL materials in Kenya		✓			

Teachers' attitudes on CALL and MALL

Section B: OPEN ENDED QUESTIONS

i) Has your knowledge and skills in teaching English benefited from the use of technology?

a. If Yes, in what ways (Please provide examples): ~~No~~ Through browsing content

b) If No, why not? (Please write what kind difficulties you have experienced):

ii) Would you prefer a traditional classroom or a technology-enhanced classroom for teaching

English? Why? A technology enhanced class room - it is motivating to my learners.

iii) Are there certain or specific technologies that you prefer to other technologies when teaching

English language skills? What are they? Please provide examples. Mobile Assisted technology eg google

Appendix V: Learner Questionnaire

Dear learner,

The purpose of this investigation is to collect information concerning the learners' attitudes toward the use of Computers and mobile phones in English language classes in Kyuso Sub-county. Filling out this questionnaire is optional. Your cooperation is greatly appreciated and needless to say, all responses will be kept confidential and be used for research purpose only.

Gender: Male ---- Female -----

School: -----

For each of the statements below, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate column.	Agree	Neutral	Disagree
1- Use of CALL and MALL Apps in our English language classrooms increases my motivation			
2. Use of CALL and MALL Apps can be helpful to develop my language skills			
3- Authentic materials downloaded from the internet make me active in the learning process.			
4- Computer and mobile -based teaching activities make the lessons more enjoyable.			
5- CALL and MALL Apps can be boring and unnecessary.			
6- I can understand language better when my teacher uses CALL and MALL Apps in the class.			

7- We should always have CALL and MALL Apps in language classrooms			
8- Different CALL and MALL Apps should be used in the class to increase my motivation for learning English.			
9- If my teacher uses power point presentations, lessons can be more enjoyable.			
10- When we use technology every time, it makes the lessons boring.			
11- Films and videos can provide a more clear view of the content			
12- Computers help me self-correct my spelling, grammar and style errors.			
13-. CALL and MALL provide a stress free environment for learning language			
14 I have the opportunity to speak with everybody in pairs in speaking lessons.			
15 I use dictionaries while reading in CALL and MALL classes			
16 I check the meaning of words while reading in CALL and MALL classes			
17- The use of CALL and MALL encourages interaction in English classrooms.			
18- Computer-based lessons are more enjoyable and effective than traditional lessons.			
19 I feel comfortable in expressing what I want to say orally.			
20 Computer-based lessons provide a relaxed and a stress free environment			

Pretest post test Instruments

Appendix V: Learner Questionnaire

Dear learner,

The purpose of this investigation is to collect information concerning the learners' attitudes toward the use of technology Computers and mobile phones in English language classes at Kyuso Sub-county. Filling out this questionnaire is optional. Your cooperation is greatly appreciated and needless to say, all responses will be kept confidential and be used for research purpose only.

Gender: Male Female

School: GAL Primary

For each of the statements below, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate column.	Agree	neutral	Disagree
1- Use of CALL and MALL Apps in our English language classrooms increases my motivation	✓		
2. Use of CALL and MALL Apps can be helpful to develop my language skills	✓		
3- Authentic materials downloaded from the internet make me active in the learning process.		✓	
4- Computer and mobile -based teaching activities make the lessons more enjoyable.	✓		
5- CALL and MALL Apps can be boring and unnecessary.			✓
6- I can understand language better when my teacher uses CALL and MALL Apps in the class.		✓	
7- We should always have CALL and MALL Apps in language classrooms		✓	
8- Different CALL and MALL Apps should be used in the class to increase my motivation for learning English.	✓		
9- If my teacher uses power point presentations, lessons can be more enjoyable.	✓		
10- When we use technology every time, it makes the lessons boring.		✓	
11- Films and videos can provide a more clear view of the content	✓		

12- Computers help me self-correct my spelling, grammar and style errors.	✓		
13- CALL and MALL provide a stress free environment for learning language	✓		
14 I have the opportunity to speak with everybody in pairs in speaking lessons.		✓	
15 I use dictionaries while reading in CALL and MALL classes			✓
16 I check the meaning of words while reading in CALL and MALL classes	✓		
17- The use of CALL and MALL encourages interaction in English classrooms.	✓		
18- Computer-based lessons are more enjoyable and effective than traditional lessons.	✓		
19 I feel comfortable in expressing what I want to say orally.		✓	
20 Computer-based lessons provide a relaxed and a stress free environment		✓	

Pre-test post test Instruments

Appendix VI: Vocabulary Self-Assessment Checklist

No	Word	I can define the word	I can give the synonym of the word	I can use the word in a sentence that shows the meaning of the word	I can give a context /place in which the word can be used	Topic: Video to be watched
1	Chores					Child labor
2	Orphanage					
3	Domestic					
4	Exploiting					
5	Underage					
6	Celebration					Cultural and Religious celebrations
7	Anniversary					
8	Crowd					
9	Delicious					
10	Restaurant					
11	Appetizer					
12	Sorry					Etiquette telephone
13	Please					
14	Pardon me					
15	Thank you					
16	Ambulance					Emergency Rescue Services
17	Rescue					
18	Emergency					

19	Escape					
20	Tourist					Our tourist attractions
21	Attract					
22	Museum					
23	Swimming					
24	Beach					
25	Tour					

Appendix VII: Levels of Ratings of Pronunciation and Fluency

No	Criteria	Ratings	Comments
1	Pronunciation	5	The pronunciation is clear and quite understandable for elementary students.
		4	There are some pronunciation problems, but still quite understandable.
		3	Pronunciation problem necessitate listening and occasionally lead a misunderstanding.
		2	Very hard to understand because of pronunciation problem. Must frequently be asked to repeat.
		1	Pronunciation problem so severe as to make speech virtually unintelligible.
2	Fluency	5	Able to use the language fluently, rare skip, and the speed of speech are at the normal rate.
		4	Speed of speech seems to be slightly affected by language problem.
		3	Speed and fluency are rather strongly affected by language problem.
		2	Usually hesitant often forced into silent by language limitation.
		1	Speech is so halting and fragmentary as to make conversation virtually impossible

Appendix VIII: Levels of Ratings of Grammar, Vocabulary and Comprehension

No	Criteria	Ratings	Comments
1	Grammar	5	Errors in grammar are quite rare.
		4	There are few grammatical errors but still intelligible.
		3	Makes frequent errors grammar and word order occasionally obscure meaning.
		2	Grammar and word order errors make comprehension difficult. Must often rephrase sentences or restrict them to basic patterns.
		1	Errors in grammar and word order so severe as to make speech virtually unintelligible
2	Vocabulary	5	Almost all vocabularies used are in a proper use.
		4	Frequently use inappropriate terms or must replace ideas but still intelligible.
		3	Frequently uses the wrong word, conversation somewhat limited because of inadequate vocabulary.
		2	Misuse up words and very limited vocabulary make comprehension quite difficult.
		1	Vocabulary limitation so extreme as to make conversation virtually impossible.
3	Comprehension	5	Understand most of what is said at average speed.

		4	Understand what is said at average speed, but occasional repetition may be necessary.
		3	Understand what is said is at slower than average speed repetition
		2	Has great difficulty following what is said. Can comprehend only “social conversation” spoken slowly and with frequent repetition.
		1	Cannot be said to understand even simple conversational English

Appendix IX: Observation Checklist

- a. In what ways are learners utilizing technology in the classroom?
- b. What devices or technological tools specifically are they using and for what purpose?
- c. How did the Apps motivate students?
- d. What programs/technological Apps are most useful in motivating ELLs?
- e. What strategies used in the classroom helps in the development of language skills?
- f. How are the computer programs or Mobile applications supporting your ELLs?
- g. Is it an effective way to scaffold instruction or tailor concepts to their developmental level?

Appendix X: Interviews for Teachers and Pupils

Pupil Respondents

Respondent 1: Grade 6

Respondent 3: Grade 5

Respondent 5: Grade 6

Respondent 6: Grade 6

Respondent 7: Grade 5

Teacher Respondents

Respondent 2: male

Respondent 4: female

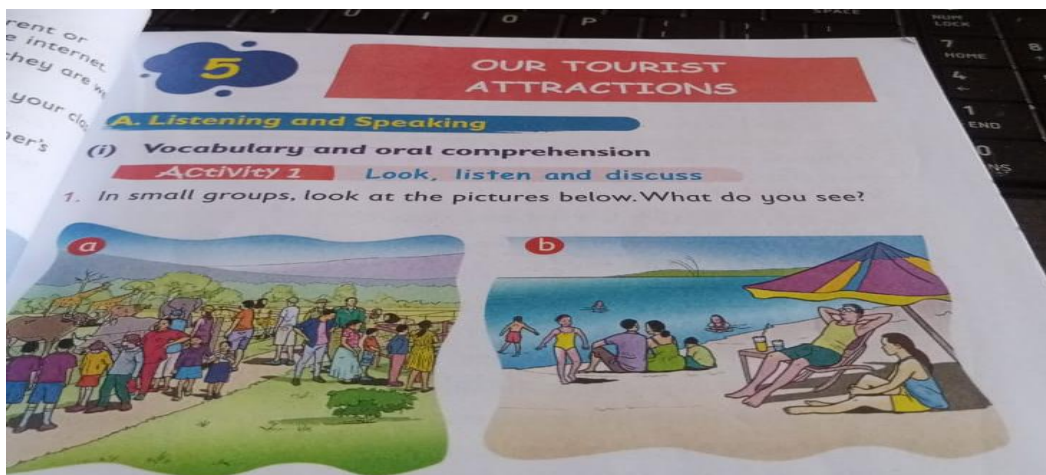
Respondent 8: male

Appendix XI: List of Pictures that Accompanied Speaking and Listening Lessons and Vocabulary Acquisition (Grade 5 and 6 English Course Books)

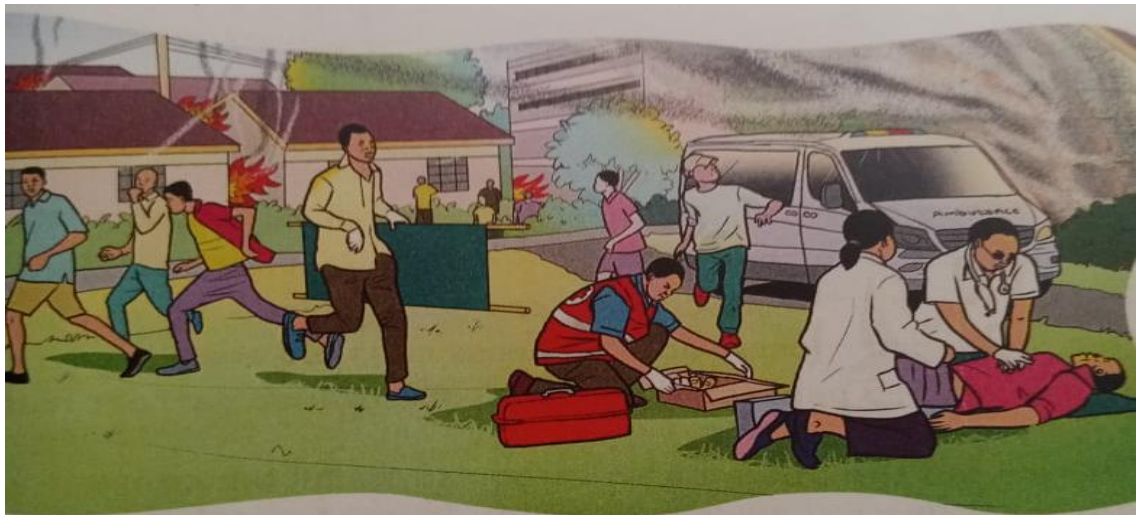
1 Image 1: An image Showing Leisure Activities



2 Picture on Tourist Vocabularies



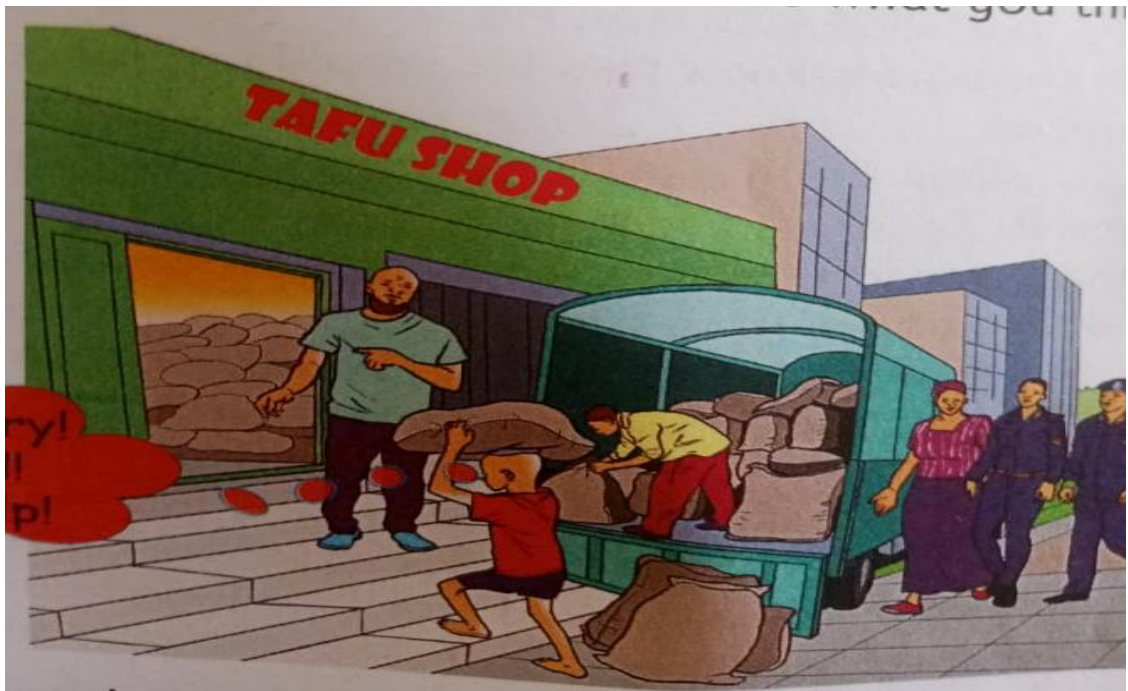
3 Emergency Rescue Services



Cultural and Religious Celebrations



4 Child Labor



5. The City



Appendix XII: Introduction Letter



MACHAKOS UNIVERSITY OFFICE OF THE DEAN GRADUATE SCHOOL

Telephone: 254-(0)735247939, (0)723805929

Email: graduateschool@mksu.ac.ke

Website: www.machakosuniversity.ac.ke

P.O Box 136-90100

Machakos

KENYA

REF. MksU/ASA/GS/3/3

18th April, 2023

The Director,
National Commission for Science, Technology and Innovation
P.O Box 30623,
NAIROBI

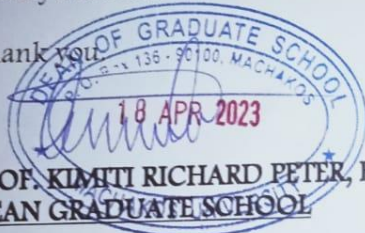
Dear Sir

RE: DEBORAH K. MUTUA (C80-6841-2020)

The above named is a PhD student in the second year of study and has cleared course work. The University has cleared her to conduct a research entitled: **“Language Teaching and Learning: Assessing the Use of Technological Applications to Enhance English Language Learning in Upper Primary in Kitui County, Kenya.”**

Kindly assist her with a Research Permit in order to undertake the research.

Thank you



PROF. KIMITI RICHARD PETER, PhD
DEAN GRADUATE SCHOOL

KRP/em

Appendix XIV: Plagiarism Report

ASSESSING THE USE OF TECHNOLOGICAL APPLICATIONS
TO ENHANCE ENGLISH LANGUAGE LEARNING IN UPPER
PRIMARY IN KITUI COUNTY By Deborah Kalima Mutua

ORIGINALITY REPORT

14%	14%	5%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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