INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY AND ITS CONTRIBUTION TO THE TEACHING OF ENGLISH IN SECONDARY SCHOOLS IN KISUMU COUNTY, KENYA

BY

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(ENGLISH LANGUAGE AND LITERATURE)

SCHOOL OF EDUCATION

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DECLARATION

Declaration by the Candidate

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

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DEDICATION

This work is dedicated to my late father William Shuma and my mother Catherine Lugasi Shuma, my wife Florence Iminza and my children Holly Indembukhani and Hazel Hadassah Khan who were supportive towards the success of this work.

ABSTRACT

Integration of Information and Communication Technology (ICT) in teaching and learning is expected to offer better educational outcomes marked by improved performance. Despite investment in ICT infrastructure to promote the use of ICT in teaching, academic achievement has not matched the expectations. In Kisumu County, performance in English in the Kenya Certificate of Secondary Education (KCSE) examinations has remained low at a score below 6 out of a possible mean of 12 for the period 2014-2017. Most studies have focused on provision of ICT infrastructure and teachers' perception; however, minimal attention has been given to integration of ICT in the teaching of English. This has hampered development of appropriate practical strategies for the effective integration of ICT in the teaching of English in secondary schools. The purpose of this study was to assess the integration of ICT and its contribution to the teaching of English in secondary schools. Objectives of this study were: to asses the teachers' level of competence in integrating ICT in teaching English; assess the level of integration of ICT in teaching English; assess the strategies for integrating ICT in teaching English; establish the challenges faced by teachers in integrating ICT in the teaching of English and evaluate the contribution of integration of ICT to teaching of English. Bruner's constructivism theory (1990) guided the study. Study used Descriptive survey design to collect data on aspects of ICT integration. Population size included 48 teachers of English, one County Quality Assurance and Standards Officer (CQA&SO) and 12 principals. The sample size included 43 teachers, 1 CQA&SO and 10 principals. Purposive sampling technique was used to select 43 teachers while saturated sampling technique was used to select 10 principals and 1 CQA&SO. Questionnaire, interview schedule and document analysis guide were to collect data. Validity of the instruments was ascertained through expert judgement. A pilot study was used to establish reliability which was accepted at Pearson 'r' of 0.781 for teachers' questionnaire. Qualitative data was transcribed and categorized thematically, while quantitative data was analysed using descriptive statistics including frequencies, percentages and means; qualitative data was transcribed and categorized thematically according to the study objectives. The study revealed that teachers lack ICT pedagogical integration competence in teaching English, integration of ICT is at the applying level it is not yet at transforming stage; teachers do not apply effective ICT integration strategies in teaching English, communication, collaboration and interactive strategies were more effective than production, distribution and presentation strategies, challenges experienced included inadequate ICT infrastructure, poor and un-coordinated training on ICT integration and biasness in training of teachers and access of ICT tools at school level favouring science subjects. ICT integration contributed to teacher preparation, access to up-to-date and a variety of teaching materials; enhanced teacher interaction, communication and collaboration, minimal student improvement in mastery of listening skills, speaking skills, reading skills, literary appreciation and achievement in English. The study recommended that the Ministry of Education, administrators and teachers of English, principals, CQA&SO, KICD to put in place uniform and regular subject specific training on ICT integration for teachers of English, increase access to ICT tools by both teachers and students, reduce teachers workload; teachers to use communication, collaboration and interaction ICT tools and strategies in teaching of English. The study concluded that: teaching of English is ineffective due to lack of teacher competence; teaching of English does not benefit maximally from the current level of ICT integration; teaching of English has not effectively collaboration, communication and interaction strategies offered by ICT; ICT integration face a number of challenges; ICT as minimally contributed to the teaching of English. The study recommended that; pre-service and in service teacher training on ICT pedagogical integration competence; provision of ICT infrastructure; teachers to adopt ICT collaboration, communication and interaction strategies. The study may contribute to the body of knowledge on ICT integration, provide practical strategies for teachers of English, enable principals, CQA&SO, and teachers solve the challenges identified, policy on ICT may be formulated.

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LIST OF ABBREVIATIONS

ANOVA   Analysis of Variance

EFL   English as Foreign Language

ELT   English Language Teaching

EU   European Union

CALL   Computer Assisted Language Learning

CEMASTEA Centre for Mathematics Science and Technology Education

CBC   Competence Based Curriculum

CBT   Computer Based Training

 CLT   Communicative Language Teaching

CPD   Continuous Professional Development

CQA&SO   County Quality Assurance and Standards Officer

DCP   Developing Country Partner

GOK   Government of Kenya

ICALL   Intelligent Computer Assisted Language Learning

ICT   Information and Communication Technology

INSET   In-Service Education and training

KCSE   Kenya Certificate of Secondary Education

KICD   Kenya Institute of Curriculum Development

KIE   Kenya Institute of Education

KNEC	Kenya National Examinations Council
MOE	Ministry of Education
MUERC	Maseno University Ethics Review Committee
NEPAD	New Partnership for Africa's Development
NC	National Curriculum
PA	Parents Association
SMASE	Strengthening Mathematics and Science Education
SL	Second Language
TNA	Training Needs Assessment
TPAD	Teacher Performance Appraisal and Development
TSC	Teachers Service Commission
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Quality of education is a major concern of education development agenda of the government of Kenya. In line with this, several intervention strategies have been initiated to improve education quality. These include curriculum review and the introduction of Competence Based Curriculum CBC (Republic of Kenya, 2017); Supply of text books in secondary schools (Republic of Kenya (2015); Strengthening of quality assurance and standards through Teacher Performance Appraisal and development TPAD (Republic of Kenya, 2012) and Information and Communication Technology (ICT) integration. Among these interventions, ICT integration stands out as the most promising given the current advances in technology and the emphasis on learner-centred approaches (MOE, 2006).

Integration of Information and Communication Technology (ICT) has the potential to transform teaching of not only English but also other subjects to improve the quality of teaching and produce desired outcomes (Look, 2005; Annie, 2013; Ayere, Odera & Agak, 2010). However, despite efforts to integrate Information Communication Technologies (ICT) in teaching all subjects to improve quality of teaching and educational outcomes in secondary schools in many countries in the world including Kenya, its implementation has not yielded satisfactory results in terms of quality of teaching and improved performance in national examinations.

ICT is a set of tools and resources used to communicate, create, disseminate, store and manage information electronically. It is a process of information transfer through technological media; hence, technology here serves as the methodology used to transfer or to communicate the information. ICT is comparable to teaching and can be described on these three basic terms that is concept or skill, method and transfer of the skill. ICT in education is

therefore instructional content and/or activity delivered by use of ICT tools. They may be interactive or non-interactive and support teaching and learning by enhancing, amplifying and guiding cogniti.ve process of learners (Kay, 2012).

There has been rapid growth in ICT in all aspects of society which includes education (Unwin, 2007). Technology has changed the style of communication, and shifted the economy into information based, service economy (Sweeny, 2010). In education, the integration of ICT in schools leads to significant expansion of education and pedagogical outcome which are beneficial to both teachers and students (Zaman, Shamim and Clement, 2011).

Studies show that worldwide, different countries have consistently initiated programs that are directed at making teachers adopt and use ICT in their day-to-day teaching and learning practices in school. According to Jimoyiannis and Komis (2007) countries like UK, Singapore, China and Australia among others have established programs that aim at enhancing teachers' skills that are important in adapting and using ICT in the teaching and learning processes. Consequently, many researchers consider designing and integrating efficient ICT teacher preparation programs as a key aspect to essential and successful, wide-ranging school reforms (Khan et al, 2012).

Teaching practices in sub-Saharan Africa are highly traditional and most of the teachers are not sufficiently prepared in both content and pedagogy. According to Bashir et al (2018), most teachers in sub-Saharan Africa do not receive continuous professional development or support. Other issues related to secondary education and teachers in sub-Saharan Africa are linked to teacher deployment across countries, teacher-to-student ratios, teacher management, and the need for specialized teachers in secondary education. Though Kenya, Mauritius, and Zimbabwe have achieved consistency in teacher deployment in secondary schools they still

do not have a robust continuous teacher professional development program that might address the challenge of ICT integration in secondary schools.

Studies also show that institutions of higher learning do not prepare teachers to work in a technology enriched classroom (Grazzi & Vergra, 2012). Although, many pre-service teachers are exposed to instructional technology course work; it is not linked to pedagogy or their field experience. This is because many pre-service training programs in developing countries are considered deficient to produce teachers capable of improving student learning. Pre-service training is important but not sufficient for the preparation of teachers to improve student learning (Bashir et al., 2018). The actual state is that teacher training in many developing countries such as Kenya is front-loaded, with most inputs allocated to formal initial teacher education. Little attention is given to integration of ICT in teaching.

Integration of ICT in teaching is determined by the decisions that individuals make each time they consider taking up an innovation (Rangaswamy and Gupta, 2000). Similarly, Rogers (2003) observe that ICT integration has to do with the decision an individual makes to use an innovation as the best course of action available. Earle (2002), linked ICT integration with the concept of wholeness, when all elements of the system are connected together to become a whole. Thus, the two important elements of teaching and learning which are content and pedagogy must be joined when technology is used in a lesson. Consequently, Williams (2003) describes ICT integration as the means of using any ICT tool (Internet, e-learning technologies, CD ROMs) to assist teaching and learning. The current study therefore explores individual teacher's competencies and the strategies they employ in integration of ICT in teaching of English. This aspect could inform the development of training program for pedagogical ICT integration courses for secondary school teachers.

In the education sector in Sub-Saharan Africa especially where there is unequal access to quality educational opportunities, ICT may be useful to bridge the gap. Furthermore, those countries that have improved information technology capacity are better placed to operate in a globalised world that is technologically driven (Ayere, Odera & Agak (2010)). Since the sole purpose of an education system is to prepare citizens for the demands and needs of the society, the present study recognizes the fact that the teaching approaches should be in tandem with these realities.

The Kenyan government has prioritized ICT integration in education through the Kenya Vision 2030 strategic plan. Consequently, the Ministry of Education, Science and Technology developed session paper No.1 2005 on a policy framework for education, training and research. The policy intended to achieve quality education and training for development with a goal of attaining education for all by the year 2015. The government, further, through the Ministry of Education developed the National ICT Policy in 2006 (MOE, 20O5). The policy is divided into several sections. These include: Broadcasting, Information technology, Postal services and Telecommunications. The section on the policy on information technology highlights the objectives and strategies of ICT and its integration in education sector. The related strategies under ICT include: E-learning to promote the development of e-learning resources; Facilitate public-private partnerships to mobilize resources in order to support e-learning activities; Promote the development of an integrated e-learning curriculum to support education; Promote the establishment of a national ICT Centre of excellence; Provide affordable infrastructure to facilitate dissemination of knowledge and skills through e-learning platforms; Create awareness of opportunities offered by ICT as an educational tool to education sector and Facilitate sharing of e-learning resources between institutions.

The policy gives a general framework that guide the process of adoption of ICT in Kenyan educational institutions. The policy captures key areas that include ICT infrastructure development, awareness of benefits of ICT to the key stake holders, the synergy between existing traditional teaching resources and ICT resources and capacity building for the implementers of the program a majority of whom are teachers. However, evaluation of the policy at the implementation level has not been comprehensively established. Therefore, the present study focused on assessing the extent to which the strategies in the policy have been implemented.

Integration of ICT, particularly, is expected to improve performance in education and examinations (MOE, 2006). The Kenyan government therefore initiated a program to provide ICT infrastructure to 200 secondary schools across the country as ICT model schools. In Kisumu County, 12 schools were selected under the programme at inception. Other 18 secondary schools have since been included in the program. Similarly, other secondary schools have acquired ICT infrastructure to facilitate integration of ICT in teaching by either teaching ICT as a subject or by using ICT in teaching of other subjects (MOE, 2006).

The government of Kenya is also reaching out to rural areas to introduce electrification so as to facilitate equipping of rural primary and secondary schools with computers and internet (Ngugi, 2007). It is working hand in hand with the Kenya ICT Trust Fund, which is a private-public partnership initiative in learning, to achieve its vision of providing computer education to all its schools. The Trust Fund is an example of the leadership forum concept developed by Microsoft Corporation. Through the ICT Trust Fund, Microsoft has helped Kenya develop a National Education ICT strategy by mobilizing over $80,000 of contribution for initiatives in schools. The Trust Fund is further training secondary school teachers and helping to develop a national ICT Curriculum (Microsoft Corporation, 2006). The Kenya ICT Trust Fund is also

providing the Kenyan government with the leadership and monitoring of the programs, including a national education strategy to bring IT access and curriculum content to schools nationwide.

English, one of the dominant world languages, is spoken in five countries as the native language (Australia, Canada, England, New Zealand and the United States of America) which is referred to as the inner circle (Kachru, 1985). In these countries English is taught to speakers of other languages as an additional language to enable them to participate in all domains of life of that country. It is also used as an official language in numerous other countries where it is an imported language, the outer circle (Kachru, 1985). These countries include former British colonies in Africa and Asia. Kenya is one such a country where English is used in the outer circle, alongside multiple indigenous languages. The role of English in countries in the outer circle differs from that of countries in the inner circle, as each country has its norms of communication (Crystal, 1997). In many outer circle countries students tend to use English in specific domains, particularly formal education, since most communication outside of school is in the local languages (Kioko & Muthwii, 2001).

Different languages provide different kinds of experiences. First language in early years, are crucial for learning. Classical languages with strong literary, religious and scientific traditions will have a major role in reinforcing the understanding of heritage. Major languages of national and international communication including English provide a basis for action in the world as well as learning and conceptualization (Brumfit, 2002).

Oxford (2003) has brought out the difference between second language and foreign language. Second language is a language studied in a setting where that language is the main vehicle of everyday communication and where abundant input exists in that language. A foreign language is a language studied in an environment where it is not the primary vehicle for daily

interaction and where input in that language is restricted. In most of the African countries English is taught as a second language however in the strict sense the input is restricted to school and in most cases English lessons. This scenario does not offer a conducive environment for teaching and learning of English.

The place of English in Kenya's educational system cannot be undermined, as it is not only an important subject but also as the medium of instruction in the curriculum (Barasa, 2005). It has been claimed that the model and the norm of the English used in Kenya, apart from pidgin varieties, is the British Standard variety and in particular, Received Pronunciation (RP) (Schmied, 1990). The roots of this significant function of English can be traced back to Kenya's colonial period when it was instrumental to an individual's access to white collar jobs, European thought, and other privileges (Mazrui & Mazrui, 1995). English was a language with a lot of prestige and power and the British model was unquestionably the one used in Kenya. Kenyans learnt it from the native speakers and unlike Kiswahili, English in Kenya, as in all non-native contexts, was/is largely a taught language, conveyed through formal education.

Language in education in Kenya has faced and still faces many challenges. The issues often revolve around the place and development of the local indigenous languages (Ryanga, 2000); the need and means to strengthen English as it is both an official language and language of instruction (Musau, 2000), and concerns about the usefulness of the English language, its effective teaching and/or its falling standards (Kembo-Sure, 1994).

ICT in English language teaching has initiated new possibilities into the classroom. The role of the teacher, the nature and context of learning, the function and relative importance of course content has all been challenged and redefined (Barad, 2009). Technology is used to simulate real-life situations and help learners have control over their learning process (Barad,

2009). Krashen (2007) argues that using computers for free surfing will encourage students to wander through the internet and read what interests them. He further adds that it will result in higher level literacy as learners will have adequate exposure to target language that enhance not only language acquisition but also language learning.

Computer Assisted Language Learning (CALL) provides new opportunities for learners to engage in active communication that facilitates the development of second language (SL) competence (Barad, 2009). Given that 70% of ICT related discourse is transacted in English, the integration of ICT in English classroom and the subsequent use of ICT outside classroom increases exposure of students to English, thus, facilitating language acquisition. Further, ICT used in teaching has increased and encouraged teachers awareness and ability to create both independent and collaborative learning environments that enable learners acquire and practice new language (Tswanya, 2006). Thus, ICT has the potential of creating learner centred approach to teaching: an approach recommended in modern pedagogy.

There are various forms of ICT tools that could be integrated in teaching activities. They include offline forms such as CDs, DVDs, Microsoft software applications (power point, Ms word, excel), and online forms such as captions, You Tube, Animation, Hyperlinks, websites, email, blogs, wikis among others. The language teachers need to integrate all these forms in teaching specific components of language skills: grammar, listening skills, speaking skills, writing skills, literary aspects among others (Miima, Ondigi & Mavisi, 2013). However, this study focused on websites, Email, blogs, Wikis, face book and Microsoft applications (power point, Ms Word, Ms Excel). These ICT tools were targeted because they are used in day-to-day lives of both teachers and students. They also allow communication, interaction, and collaboration which are useful in the teaching of English. Consequently, for the teachers' of

English to effectively integrate ICT tools mentioned in their teaching, they need specialized competencies.

Competence for integrating ICT in the teaching refers to knowledge and skills about ICT (Tearl, 2003). UNESCO (2002), refers to competence in terms of understanding how ICT is used and what value it adds to teaching. Studies suggest that the success of integrating ICT in schools all over the world has not been automatic (Zaman *et al*, 2011). Effective integration of ICT in schools involves not only providing the technology but also building the capacity of teachers in terms of ICT pedagogical competencies, schools readiness, long term financing and curriculum restructuring. In spite of these, in practice, the usual teaching and curricula approaches still remain basically unchanged in many schools, while the technology is typically poorly adopted and underused in classroom, school and individual level (Dzidonu 2010). Similarly, Keengwe and Onchwari (2011) noted that, despite rapid growth in ICT access by teachers and students both at home and school, and substantially improved school ICT infrastructure (connection to internet, computer labs and availability of educational software) most teachers are not keen in adapting and using ICT tools during teaching and learning. It appears that their skills in ICT integration remain a challenge for them to adopt and use efficiently the technology in classroom.

ICT supports interactivity through easy and user-friendly accessibility of the subject information and task-based activities. Interactivity allows students to be actively involved in problem solving (Said, 2010). ICT also allows for variation which addresses the issue of individual differences as students have different learning styles and preferences (Said, 2010). ICT also encourages student autonomy as well as providing material that intrinsically motivate students. They also have the potential of enriching teaching of English. However, there is a gap in determining the teachers level ICT pedagogical competence. The present

study recognized that the potential offered by ICT can only be utilized if the teachers have the necessary ICT pedagogical integration competence to adopt strategies they deem best in using ICT in their teaching.

ICT integration is an emerging area in pedagogy that needs special attention since a number of teachers have limited experience in the area (CEMASTEA, 2015). According to the Training Needs Assessment (TNA) undertaken by (CEMASTEA), 57 % of mathematics and science teachers indicated that they lack skills in identifying and using ICT resources in teaching and learning. The TNA did not consider ICT integration in teaching of English as much attention on ICT integration has been on STEM (science, technology, engineering and mathematics) subjects. This study therefore, sought to assess the level of teacher's competence in integrating ICT in teaching of English.

Integration of ICT in teaching and learning institutions go through different levels. These levels range from emerging stage, where computers have just been introduced to applying, infusion and transformation stage (UNESCO, 2010). Similarly, Unwin (2007) reports that though there has been growth in ICT in all aspects of the society, its rate of growth and utilization has not been uniform among countries, regions, institutions and even teachers. ICT integration at the transformation stage is expected to contribute effectively to the teaching and learning process (UNESCO, 2010). There is a gap on level of ICT integration in teaching of English since ICT integration is an ongoing program there exists to determine the level of integration from time to time to inform policy makers, administrators and teachers in order to put in place measures that could move the program to the next level. There appeared to be insufficient empirical data on the level of integration of ICT in teaching English in secondary schools in Kisumu County in Kenya which made it important to carry out this study.

Strategy refers to the specific approach to teaching that includes methods, resources, techniques and teacher preparedness. In teaching, the strategy adopted contributes greatly to the academic outcome of learners (Farrel, 2007). Furthermore, many teachers put emphasis on teaching about technology rather than teaching with technology therefore it is important that the appropriate strategies that enhance communication, interaction, collaboration, student autonomy and motivation are used in integrating ICT in teaching in order to enrich the quality of teaching and achieve the desired educational outcomes.

Research shows that there are a number of challenges involved integrating ICT in teaching. They include teacher's individual factors, school environment and student's abilities (Hsi-ch, Chin-Feng and Tien-ch, 2010). Teressa (2013), report that teachers are challenged by students who are technologically endowed. Inadequate training, lack of access to computer laboratories, lack of technical support and inadequate technology resources are also a major challenge (Chingona and Chingona, 2010). There is a gap in determining the most experienced challenges in teaching of English; furthermore, there is a gap in identifying challenges that are specific to the area of study that is ICT in teaching of English in Kisumu County. There appears to be no empirical study that has been carried out to assess the challenges of integrating ICT in particular in the teaching of English in secondary schools in Kenya Kisumu County.

Integration of ICT in teaching contributes to improved quality of teaching and learning process Annie (2013). ICT integration in teaching of English enhance students reading, writing, speaking, listening, study and literary skills which are crucial skills in language teaching. Further, studies suggested that use of ICT increases level of interaction, motivation and improved academic achievement Zhu and Bu (2009), Ayere (2009). Literature, therefore, showed that ICT contributes positively to instruction of science, mathematics and English.

However, there seems to be minimal empirical data on the contribution of ICT tools in teaching of English in Kenya Kisumu County.

The Kenya Certificate of Secondary Education (KCSE) examinations are set in English except for Kiswahili and other foreign languages. Therefore, good mastery of English language is very crucial in the performance of not only the English paper in KCSE but also other subjects in the curriculum. Despite the importance of English, KNEC (2018) report indicates a drop-in mean in performance of English. This is captured in Table 1.1

Table 1.1: Candidates Overall Performance in English in KCSE for the period 2014-2017

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2014	1	482,499	60	29.03(48.37%)	8.80
	2		80	28.70(35.85%)	11.26
	3		60	19.97(33.28%)	6.30
	Overall		200	77.68(38.84%)	24.28
2015	1	525,621	60	29.37(48.95%)	8.28
	2		80	31.86(39.82%)	12.43
	3		60	19.35(30.86%)	6.13
	Overall		200	80.58(40.29%)	26.03
2016	1	571,644	60	29.15(48.58%)	8.15
	2		80	20.39(25.49%)	10.86
	3		60	18.52(30.86%)	5.23
	Overall		200	68.06(34.03%)	22.03
2017	1	610,084	60	25.89(43.30%)	7.12
	2		80	28.24(35.30%)	11.73
	3		60	19.42(33.37%)	5.92
	Overall		Overall	73.55(36.5%)	23.57

(Source: KNEC 2018 REPORT)

Table 1.1 shows that:

i. The performance of paper one dropped from 29.15 in 2016 to 25.89 in 2017

ii. The performance in paper 2 and paper 3 registered a slight improvement in 2017 as compared to 2016. However, the mean are below the average of 40.0 for paper 2 and 30.0 for paper 3.

iii. The overall performance in English language remains unsatisfactory. The combined overall means of (38.84%) 2014, (34.03%) 2015, (40.03%) 2016 and (36.5%) 2017 indicate erratic performance that fall short of the ideal average mean of 100(50%).

The report recommended that there was need to examine the curriculum, its implementation and the way English is taught (KNEC, 2018). The KNEC report recommendation is a pointer to the fact that there is a problem with the way English is taught. In examining how English is taught, this study put into focus the interventions that have been made to improve the quality of teaching. One of the interventions that could make a positive difference is ICT integration in teaching.

The KNEC report on the countrywide performance seems to reflect the English performance. in Kisumu County. Kisumu County is one of the counties in Kenya located in the western region. The performance of English in KCSE in the county has consistently remained below average of 6.0(50%) for the period 2014-2017 despite the efforts made by the government, parents and the private sector to provide ICT infrastructure and personnel to facilitate ICT integration. The performance for the period 2014-2017 is captured in Table 1.2.

Table 1.2: KCSE English Performance for The Period 2014 – 2012 For Kisumu, Nyamira, Kisii, Homa Bay, Siaya And Migori Counties.

COUNTY	2014	2015	2016	2017	AVERAGE
KISUMU	3.5	3.3	3.8	3.8	3.6
SIAYA	3.8	3.9	3.8	4.0	3.9
KISII	3.7	3.8	3.9	3.8	3.8
NYAMIRA	3.7	3.8	4.0	3.9	3.9
HOMA BAY	3.8	3.9	3.7	4.0	3.9
MIGORI	3.8	3.6	3.7	3.9	3.7

Source KNEC 2018

Table 1.2 show that Kisumu county performance is lower than the neighbouring Siaya, Homabay, Kisii, Nyamira and Migori Counties in English with an average mean of 3.6 while Siaya, Homabay, Kisii, Nyamira and Migori having 3.9, 3.9, 3.8, 3.9 and 3.7 respectively for the period (2014-2017).

This is a worrying trend given the fact that English is language of instruction in Kenya. Therefore, students' inadequacy in the mastery of English might affect the performance of other subjects. Kombo (2013) further reported that despite the Kenya government's effort and willingness to promote ICT as an instructional tool, progress on ICT font had fallen short of expectation. The report added that the Ministry of education strategic plan for 2008- 2012 had registered slow integration of ICT in operations and programmes which was identified as an area of major weakness in the part of the ministry.

In spite of the importance of ICT and strategies developed by government of Kenya to implement ICT in schools, research conducted in many schools in the country has established that most of the teachers are not effectively adopting and using ICT to support learning, teaching and management as intended (Manduku, Kosgey, & Sang, 2012). Dzidonu (2010)

also observed that the usual teaching curricula approaches still remain unchanged in many schools as technology is typically poorly integrated and underused in the classroom. Laaria (2013) revealed that despite efforts made by various stakeholders and importance of the ICT in education sector, the National ICT policy on education of 2006 has not been effectively implemented as was intended. While many countries have reported over 41% adoption of ICT in classroom in public secondary schools, the proportion remains considerably low in Kenya.

Studies done in Kisumu County on ICT integration have focused on determinants of ICT integration, availability and access of ICT resources Ochieng' (2013). Furthermore, the studies focused on ICT resources that are non-interactive in nature (Owino, 2016). Minimal studies have been done on ICT integration in specific subjects (Otiang'a, Ayere & Rabari, 2018) and (Owino, 2016). These studies targeted all public secondary schools with varied access to ICT infrastructure. Similarly, teaching of English is in variance with other subjects therefore strategies adopted might not be the same as those adopted in other subjects.

 The findings in these studies Ochieng'(2013), Owino(2016) and Otiang'a, Ayere & Rabari (2018) established that ICT integration in teaching in Kisumu county faced a number of challenges including lack of ICT skills to adopt effective strategies for ICT integration in teaching. This may be, because the strategy adopted by the government did not take into consideration teachers' level of competence in using ICT in teaching, level of ICT integration, strategies employed in integration of ICT in teaching and the challenges of integrating ICT in teaching. In light of this, the present study sought to assess and report on the status of integrating ICT in the teaching of English in secondary schools in Kisumu County, Kenya with a view to filling the gap that exists

1.2 Statement of the Problem

Across the globe, governments recognized the potential of ICT integration in teaching to transform traditional teacher centred mode to student centred where aspects that are key to effective teaching of English such as communication, collaboration, interaction and independent study are possible. The Government of Kenya therefore, initiated a program through provision of ICT infrastructure and teacher training to facilitate ICT integration to enhance quality of teaching. However, the quality of teaching has not improved, marked by poor and erratic performance in English in KCSE exams. In Kisumu County the performance of English in for the period (2014-2017) remained low despite attempts made to integrate ICT in the teaching of English.

Consequently, there has been a general concern expressed by educationists, employers and ordinary citizens that most of the form four graduates are not fully equipped with proper communicative skills in English evidenced in oral interviews and written application letters for employment.

Considering, English is the language for instruction, it significantly impacts students' success in other subjects it was important for this study to focus on ICT integration in teaching of English given that ICT could play a significant role in improving quality of teaching English. Teacher competence in ICT integration, level ICT integration, strategies for ICT integration, challenges and contribution of ICT integration in teaching of English has not been established.. Furthermore, the researcher has not come across evidence of empirical study done in Kisumu County on assessment of ICT integration and its contribution to teaching of English in secondary schools.

1.3 Purpose of the Study

The purpose of this study was to assess the integration of ICT and its contribution to the teaching of English in secondary schools in Kisumu County.

1.4 Objectives of the Study

The objectives of this study are to:

1. Assess level of teachers' competence in ICT integration in teaching of English in secondary schools in Kisumu County.

2. Assess level of ICT integration in teaching English in secondary schools in Kisumu County.

3. Assess strategies for integrating ICT in teaching English in secondary schools in Kisumu County.

4. Establish challenges faced by teachers in integrating ICT in the teaching of English in secondary schools in Kisumu County.

5. Evaluate contribution of integration of ICT in teaching of English in secondary schools in Kisumu County.

1.5 Research Questions

1. What is the level of teachers' Competence in integrating ICT in the teaching of English in secondary schools in Kisumu County?

2. What is the level of integration of ICT in the teaching of English in secondary school in Kisumu County?

3. What strategies are used to integrate ICT in the teaching of English in secondary schools in Kisumu County?

4. What are the challenges of integrating ICT in the teaching English in secondary school in Kisumu County?

5. What is the contribution of ICT integration to the teaching of English in   secondary schools in Kisumu County?

1.6 Assumptions of the Study

The study was based on the following assumptions:

1. That the ICT model schools have already started using ICT in teaching and learning.

2. That all secondary schools have basic ICT infrastructure that can facilitate integration of ICT to teach English.

3. That all public secondary schools in the country will eventually receive funds for ICT infrastructure for teaching and learning English.

4. That the findings from the study from Kisumu County as a case are representative of the whole country.

1.7 Significance of the Study

The findings of this study have theoretical, practical and policy implication for the government of Kenya, Ministry of Education, Quality Assurance and Standards Department, School Administrators, teachers of English, English Curriculum Developers and education and training policy makers in their initiative of implementation of ICT integration in secondary schools in the country and in achieving the Vision 2030 objectives.

Theoretically, findings of this study may be beneficial to researchers in English pedagogy as they may contribute to the advancement of knowledge about ICT integration in teaching of English in secondary schools in Kenya.

The study may beneficial to the Kisumu County Quality Assurance and Standards Officers and principals as the findings pointed out the challenges in ICT integration in teaching and learning of English in secondary schools in Kisumu County.

Practically, the study findings may benefit teachers of English to identify the most appropriate strategies for integrating ICT in teaching and learning of English as well as other subjects across all levels of education in Kenya. This is through the identification of the specific strategies and their effectiveness.

The study finding may help teachers of English in designing teaching and learning strategies that facilitate students active participation and collaboration while teachers' as facilitators in the teaching and learning process of English in secondary schools.

The result of the survey can also be of benefit to the Ministry of Education in formulating a policy strategy of ICT integration in schools. In the same vein, results of this survey can be used to enlighten all stake holders on how to achieve the objectives highlighted in the National ICT Policy 2006 on education and e-learning.

The study will also form a base on which other researchers may develop their studies.

1.8 Scope of the Study

Scope refers to the range of focus of the study. There are many approaches that can be used in teaching English in secondary. However, this study focused on the integration of ICT in teaching in English in secondary schools. In particular this study focused on teacher's level of competence in integrating ICT in teaching English in secondary schools in Kisumu County; the level of integration of ICT in teaching English of secondary schools in Kisumu County Kenya; strategies of integrating ICT in teaching of English; the contribution of ICT in the teaching of English and challenges faced by teachers in integrating ICT in the teaching of English in secondary schools in Kisumu County Kenya.

1.9 Limitations of the Study

Limitations are shortcomings anticipated by the researcher.

1. The study did not use actual observation of teachers integrating ICT in teaching of English; therefore the findings may not reflect the actual teaching and practice.

2. The measurement of improvement based on the mean scores in KCSE five years prior to ICT integration and five years during ICT integration was based on overall mean and mean scores for specific language skills, therefore the performance may have been affected by other variables of which the research had no control.

1.10 Theoretical Framework

The study is anchored on Bruner's constructivism theory (1990). Constructivist theory view the learner as an active participant involved in structuring their learning experience. It is a paradigm of learning that assumes that learning is the process, where individuals construct meaning and new knowledge, which is based upon their prior knowledge and experience. The educationists refer to it as the emerging pedagogy in contrast to the long existing behaviourism view of learning. It is believed that by applying constructivist principles in the teaching and learning process will generate a new way of teaching with ICT, constituting a shift from a teacher-centred to learner-centred pedagogy (Bullard, 2003). Through the use of ICT, students recognize their responsibilities and are more devoted towards learning. There is an increase in the involvement of students towards implementation of their tasks, making use of computers, mobile phones and internet. In this manner, there is a decline in the role of teachers towards advising or guiding students. Furthermore, the teachers feel satisfied with the performance of students (Mikre, 2011).

Further, Harris & Rea, (2009) identifies learning *with* ICT as pedagogical frame work synonymous with activity theory that provides a very useful perspective when integrating ICT into teaching and learning. Learning *with* ICT has its roots in the constructivist and

social constructivism paradigms where more active behaviours such as creating, writing and updating are associated with learning *with* ICT (Harris & Rea, 2009).

Activity theory a sub set of constructivist theory, adapted from Jaradat, Qablan, & Barham (2011) draws on the Vygotskian cultural-historical theory of learning recognizes the centrality of the learner in the teaching and learning process. Activity is viewed as probably the most important concept. Activity is driven by a collective object (goal) and motive, but it is realised in goal oriented individual and group actions (Ping, 2001). Activity theory may be used to analyse successes, failures, and contradictions in complex situations, as in most ICT-mediated learning environments, without reductionist simplifications (Mwanza, 2001). From the activity theory perspective, ICT does not simply develop knowledge, skills, and dispositions of students; rather, it is a mediational tool to develop them (Lim, *et al*., 2014).

According to Jaradat, Qablan & Barham, (2011) the model of activity system is dynamic; there are continuous constructions and reconstructions between its components. For example, there is on-going negotiation and reformulation of rules by the subject rather than the subject abiding by fixed rules. The tools are continuously reconstructed or new tools developed by both the subject and his/her community to meet the object of the activity system. The division of labour is always in the process of redefinition and refinement by the subject and his/her community. Even the object is constantly in transition and under construction, and it manifests itself in different forms for different participants and at different moments of the activity. The structure of the Activity system is captured in Figure 1.1.

Tools

Subject

Object

Outcome

Rules

Community

Division of labour
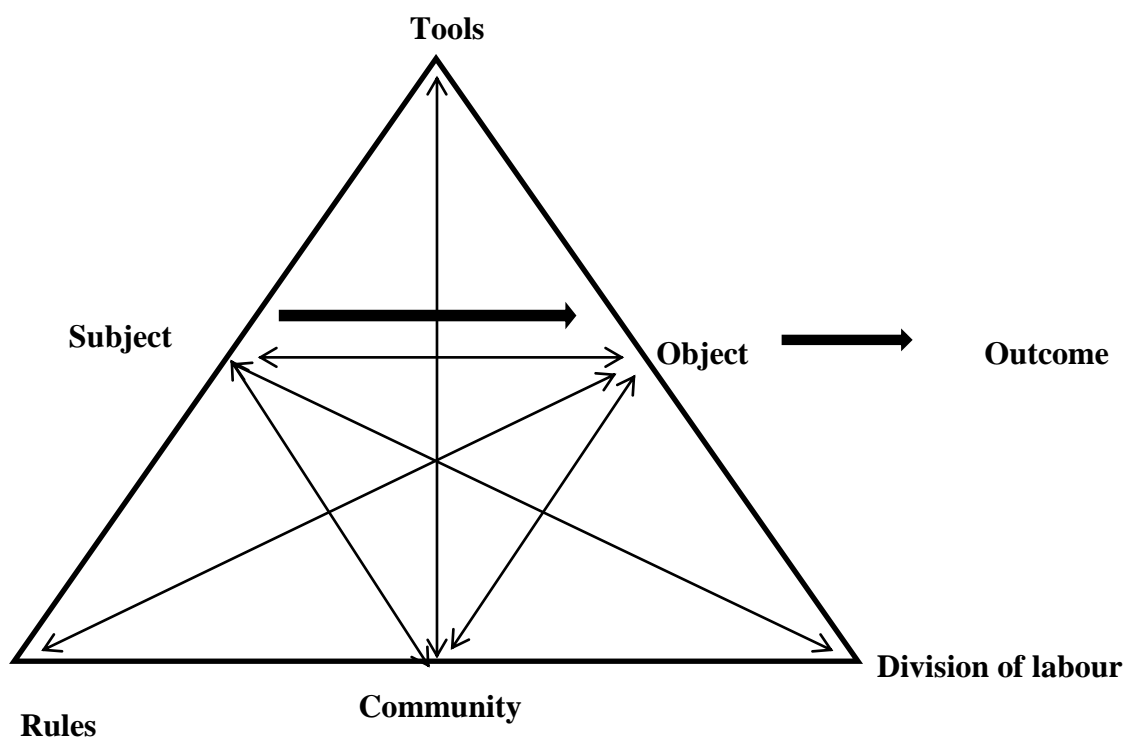
Figure 1.1: Structure of Activity System
Source: Adopted from (Jaradat, Qablan and Barham 2011)

According to Lim, Hung & David, (2014) when the developed ICT products are integrated in the school curriculum, they become tools that mediate teaching and learning activities to develop higher order thinking skills (object), with a group of students and/or teachers as the subject. However, ICT may become an object rather than a tool for the student or teacher when the subject encounters problems using the hardware or software. Instead of focusing on the object of higher order thinking, the focus may be directed to using ICT hardware or software.

The subjects of the activity system focused on in this study were teacher (administrational and instructional use of ICT tools). The object refers to the goals of using ICT in teaching-learning process of English (knowledge and skills acquisition, and problem solving). The rules were expectations of the teacher and rules of the school. The communities involved the

Students, teachers, school administration and parents. The outcome was the impact of ICT tools integration on teaching of English. The mediating artefacts (instruments/tools) represented ICT tools (websites, email, blogs/wikis and Microsoft applications) and methods which are used in integrating them in teaching and learning of English. Division of labour involved the roles and responsibilities of students and teachers, cooperation among teachers, the support of administration.

Activity theory as applied in integration of ICT in teaching and learning process puts the learner at the centre of the teaching and learning process. Playing a meditational role ICT facilitates learners to actively participate in the teaching and learning process by means of:

i.   Interactivity-interacting with resources, other learners, teachers, school administration and parents.

ii.   Collaboration-collaborating with other students and teachers.

iii. Communication-communication in English in classroom and out of classroom.

iv.   Independent study-student use ICT tools to search for information which is in English therefore increasing language input necessary for language acquisition and learning.

Communication, Interaction, collaboration and autonomy are characteristics of the two modern and arguably effective approaches to teaching language namely communicative teaching approach and Task based teaching approach. Further, these engagements using ICT are transacted in English offering more and meaningful input in the target language. As a consequence it is believed the learners teaching and learning of English skills is enhanced. Throughout these engagements the teacher is the facilitator of the teaching and learning process. Teachers need appropriate technological pedagogical ICT skills to effectively

integrate ICT in teaching of English. The technological pedagogical ICT skills are proposed in the TPACK theory by (Mishra and Koehler, 2006).

Teaching is a complex process which is multifaceted that requires educators with different kind of expert knowledge. In the English language classroom, the teaching and learning cannot be successful using the traditional mode of teaching (teacher, textbook and chalkboard alone) (Mishra and Koehler, 2006). The model clearly illustrates the knowledge that teachers need to understand in order to integrate technology effectively in their classrooms.

The emergence of three mentioned knowledge has produced new knowledge which teachers need to ensure their lessons are flexible (Mishra and Koehler, 2006). The first new knowledge is Technological Pedagogical Knowledge (TPK) where teachers change their way of teaching to new pedagogy that highlights the role of technology application in lessons. The second new knowledge known as Technological Content Knowledge (TCK) refers to the change in the subject matter as teachers have to teach their lessons with the support and application of technology. The third new knowledge is the Pedagogical Content Knowledge (PCK) which is defined as the knowledge of pedagogy that teachers should know such as ways of organizing, adapting and representing instructions in the classrooms. Overall, the TPACK model puts emphasis on the integration of content, pedagogy and technology to ensure the process of teaching and learning take place effectively. The present study proposes that teachers of English in secondary school should acquire specialized content, technological and pedagogical competence in English in order to develop appropriate strategies in integration of ICT in teaching devoid of challenges to contribute optimally to the teaching of English.

The present study also adopted the UNESCO (2010) model in assessment of ICT integration in teaching of English. This model puts into cognisance acquisition of ICT infrastructure in

schools, development ICT skills and awareness of ICT tools in education in the first level. In next level the teacher uses ICT to support the traditional method of teaching. The third level, the teacher acquires ICT pedagogical skills where they determine when and where to apply which ICT tool. Lastly, at the transformational stage there is seamless application of ICT in teaching on daily basis by both teachers and learners. Therefore, maximum impact of ICT integration according to UNESCO (2010) can be realized when the program transits to the transformation level.

1.11 Operational Definition of Terms

Achievement

Level of Improvement in performance of English in KCSE five years before ICT integration compared to five years after integration of ICT

Assessment

Collection of data to describe and better understand ICT integration in the teaching of English.

Blog

A discussion or information site published on the World Wide Web Normally interactive allowing visitors comment and leave messages

Challenges of Integration

The barriers or impediments to using both offline and online resources in teaching English

Contribution

Change that occurred after ICT integration in terms of achievement, preparation of lessons, lesson delivery, communication, interaction, collaboration and independent study

Email

A system for sending messages from one individual to another via telecommunications links

ICT	A set of tools and resources used to communicate, create, disseminate, store and manage information electronically. ICT in this study will focus on websites, Email, wikis/blogs and Microsoft applications.
ICT-infrastructure	Hardware of network, wireless networks, the microcomputer lab, national and international network and related services that schools use to allow internet traffic to flow into and out of the institution
ICT Tools	ICT application and resources that support communication, dissemination and management of information. In this study the tools were categorized as production (MS word), presentation (powerpoint), evaluation(Ms access), distribution, communication (email), collaboration (facebook, blogs wikis) and interaction (email, whatsapp, blogs and wikis)
Integration	The seamless use of ICT tools to facilitate teaching. Integration in this study will focus on integration of websites, emails, blogs/wikis and Microsoft software applications.
Internet	The telecommunication and computer system linked together, they comprise of online gadgets, software, files, documents, audio files, and graphics
Microsoft Application	A package of office productivity software released by Microsoft and is available on Microsoft windows which include PowerPoint. Ms Word, Ms excel among others

Level of Competence   This is how well an individual has mastered a skill. In the study, competence is used to refer to teachers' ability in integrating ICT in teaching and learning English language.

Level of integration   The stage at which a school is in terms of integration of ICT

Secondary Schools   Pioneer ICT model schools that received ICT infrastructure from the government of Kenya in 2009 for the purpose of ICT integration in teaching and learning in secondary schools

Strategies   Specific approaches and activities the teacher use in the utilization of ICT in teaching of English which include methods, resources, techniques and teachers preparation for lesson

Teaching of English   Imparting of the English language skills that adapt learner centred approaches

Teaching Phase   This are aspects or stages in actual teaching

Wiki   A type of content management system where content is created without any defined owner which allows structure to emerge according to the user

CHAPTER TWO

LITERATURE REVIEW

2.1 Competencies for ICT Integration in Teaching

There has been a shift in the world order with a new economy powered by information and communication technology ICT (Unwin, 2007). The emergence of this new economy has serious implication on the nature and purpose of educational institutions (Zaman, Shamim & Clement, 2011). Given that education prepares the population for economy, it has to reflect and meet the needs of the economy. Education sector has to cope with rapid access to information brought about by ICT (Nnaerkwe & Ugwu, 2019).

The current society relies on the acquisition, transmission and application of knowledge. It is from these conceptions that, together with the technological edge, school educational processes emerge. Schools cannot content with limited knowledge transmitted using the traditional modes (Rodríguez, 2003). They have to align themselves to the ever-expanding knowledge and also be equipped with the technology to deal with this knowledge (Nnaerkwe & Ugwu, 2019). Education has been influenced by technology, which has directly changed the way of interacting, communicating, studying and investigating (Pescador, 2014). ICT can help expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by helping make teaching and learning into an active process connected to real life.

Teaching is no longer restricted in a classroom situation where the teacher was the main authority and the learners' inactive participants in the teaching-learning situation. Time has come for teachers and learners of English to realize the fundamental role of information and global economy where the proficient use of English is fast assuming the indispensable engine of growth and development. It has therefore become expedient to note that the effective

teaching and learning of English has gone beyond the stereotypical to regimented/tradition of mere classroom teaching because of the emergence of various ICT tools. Similarly, Randall (2006) pointed out that ICT has become a major component; a must-have in many homes around the world, with its concomitant influence permeating all facets of human lives, including education. This development shows the direction in which language instruction will be driven by new advancements in technology.

English Language is one of the most challenging subjects, to effectively teach English teachers must create an interactive teaching and learning atmosphere to sustain students' interest in the subject. This can only be possible if teachers' as curriculum implementers should make ICT an integral part of teaching and learning process. Further, Kent and Facer (2004) aver that ICT in an educational point of view supports teaching, learning and a range of activities in education in various ways. So, modern education is best achieved through the use of ICT and related facilities and this can only be possible if both the teacher and students are ICT literate.

Teaching of English in various contexts in the world pose varied challenges. In the U.S. context teaching of English is confronted with learners who come from diverse educational backgrounds with varied degrees of exposure to English. Upon arrival to school in the U.S., students are placed in grades corresponding to their age, without consideration to their educational background (Roy-Campbell, 2014). In some instances, they may not have had prior exposure to English as a subject, or even as a language of instruction.

There are also cases in the US where we have students who have had interrupted prior education in refugee camps and are not literate in any language having had very little or no previous exposure to English. Many schools provide termed English language learners (ELLs), with English language support services offered by specialized Teachers of English to

Speakers of Other Languages (TESOL), referred to as English as a Second Language (ESL) teachers. Students are classified as beginner, intermediate or advanced, in terms of English as a Second Language (ESL) proficiency based on their performance on a placement test, and receive ESL instruction to develop English phonology, vocabulary and syntax along with the four language domains: listening, speaking, reading, and writing. However, they spend most of their school day in general education classrooms learning content with teachers who typically have not received any preparation for working with students who speak languages other than English (Roy-Campbell, 2014).

In Vietnam, English is taught as a foreign language (FL). English was suddenly introduced after the collapse of the former Soviet Union to replace the Russian language. Vietnam teachers of English who were previously Russian teachers adopted the Communicative Language Teaching (CLT) which focused on helping learners to communicate through English language. Teaching and learning English in Vietnam varies according to education levels. At school level, many students learn English but at tertiary level it has become saturated. Learning English at universities now is more like learning a means to serve other purposes than taking English as a major (Le Ha 2008). A majority of Vietnamese teachers of English are not able to speak English as fluently as native speakers and of course they cannot master the language as native speakers.

Consequently, the Vietnam English teaching raises a number of difficulties in intonation, rhythm, listening and pronunciation (Le Ha (2008). These difficulties also were found to impede ICT integration. However, all is not gloom as some of the teachers in Vietnam are extremely good at English and teaching methodologies. Materials used for teaching English in Vietnam are mainly written by native speakers. These materials require teachers to have understanding of English language cultures and societies. Vietnamese teachers especially

those who do not have many contacts with real - life and authentic materials, media and culture of L2 have difficulties for them (Le Ha (2008). The Vietnamese English teaching and learning experience resonate with many other countries as this study show that changed their language policy suddenly.

In Africa, there are a number of countries that were colonized by countries that used other languages other than English such as French, German and Portuguese. Such countries did not have the advantage of introduction of English in their Education system at the very beginning. Tanzania is one such a country in Africa where the government enforced a language policy that introduced the teaching of English abruptly just like the Vietnam case. The language policy directs that English language should be used as a medium of instruction in secondary schools as well as in higher learning institutions. This decision was influenced by the presence of globalization, thus it is obvious that globalization has made English more valuable to many Tanzanians (Ismail, 2007).

The teaching of English in Tanzania is varied according to education level as English language is taught just as a single subject in primary schools, but in secondary schools, apart from Kiswahili which is taught as a single subject, all other subjects are taught in English language. Also, the learning of English language at tertiary level in Tanzania has become saturated as learning English at Universities now is more like learning a means to serve other purposes. Teaching and learning English in Tanzania is surrounded with code-switching where a teacher uses English in explaining a concept but later switches to Kiswahili to explain the very concept for better understanding and code-mixing where the teacher uses both English and Kiswahili in the same sentence because of lack of competence in English language (Ismail, 2007).

In contrast to countries that introduced English mid-term, there is the Kenyan situation where English was introduced at the onset. Kenya has more than 40 indigenous languages (termed mother tongues), two official languages, English and Kiswahili. Language policy in educational states that the first three years of schooling (Class One to Three), should be in the language of the catchment which in most cases is mother tongue, or the indigenous language spoken in the respective catchment areas where the schools are located; and in Class Four upwards, English is used as the medium of instruction (Nabea, 2009). Students begin learning English as a second language as a subject at the beginning of primary school, Class One, although some schools students begin instruction in English from Class One because they want to give their students a head start with the language (Gathumbi, 2008). Research has found, however, that most Kenyan students are not sufficiently proficient in English at the end of Class Three to effectively learn content in English in Class Four (Bunyi, 2008; Gathumbi, 2008). This study takes cognisance of the fact that this impediment might as well persist to secondary schools.

Language in education in Kenya has faced and still faces many challenges. The issues often revolve around the place and development of the local indigenous need and means to strengthen English as it is the national language (languages (Ryanga, 2000); the Musau, 2000), and concerns about the usefulness of the English language, its effective teaching and/or its falling standards (Kembo-Sure, 1994).

The place of English in Kenya's educational system cannot be undermined, as it is not only an important subject but also as the medium of instruction in the curriculum (Barasa, 2005). It has been claimed that the model and the norm of the English used in Kenya, apart from pidgin varieties, is the British Standard variety and in particular, Received Pronunciation (RP) (Schmied, 1990). The roots of this significant function of English can be traced back to

Kenya's colonial period when it was instrumental to an individual's access to white collar jobs, European thought, and other privileges (Mazrui, 1992). English was a language with a lot of prestige and power and the British model was unquestionably the one used in Kenya. Kenyans learnt it from the native speakers and unlike Kiswahili, English in Kenya, as in all non-native contexts, was/is largely a taught language, conveyed through formal education.

English is used for instruction in all the subjects, with the exception of Kiswahili. This situation differs from some former British colonies where English is the language of wider communication. Kenya uses other languages for communication for example, Kiswahili is taught as a subject to all students in both primary and secondary schools. Young people communicate with each other in their mother tongue, Kiswahili, or Sheng (Kioko and Muthwii, 2001). Sheng, a language form developed by young people in the urban areas of Kenya, includes words from English and Kiswahili, mixed with the mother tongues and utilizing Kiswahili morphosyntactic structure (Mbaabu and Nzuga, 2003). The rampant use of Sheng by secondary school students was identified as a challenge to the teaching of English as many Kenyan students rarely use English outside of school.

The current language classrooms are much different from that of the mid - to late- 20th century (Eaton, 2010). The 21st century language teaching no longer focus on grammar, memorization, and learning from rote, but rather using language and cultural knowledge as a means to communicate and connect to others around the globe (Eaton, 2010). This indeed underscored the essence of the current study. The American Council on the Teaching of Foreign Language (ACTFL, 2013) pointed out that technology can be used to both assist and enhance language learning and the current study showed that where ICT had been embedded there were benefits. It is now common to find a language class that does use some form of

technology. However, the question would be how well prepare are the teacher of English to apply technology effectively in language teaching which the current study sought to establish.

Teaching and learning of English as a second language face a number of problems where first languages compete and therefore impede the process of second language acquisition and learning (Kioko and Muthwii, 2001). Some countries like Tanzania and Vietnam have had varied language policy where they had to change their language policy mid-term introducing English as language of instruction where it was never taught (Le Ha, 2008; Ismail, 2007). This is further compounded by non-native teachers of English who are ill-trained in such countries. A number of approaches to teaching of English such as direct method, grammar translation method, situational approach, structuralist and more recent approaches as integrated approach, communicative language teaching and task-based language teaching have been identified (Gibbons, 2003; Parvin and Salam, 2015; Krashen, 2009; Resnick ed., 2006). All these approaches have their place and value in the teaching of English which can be harnessed through ICT integration.

Teaching language is an organized activity that involves choices of what to include (limitations and grading), because it might be impractical to teach the whole language that is all of the vocabulary, syntax, usage, in all aspects of life (Halliday, McIntosh & Strevens, 1964). Teaching language must relate to the purpose for which one is learning the language. In the school context, teaching English is determined by the learning standards or syllabi that have been endorsed by the educational hierarchy of the country. Teaching of English therefore requires through research to update and upgrade teachers' skills and competencies

Academic qualification of a teacher of English according to this study is considered as the highest level of education attained by the teacher. It could be certificate, diploma, degree or postgraduate degree. Professional qualification of teachers refers to personal frames or

pedagogical knowledge of implementing the curriculum. This includes teachers' subject-matter knowledge, teaching skills, knowledge of students and sense of collegiality.

Goble and Porter (1977), identifies components of the professionalism of the teacher as diagnosis, response, evaluation, personal relations curriculum development, social responsibility and administration. Diagnosis refers to accurate estimation of the educational needs of an individual. It was assumed that the policy requirements meet the kind of knowledge, skills and cultural awareness that are needed by the changing society in relation to global trends. Response, on the other hand involved the selection of the media of communication that best conveys the Knowledge and skills being presented. These include performance capabilities of students and their perceptions. Evaluation is the growth or nature of the change that has occurred in the student. Personal relations involve the reactions of the nature of the change in the learner. The teacher should be able to motivate, interpret, build realistic self-esteem in the students and develop his self-assessment. Curriculum development is the planning of teaching-learning activities. It involves breakdown of the subject matter into a sequence of units, each one manageable within allotted period of time, presenting concepts and facts in a logical order. How ICT integration in teaching of English correlates with teachers' competencies in pedagogical ICT integration was a concern to the present study.

ICT integration initiatives were designed to provide support to schools in augmenting their technology infrastructure. The teaching skills initiative recognized that there was lesser emphasis in making use of computers in schools, unless the teachers were well-equipped with technical skills. When the teachers acquired training regarding technology and focused upon development of their skills, then emphasis was primarily put upon three major aspects. These are ICT skills and awareness, professional skills development in ICT and pedagogical skills development (ICT in Schools, 2008).

Teachers need appropriate technological pedagogical ICT skills to effectively integrate ICT in teaching of English. The technological pedagogical ICT skills are proposed in the TPACK theory by (Mishra and Koehler, 2006).

Technological Pedagogical and Content Knowledge (TPACK) model (Figure 2) was used to guide the present study. Teaching is a complex process which is multifaceted that requires educators with different kind of expert knowledge. In the English language classroom, the teaching and learning cannot be successful using the traditional mode of teaching (teacher, textbook and chalkboard alone) (Mishra and Koehler, 2006). The model clearly illustrates the knowledge that teachers need to understand in order to integrate technology effectively in their classrooms.

> *Teachers who exhibit best practices with technology are "creative, flexible, and adapt ways in which they navigate the constraints, affordances, and interactions within the TPACK framework (Mishra & Koehler, 2008).*

Mishra and Koehler (2006) have highlighted how the use of technology in the classroom has become a unique 21st century pedagogical approach. The TPACK model has attempted to compile the main qualities of knowledge for the teachers so that they would be able to integrate the technology into their teaching. The technological, pedagogical and content knowledge (TPACK) framework presents a way of thinking about effective technology integration, specific knowledge associated with integrating technology effectively into learning environments. Further, the revelation of Shulman's (1986) work on pedagogical content knowledge (PCK) has resulted in the ideas that teachers should possess knowledge related to both content and pedagogy, and that teacher education and in-service professional development programs should provide learning opportunities for teachers to develop these areas. Figure 2 clearly shows the correlation between and among the three complex primary forms of knowledge. Based on Harris, Mishra and Koehlar (2009), content knowledge is

described as the knowledge teachers have about the subject matter that they teach in the classroom. Next, pedagogical knowledge refers to the knowledge teachers have about the methods of teaching, managing classes and planning lessons. Technological

Knowledge is one of the most emphasized knowledge in this study and it can be defined as the knowledge teachers have about the integration of technology in lessons in order to conduct lessons effectively. The teachers should also have the knowledge of new technologies, so that they can adapt the technologies to their lessons. The TPACK model is captured in Figure 2.1.
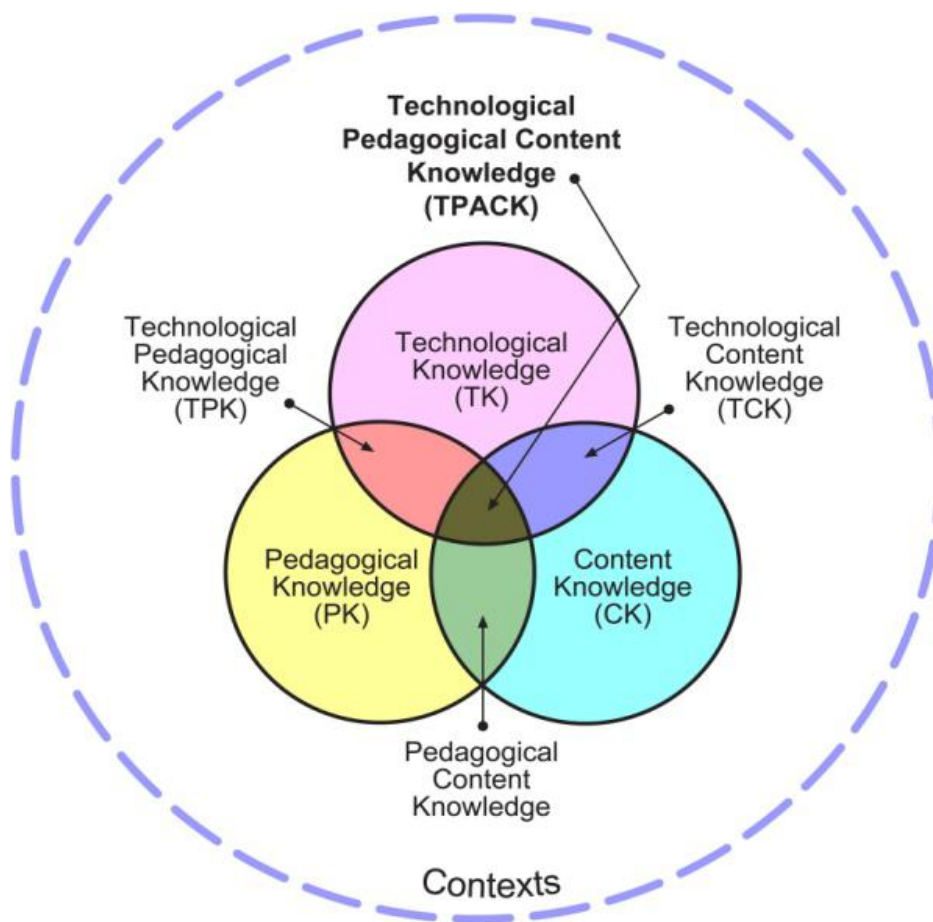
Figure 2.1: TPACK Model
Source Mishra and Koehler (2006)
The emergence of three mentioned knowledge has produced new knowledge which teachers need to ensure their lessons are flexible. The first new knowledge is Technological

Pedagogical Knowledge (TPK) where teachers change their way of teaching to new pedagogy that highlights the role of technology application in lessons. The second new knowledge known as Technological Content Knowledge (TCK) refers to the change in the subject matter as teachers have to teach their lessons with the support and application of technology. The third new knowledge is the Pedagogical Content Knowledge (PCK) which is defined as the knowledge of pedagogy that teachers should know such as ways of organizing, adapting and representing instructions in the classrooms. Overall, the TPACK model puts emphasis on the integration of content, pedagogy and technology to ensure the process of teaching and learning take place effectively.

Although studies suggest that there is a relationship between teacher quality (that is teachers' subject matter as well as pedagogical skills) and student learning (UNESCO 2014), in Africa, research show that teachers with higher subject content knowledge also produce students with higher scores overall. The interventions that enhance teacher subject knowledge and pedagogical skills improve quality of teaching and learning. Similarly, weaker students benefit much from teachers with strong subject matter and pedagogical skills; they learn better and increase their learning outcomes. Several DCPs (continuous professional development) in Francophone countries as well suggest that teachers' subject matter and pedagogical knowledge need to be given the most attention in their system (UNESCO, 2014).

Teacher preparation in many developing countries is pre-service, with a large percentage of resources allocated to formal initial teacher education. Despite this reality, many pre-service training (or initial teacher education) programs in developing countries are considered too weak to produce teachers capable of improving student learning (Bashir *et al.,* 2018). A proposition is made for further competencies to be development such ICT pedagogical skills as Pre-service training is important but not sufficient for the preparation of teachers to

improve student learning (Bashir et al., 2018). Countries spend much more on it, leaving little to be spent on services to support early career teachers to improve their practices. In addition to formal training, access to continuous professional development (CPD) (in-service) is necessary to improve teachers' competence on an ongoing basis. But CPD does not necessarily boost learning outcomes unless it provides teachers with specific skills that can directly improve student learning, such as skills to interpret and act on student learning data (UNESCO, 2017). Integration of ICT is one such skill that is not given much attention in most pre-service teacher education programs and can only be perfected through in-service teacher training programs.

Integration of ICT in teaching in education requires upgrading of teachers' knowledge and appropriate skills for effective performance. According to Roblyer et al (2004), teachers need new pedagogical skills to take full advantage of ICT to enhance learners learning. Teachers require some training that could equip them with the required knowledge on how to develop an appropriate and effective lesson that requires use of ICT to bring meaningful teaching and learning. Therefore, in implementing ICT integration in teaching of English language, the teacher needs to be very innovative to create suitable environments and learning situations required.

All these components are important to this study because a teacher should have both academic and professional qualification to teach the English language curriculum and also be able to adopt any new approaches in their content delivery like integrating ICT in teaching and learning activities (Barker, 2002). Barker recommended that it was also important to consider the ICT skills acquired by the teachers of English as one of the professional qualifications. Relevant training and qualification for teachers enables them to make

fundamental changes in their classroom pedagogy and therefore they need continuing professional development.

There is an understanding that ICT, as a tool, provides learners with interactive experiences. In the U.K. the initial programme for training teachers to use ICT explains a number of the characteristics provided by ICT tools and sources. The features include speed, spontaneity, understanding, specialisation and interactivity. These characteristics give ICT its distinctive features as a learning tool compared to other tools and sources (Kennewell *et al*., 2008). Thus, according to the present study, it is possible that the infusing of ICT into teacher training programmes would transform teaching of English to make it more interactive.

Further, according to UNESCO (2007), the classroom teachers need to be trained in five major areas: awareness and attitudes towards ICT integration; Knowledge and skills development in ICT; Integration and innovation with regard to ICT; ICT deployment in research in enhancing teaching of English and deployment of ICT to mediate collaboration and communication.

The five major areas are neither included in pre-service teacher training program nor the basic ICT according to the present study. Therefore, this study advances the case of training program for pedagogical ICT integration that ought to be embedded in both pre-service and in-service programs for teacher training.

Rutten, Van Joolingen, & Van Der Veen (2012) in a study on the use of computer simulations in teaching of science established that teaching in the classroom was not successful unless teachers have the necessary ICT skills and information to apply them effectively. In addition, if teachers don't have the skills, the potential learning from computer simulations remain out of reach. As an alternative, they may be used as demonstration experiments or be totally controlled by the teacher (Rutten, Van Joolingen & Van Der Veen, 2012). In other words, the

role of the teacher should focus on founding a pedagogical framework necessary for implementing computer simulations during teaching science. This can be achieved through building teacher pedagogical ICT capacity a view that the present study advance.

Online discussions is another important instructional strategy (Hung, Tan, & Chen, 2005; Wang and Woo, 2007). Studies reveal that they have a number of merits such as promoting students' critical thinking and knowledge construction (Marra, Moore & Klimczak, 2004; Wu and Hiltz, 2004) and improving students' relationship (Powers and Mitchell, 1997). However, individual participants often do not value online discussion as an effective means of knowledge construction. Online discussion therefore needs facilitation to make it more effective (Salmon, 2004; White, 2004). In order to achieve this, teachers need to have appropriate ICT skills. A number of specific facilitation skills that a teacher should possess in order to facilitate online discussion include: providing information; inviting missing students; monitoring regularly; and acknowledging contributions (Barker, 2002). These facilitation skills are categorized into four categories: pedagogical, social, technological and managerial.

The pedagogical role of facilitators is to help group members achieve predetermined learning objectives, such as understanding critical concepts or building subject knowledge (Green, 1998). The Social Technological role is to create and maintain a friendly, interactive environment in which participants feel safe and comfortable to interact with one another (Anderson, 2004; White, 2004). The managerial role aims at setting the agenda (such as timeline, norms and rules) so that online discussions can go on smoothly. The technological role is to help group members get familiar and become comfortable with the discussion programs so that they are able to participate without technical difficulties. The three components (pedagogy, social interaction, and technology) of the generic model are among

the important facilitation skills. In addition to these, management is another critical facilitation skill. More information about the four broad categories of facilitation skills and student-facilitators' perceptions on these four facilitation skills can be found in Wang (2008). Such skills might not be available in teacher pre-service education, the present study wished to establish the availability of in-service training in ICT integration in secondary schools in Kenya.

Teachers operating in a technologically rich environment need to draw upon large volumes of suitable resources that they can use on for specific targets and adjust to meet the requirements of the students. However, students also need to have basic ICT skills in order to deal with technology. Studies have established that teachers should help the students with important tasks rather than waiting for the students to push computer buttons in response to easy questions from the teachers. In order to effectively manage, the teacher has to have not only ICT skills but also ICT pedagogical skills (Beauchamp, 2008).

The teacher training in computer skills helps in improving students' achievement, adoption of ICT in education and also increase focus on interaction among students and between students and teachers (Tearle, 2003). Lack of ICT skills and knowledge by teachers could affect their competency in integrating it in their teaching activities. According to Newhouse (2002), many teachers without skills and knowledge are not enthusiastic about integration of ICT in their teaching activities. This makes it difficult for them to adopt it. Teachers with no experience with computer do not want to try and work with it because they could look like idiots and more stressed. Such teachers avoid completely integrating ICT into their teaching and learning activities (Lam, 2000). (Grabe and Grabe, 2001) cites studies done in Silicon Valley in America indicating that less than 10% of the teachers use computers in their classroom and many shy off due to lack of skill.

Competence for integrating ICT in teaching may be equated to knowledge about ICT (Tearle, 2003). UNESCO (2002) interprets competence in terms of understanding how ICT is used and what value it adds to teaching. This study therefore posits that for teachers to be able to integrate ICT in their teaching they have to be equipped with information of the different ICT resources, their value in teaching and learning process and how to apply them in teaching specifically English.

As the world becomes more and more connected through advances in communication technologies, classroom experiences need to reflect these changes (Greenhow, Robelia & Hughes, 2009). The advances in communication technology have changed the environment in which students and teachers operate both in school and out of school. It therefore follows that the teaching approaches have to be transformed in tandem with the changing realities. There is recognition that traditional rigid "one size fits all" must give way to more personalized, student centred designs to meet the needs of an increasingly diverse student population (Greenhow, Robelia & Hughes 2009). However, for these changes to take place the teachers who are central in the teaching and learning process have to be equipped with necessary ICT pedagogical competencies.

Melhuish (2008) highlighted the evolving notion of text, context and curriculum vis-à-vis the current proliferation of ICT use in educational settings and more specifically with the use of Web 2.0 tools. The social, collaborative nature of Web 2.0 offers English teachers and their students' new opportunities to re-examine how the language could be taught and learnt via such online social platforms. Melhuish further points out that the web effectively helps to develop students' personal voices by providing them with platforms for digital self-expression. This development is harder to achieve through conventional written assignments.

This approach provides a much wider readership with more valid and authentic writer-reader relationships than that between students and teachers.

A number of previous studies have shown that an appropriate use of ICT can raise educational quality and relate learning to real-life situations. According to Flanagan and Jacobsen (2003), technology integration is meant to be cross-curricular rather than a separate course or topic in itself. Technology should be used as a tool to support the educational objectives such as skills for searching and assessing information, cooperation, communication and problem solving which are important for the preparation of children for the knowledge society (Drent and Meelissen, 2007). Hence, every classroom teacher especially teachers of English should use learning technologies to enhance their student learning in every subject because it can engage the thinking, communication, decision making, problem solving and reasoning behavior of students (Grabe and Grabe, 2001).

In Israel the government through the Ministry of Education rolled out a program whose aim was to adapt teacher training Colleges to 21st Century Education in order to prepare teacher trainees intend to teach in the education system for the anticipated change by training them to utilize ICT, improve and vary traditional teaching methods, and develop innovative pedagogy that will lead to their successful and effective integration as teachers in schools (Ministry of Education, 2011). Therefore, enhancing teachers' competence to embrace the changes as part of the implementation of the national program has been an important condition for their ability to experience real-time situations that require planning, structuring, and implementation of innovative pedagogy for teaching (ASTC, 2010; Barell *et al*., 2010; Mishra and Kereluik, 2011; Partnership for 21st Century Skills, 2009).

Jegede (2009), carried out a study relevant to the present study which was on assessment of Nigerian teacher educator's in ICT that examined the nature and impact of trainings received

by teacher educators in south western Nigeria teacher training institutions. A population of 500 teacher educator selected randomly was used, from 6 colleges and 6 universities. The researcher used Questionnaires, (TICQ), teachers use check list (TICTUC), and teachers' competence scale (TICTCS). The study conducted by Jegede is similar to the present study in that, both studies were focused on the teacher training in ICT in teaching and learning. However, Jegede's research differs from the present research since his focused-on teachers who were still on training but this one focused on teachers who are through with training and are already practicing. Practicing teachers' experiences provide real time and up-to-date status of competence in ICT integration. The present study particularly focused on teachers of English further it distinguished the three aspects of teacher training that are necessary for successful integration of ICT in teaching.

Opira (2010) carried out a study on the effect of ICT on students" learning by taking the case of Gulu University. It sought to establish the relationship between ICT and students" learning particularly looking at the availability, accessibility and user-ability of the ICT resources in Gulu University. The study established that the availability of ICT resources in the University is still very much wanting and very inadequate for the students to use. Because of the limited number of functional computers and the computer laboratory, accessibility is timetabled. It was found out that training was mainly limited to introduction to basic concepts of information technology, some application programs notably Ms office suit and internet; contextual training of students on how to use ICT in learning was not in practice. Therefore grandaunts were not well equipped with ICT competence. A gap could be established to examine practicing teachers' ICT integration pedagogical competence.

In Tanzania, Mwalongo (2011) carried out a study regarding teachers" perceptions about ICT. The study concluded that teachers did not use ICT to radically change their pedagogical

practices but rather to sustain their traditional (chalk and talk) practices. A gap could therefore be established on teacher ICT integration pedagogical competencies.

Similarly Lucia (2017) in a study on ICT Integration in teaching and learning in secondary schools in Tanzania conclude that teachers are ready to use ICT tools in the teaching and learning process if they are directed how best they can be used. The study recommends the Ministry of Education, Science, Technology and Vocational Training (MoESTVT) to increase the effort in training teachers on ICT. This study therefore establishes a gap that prompts an investigation into teachers' ICT pedagogical competence.

In Kenya, Chao (2015) carried out a study related to the current study to find out how effective the ICT training received by teachers was, in assisting them to integrate ICT in their work to make it more interactive, interesting, and innovative in Mombasa County in Kenya. The study established that even though there was a shortage of ICT infrastructure in most schools in Kenya, the biggest problem was that, even in the few schools with adequate infrastructure, teachers lacked the necessary training to enable them to use the facilities to enhance learning. In the study 88% of the respondents indicated that teacher ICT training was haphazardly done due to lack of policy and standards. The present study, however, assessed the three teacher training components it deemed to be important for teacher to effectively integrate ICT in teaching of English.

Another study in Kenya relevant to the present study is that of Bevernage Bart.c, and Ngaga (2005), on integrating ICT, reflections on practice and policy implications a case study of the learning Resource centre at the Kenya technical Teachers college. The study sought to assess the impact of ICT teacher training on the use of ICT in schools which makes it similar to the present study. However, it differs from the present study because it pointed out access to ICT and policy as the major determiners to teachers' use of ICT in classroom furthermore it was

based on a single institution as opposed to a sample of many institutions. The present study assessed three components of teacher training that contribute to successful integration of ICT in teaching English in secondary schools. Furthermore, the present study also targeted more entities (ICT model schools) as opposed to Chaos's study that was done in only one institution.

In a study on ICT use in the teaching of mathematics and its implications for professional development of pre-service teachers in Ghana, Agyei and Voogt (2010) found out that although the contemporary mathematics curricula expectation is that mathematics teachers will integrate technology in their teaching, importance has not been placed on preparing teachers to use ICT in their instruction. Results showed that mathematics teachers in Ghana do not integrate ICT in their mathematics instruction because of lack of knowledge about ways to integrate ICT in lesson and lack of training opportunities for ICT integration knowledge acquisition. The study proposed enhanced opportunities of professional development arrangement for pre-service mathematics teachers should be put in place. Findings from the study revealed specific features of a professional development scenario that matters for ICT integration in mathematics teaching in the context of Ghana. The present study however, focused on competence for integration of ICT in teaching of English with emphasis on collaboration, interaction and communication.

Kandiri (2012) in a survey on ICT access and use in Kenya secondary schools shows that, of 2250 ICT teachers that graduated from universities and tertiary institutions in 2010, 1350 were absorbed in industrial and/or ICT service sectors and 900 went to teach ICT in various educational institutions. Of those in teaching service, 189 were in technical institutions and 711 were in secondary schools. This displays a relatively small number of qualified ICT teachers in Kenyan schools who might have been useful in disseminating ICT basic

competence to other teachers. Such a revelation strengthened the case for this study to establish the level competence of teachers of English.

A report by Ministry of Higher Education, Science and Technology (GOK, 2010) on secondary school teachers' adoption and use of ICT also indicated the number of teachers skilled in ICT in secondary schools was low. The study revealed that out of the number available, few had ICT training effective in integration of the technology in classroom. Out of 232 teachers in the sample, majority (57%) were reported to have trained at certificate level on basic computer skills, 73% were reported to have acquired ICT training through in-service courses and 43% were trained by private computer colleges.

In a study on E-learning in secondary Schools in Kenya, it was observed that a number of teachers in schools had not received any training in ICT use during their formative years at teacher training institutions before joining the profession (Ayere, Odera & Agak 2010). 55% of the sampled teachers stated that they did not receive any ICT training at all. However, the study found that 51% of the teachers had taken self-initiative to undertake ICT training during the last three years they had been employed. To successfully implementation ICT in schools depends strongly on teachers' training on the technology. The low number of teachers who had received ICT training in Ayere and Agak (2010) study creates a gap that necessitates follow research to establish new trends that could inform training needs.

Miima, Ondigi & Mavisi (2013), in a study on teachers' perception of ICT in the teaching of Kiswahili in Kenya found out that most of the teachers preferred using CDs, DVDs and to a small extend power point. None of the teachers were found to use Animation, Captions, Internet, E-mails and Blogs which are more interactive ICT and offer more opportunities for teaching. This therefore necessitates this study to find out whether the teachers of English have the necessary competence in the use of ICT in teaching English.

Buabeng-Andoh (2012) posits that training should be directed to "using ICT to teach" rather than "learning to use ICT". Prestride (2012) outlined some of ICT packages required of a secondary school teacher as data processing, word processing, use of internet, use of spreadsheet, use of presentation software like PowerPoint and e-mail. These ICT packages are important to teachers because they assist in creating lesson plans, analysing and setting students' tests, acquiring new knowledge and presenting lesson in a clear way among others. To acquire these skills, teacher educators should prepare teachers properly, as Higgins and Moseley (2011) noted, teachers who used ICT tools in classroom might have experimented or observed their own teachers use ICT tools during formative days in initial teachers training institutions. According to Prestride (2012) computer aided teaching is the most appropriate skill required of a teacher, unfortunately, it is the least possessed by many. This may be because it is barely been part of their training course.

Mugweru (2018) in a study to establish ICT use in relation to teaching English. The objectives of the study were to find out English language teachers' preparedness in using ICT found out that although a majority of teachers were prepared to use and operate ICT facilities they rarely integrated ICT in their teaching. This might be as are sult of lack of pedagogical ICT skills. Mugweru's findings are similar the findings of Otiang'a, Ayere & Rabari (2018) who sought to establish the level of teacher preparedness in pedagogical ICT integration among public secondary schools in Kisumu County. They found out that pedagogical ICT literacy among teachers of chemistry in Kisumu County is low to the extent that a half of the teachers in the study had never used ICT in their teaching. A gap could be established to examine the status of ICT pedagogical integration competence of teachers of English.

Literature reviewed identifies teachers' academic and professional qualification which includes initial or pre-service teacher training, training in ICT skills and pedagogical ICT

skills as key to successful integration of ICT in classroom. Further, literature points out that there is deficit in number of teachers who have both ICT basic competences. Other studies propose future research on ICT pedagogical competence. Therefore there seems to be inadequate empirical data on the pedagogical ICT competencies on integration of ICT in the teaching of English in Kisumu County which has resulted in a knowledge gaps which made it important to carry out this study to evaluate the teachers' pedagogical ICT competencies on the integration of ICT in the teaching of English in secondary schools in Kisumu County, Kenya.

2.2 Level of ICT Integration in Teaching

Educational institutions typically pass through levels of integration of ICT ranging from the basic stage where computers have just been introduced to transforming stage where ICT is fully integrated into institutions and broadly used on daily basis (UNESCO, 2010). Teachers and stakeholders also go through stages from learning the basics about ICT use to integrating it in practice by teaching with and through ICT throughout the curriculum (UNESCO, 2010). The level at which an institution or individual teacher is, influences the extent to which ICT will be integrated in teaching. A number of studies have proposed varied models for assessment of levels of ICT integration which this study assessed.

Filiz and Yasemin (2013) in a study on teachers' perceptions related to Levels of ICT Implementation adapted Hall and Hord (1987) "the concerns-based adoption model" which defined an innovation in eight levels. Filiz and Yasemin modified model suggested that teachers' integration of ICT into learning-teaching process can be defined in five levels:

Beginning of ICT integration: Teacher organizes activities to develop students' basic ICT skills, prepares lesson plans including ICT usage, and often takes advantage of available applications

Second Level of ICT integration: Teacher gives students homework which they could do research and analysis by using ICT to support their learning processes. Also, teacher uses ICT to teach concepts, themes, and processes related to lesson.

Third Level of ICT integration: The purpose of teachers' ICT usage is to develop higher-order thinking skills of students. For this aim teacher uses ICT to design products that are student-centred, integrated with instructional program. Also, teacher organizes activities to develop students' problem solving and critical thinking skills.

Fourth Level of ICT integration: Teacher and students communicate with other learners and experts via networks beyond the borders of classroom.

Fifth Level of ICT integration: Students use ICT resources and applications to provide solutions to real-world problems related to content.

This model focuses on teachers' use of ICT for preparation for instruction as the foundational level. This is followed by use of ICT to assign learners work and teacher-centred instruction. The next level has to do with ensuring the learners take charge of teaching and learning activities. Next is communication using ICT tools among learners and teachers and lastly use of ICT tools to solve problems in real-world. This model had valuable input in assessment of level of integration; however, it mainly focused on teacher learner activities which left out other aspects of ICT integration.

Avidov-Ungar and Iluz (2014), in a study to examine the levels of implementation of innovative ICT pedagogy in teacher educators and officials at a teacher training college in Israel adopted three levels, based on Toledo's model (Toledo 2005). First on the continuum was the basic level that suggested the use of simple and basic technologies such as presentations or uploading the syllabus to the course site and to a great extent technological

dependence, which necessitated constant accompaniment and support. Teacher educators that fit this profile generally lacked technological know-how, which made it difficult for them to combine technological, pedagogical, and content knowledge in an informed manner. This difficulty led to anxiety, related to the use of technological tools. Second, there was the focused level. At this level, teacher educators used ICT in their teaching in a focused manner, to meet their ongoing immediate needs, as they applied the use of ICT to discrete instances and events, entailing short-term usage. Typically, ICT use at this level is traditional. Third, there was the creative level which was characterized by cooperation, creativity, and the production of innovative pedagogy in the lessons delivered by the teacher educators. Teacher educators who fit this profile demonstrated openness, conceptual flexibility, and motivation to share their success stories, both in the organization and beyond (Avidov-Ungar and Iluz, 2014). This model attached emphasis on the teacher in terms of what they are able to do with ICT. The notions of pedagogical ICT skills took prominence in successful ICT integration. However, this model does not holistically capture the whole developmental process which entails acquisition of ICT infrastructure, training, lesson preparation, communication, and collaboration which the current study sought to assess.

 A study in Malaysia on teachers' Levels of ICT Integration and Its perceived impact on teaching and learning, Irfan and Amat (2015) used a Two-Dimensional Model (also known as Pedagogy Technology Model) by Lin, Wang & Lin (2010) as a guide to assess the teachers' level of ICT integration in their classrooms. This two-dimensional model was used to identify the pedagogy and their level of technology that the teachers use. The measurement of the levels of ICT integration was grouped into four levels (Level 0 - Level 3) depending on the frequency of ICT integration. The level of integration was classified into two categories, namely (a) pre-integration and (b) integration. The results from this study revealed that the

teachers' level of ICT integration was still at the low level. Similarly, within years of implementing various technology initiatives in Malaysian education systems, Ismail, Zakaria & Aziz (2007) reported that teachers' level of technology integration was still low. There are numerous studies in Malaysian context on in-service teachers' technology integration in teaching and learning (e.g.: Ismail, et al., 2007; Mahmud, et al., 2007; Mohd Salleh, et al., 2008). Such studies were considered under teachers' pedagogical ICT competencies in integration of ICT.

According to UNESCO (2010), the levels of integration include emerging stage, applying stage, infusion stage and transformation stage. In the emerging stage, the teacher development focus is on the use of ICT as an additional element on to the traditional curricula and standardized test systems. Teachers and learners are discovering ICT tools and their general functions and uses, and the emphasis is usually on basic ICT literacy and skills.

In the applying stage, the focus is on the development of digital literacy and how to use ICT for professional improvement in different disciplines. This involves the use of general as well as particular applications of ICT (UNESCO, 2010).

In the infusing stage, the teacher development focus is on the use of ICT to guide students through complex problems and manage dynamic learning environments. Teachers are developing the ability to recognize situations where ICT will be helpful, and choosing the most appropriate. The use of ICT tools for a particular task, and using these tools in combination to solve real problems (UNESCO, 2010).

In the transforming stage, the learning situation is transformed through the use of ICT. This is a new way of approaching teaching and learning situations with specialized ICT tools. Teachers are themselves master learners and knowledge producers who are constantly

engaged in educational experimentation and innovation to produce new knowledge about learning and teaching practice (UNESCO, 2010). This is captured in the Figure 2.2.

(a) Stages of ICT usages   (b) Pedagogical usages of ICT

Specializing in the use / design of ICT	Transforming	Creating & managing ubiquitous & interactive e-learning environment
Understanding how and when to use ICT	Infusing	Facilitating blended learning within and across subject areas
Learning how to use ICT in subject teaching	Applying	Enhancing traditional teaching
Becoming aware of ICT	Emerging	Applying productivity tools

Figure 2.2: Levels of Integration of ICT

Source: UNESCO 2010.

The present study adopted the UNESCO (2010) model in assessment of ICT integration in teaching of English. This model puts into cognisance acquisition of ICT infrastructure in schools, development ICT skills and awareness of ICT tools in education in the first level. In next level the teacher uses ICT to support the traditional method of teaching. The third level, the teacher acquires ICT pedagogical skills where they determine when and where to apply which ICT tool. Lastly, at the transformational stage there is seamless application of ICT in teaching on daily basis by both teachers and learners. This view is supported by Altun (2002)

who posist that teachers at the higher-level of technology integration stages are more likely to utilize the benefits of ICT in their teaching. When teachers realize the potential for improving learning through the effective use of technology, and when their competencies in ICT are improved they become competent technology users. Only then they start to change the way they teach (Altun, 2002).

To affirm the UNESCO model, Unwin (2007) observes that for the last 15 years their has-been growth in ICT in all aspects of society in the world. However, the rate of growth and utilization has not been uniform among countries, regions, institutions and even teachers. This aspect is also captured in a study by Leu and Sim on the extent of adoption of ICT in Malaysia. The study revealed that older teachers frequently use ICT in classroom than younger teachers. The reason is attributed to older teachers having rich experience in teaching, classroom management and competence in ICT so that they were able to integrate in their teaching. This view is supported by Gorder (2008), who reported that experience with ICT raises the teachers comfort level and the liberty to shape instruction.

This is also supported by a number of studies such as Sandholtz and Reilly (2004) who aver that teachers' technological skills are strong determinants of ICT integration but they are not a condition for effective use of technology in the classroom. It is a level towards effective integration of ICT. They further report that ICT pedagogical training and effective technical support are key in integration of ICT in teaching.

Similarly, Albirin (2004) investigated the science teachers' perspective about ICT integration in teaching and learning in Syrian high schools. He found out that science teachers in Syria had positive attitude towards integration of ICT in the teaching and learning process. Furthermore, a majority of teachers in high school were found to be interested in developing

their ICT skills and knowledge. However, Albrins study does not elaborate on level integration of ICT in teaching and learning process.

Furthermore, Nomsa (2013) in a study on teachers' readiness in using ICT in the classroom in Botswana found out that despite the initial training on ICT teachers did not have the knowhow on how to integrate ICT in their teaching. He further observed that this was as a result of universities not being able to prepare students on how to integrate ICT in teaching. The current study argued that the exposure to ICT by student teachers at the university is one of the levels in ICT integration.

Mua (2016) also in a study on Use of ICT in the Teaching and Learning Process in Secondary Schools in Cameroon found out that ICT was still an emerging concept in Cameroonian education. Cameroon secondary schools were in the process of acquisition of ICT infrastructure, training of teachers in ICT pedagogical skills was not up to date and as a consequence integration of ICT was at the basic level. Given that Kenya is a developing country like Cameroon this study aimed at establishing at which level of integration is Kenya in terms of teaching English.

Laaria (2013), in a study on skill challenges in adoption and use of ICT in public secondary schools in Kenya, found out that the appropriate ICT skills and competences for teachers which include word processing, data processing, presentation, spreadsheet, internet and E-mail were variedly used by teachers. However, Laaria's study did not delve into the level of integration of ICT strategies in the teaching of English.

The literature reviewed showed that research had been done on levels of integrating ICT in teaching; however there appeared to be insufficient literature on the level of integration of ICT in teaching English in secondary schools in Kisumu County in Kenya which made it important to carry out this study. Furthermore since ICT integration is an ongoing program

there exists a gap to determine the level of integration from time to time to inform policy makers, administrators and teachers in order to put in place measures that could move the program to the next level.

2.3 Strategies for ICT Integration ICT in Teaching

Strategy refers to the specific approach to teaching that includes methods, resources, techniques and teacher preparedness. In teaching, the strategy adopted contributes greatly to the outcome of learners (Farrel, 2007).This study established that in the practice of integrating ICT in teaching there is need for innovation on the part of the teacher in order to use the most appropriate strategy that would contribute positively to teaching of English.

The rapid growth in Information and Communication Technology (ICT) have brought remarkable changes in the twenty-first century, as well as affected the demands of modern societies. ICT is becoming increasingly important in teachers' daily lives and in educational systems. Therefore, there is a growing demand on educational institutions to use ICT to teach the skills and knowledge students need for the 21st century. Realizing the effect of ICT in the workplace and everyday life, today's educational institutions are in the process of restructuring their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing environment in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity (Tomei, 2005). The study sought to identify and map a restructuring process that would enhance effective ICT integration strategies in teaching in schools.

Literature reviewed showed that the Global investment in ICT took an investment approach to improve teaching and learning in schools. These have been initiated by many governments for example in United Kingdom, the government spending on educational ICT in 2008–09 in

the UK was £2.5bn (Buabeng-Andoh, 2014), in United States, the expenditure on K-12 schools and higher education institutions was $6 billion and $4.7 billion respectively in 2009 (Nut, 2010) and in New Zealand, the government spends over $ 410 million every year on schools ICT infrastructure (Johnson, Calvert & Raggert, 2009). Despite all these investments on ICT infrastructure, equipment and professional development to improve education in many countries, Buabeng-Andoh (2014) claimed that huge educational investment produced little evidence of ICT adoption and use in teaching and learning especially in Turkey. Further, evidence suggested that education sector is investing heavily on ICT but ICT adoption in education sector lagged behind the business sector (Buabeng-Andoh, 2014)

In Kenya similar efforts of investment strategy(s) have been made to equip schools with ICT infrastructure and build technical capacity. As the process is ongoing, the current study was geared towards assessing pragmatic ways of integrating ICT in pedagogy so that as schools acquire necessary equipment, they can have readily available reference point and model on how to integrate them in teaching.

Dudeney (2007) lists various ways to use the internet in language teaching, such as blogs, wikis, chats and pen-pals from other countries. There are several tips for teachers who want to interact with other language teachers who use ICT, for example to subscribe to a listserv for language teachers (Dudeney, 2007). The listserv is free for anyone to subscribe to and a way to receive many suggestions on how to work with ICT. It is also a way to take part of interesting discussions with other teachers from all over the world. There are furthermore groups and communities of various kinds that teachers can join to share experiences with one another. Another approach to use ICT is to use the Internet as a course book. The teacher then looks to find appropriate material and lesson plans on the Internet (Dudeney, 2007).

Svensson (2008) defines four different ways in which ICT can be used in language teaching: ICT as an automat, ICT as a tool, ICT as an arena and ICT as a medium.

ICT as an automat means that the teacher can use the computer to arrange situations where some parts of the pupils' behaviour will be rewarded and others not. This goes back to Skinner, who in the 1960s created teaching machines to teach pupils to answer correctly. Skinner was one of the protagonists of behaviourism, which dominated the way learning was seen during the 1960s and 1970s (Lundgren et al, 2010). Skinner also did research on how animals could be conditioned to learn certain behavior. He did this by re-enforcing certain behavior, with a reward such as food. This was believed to work also for humans, who were given encouragement when they did something correctly.

According to the behaviourists anyone could learn anything and this approach made its way into the school systems, especially evident in the teaching machines used in many schools (Syensson, 2008). These machines took the role of the teacher and gave the pupils give feedback to each pupil individually at all times. Skinner thought that when some parts of the pupils' behavior were enhanced, they would learn to produce correct answers. Skinner's machines consisted of questions that were to be answered, for instance a sentence where one word was missing. The pupils then had to fill in the missing word and would immediately understand if the answer was correct or not (Svensson, 2008). The handicap in this strategy is that even though teaching machines like this have not been used in many years, much grammar is still taught in a similar way. However, the computer can now take this role, which lets the teacher focus on other aspects of the teaching.

There are many teachers and researchers that have reacted strongly against the use of the computer as an automat, since they claim this to be an outdated way of learning a language.

However, it is observed that, pupils are not as negative towards it and seem to appreciate the fact that the computer can give immediate feedback (EstlingVannestål, 2009).

Syensson (2008) also discusses ICT as a tool. This means that ICT is used to facilitate communication with teachers, other pupils and people outside a particular school setting. The pupils can access the desired information by using the Internet. The computer can in this sense be seen as a tool without limits and something that can be developed ad infinitum, much more flexibly than older tools such as the dictionary, the library and the note pad, since the computer contains them all and much more.

ICT as an arena refers to the fact that technology now is an integral part of lives and people live parts of their lives online, through the communication and experiences held over the Internet (Syensson, 2008). Syensson continues to discuss ICT as a medium, where administrative data and information are distributed. He gives an example of teachers who publish course information online, such as schedules, tasks and results (Svensson, 2008). The current research noted that it was vital for the teachers in schools to encourage and guide the students to use ICT tools and provide them with some suggestions of websites available which are useful for enhancing students' language development.

Buabeng-Andoh (2012) linked ICT integration with the concept of wholeness, when all elements of the system are connected together to become a whole. For instance, the two important elements of teaching and learning which are content and pedagogy must be joined when technology is used in lesson. In other way, if students are offered series of websites or ICT tools (CD ROMs and multimedia) then the teacher is not integrating ICT into teaching since he/she is not tackling the pedagogical issues. Similarly, Williams (2003) described ICT integration as the means of using any ICT tool (Internet, e-learning technologies, CD ROMs,

web-pages) to assist teaching and learning. For the purpose of this study, Williams' definition of ICT integration was adopted specifically integration of web-based resources.

Joeng-Bae (2008) proposes the following strategies to using web- based resources in teaching: (1) pre-created Web-activities adopting interactive language exercises that have been already created by others and are easily accessible on the web; (2) task based web activities that includes making use of a variety of authentic Web resources for communications, information collection, and problem solving tasks; and (3) teacher made web activities employing tailor made exercises modified by classroom teachers themselves for their own students.

Through teacher made web activities like (quizzes, gap-fill, exercises, jumbled-word exercises, ordinary exercises and matching exercises), teachers can also provide students with language exercises directly related to their classroom lessons in line with the evolving syllabus of their language courses. By incorporating language games such as crosswords and quizzes, students can practice and test practical skills with fun as an extension of learning activities (Joeng-Bae, 2008; Lucia, 2008). These strategies provided reference point for the present study.

Yang (2008) stated that as students' centred ICT strategy such as online diary, blog can be used to teach writing, and a teacher could ask students who use Blog to post their composition regularly. They can choose the best compositions per term, each composition should contain all the writing process from construct to edit, this action can be done on Face book too. Yang (2008) further notes that Face book owns applications called 'Note' which functions as a simpler blog. This strategy was assessed in the present study.

Yang (2008) also commented that teachers and students can treat the Blog as a 'blackboard' and teachers can save all the students' work. Furthermore, teachers can post and introduce

new articles to students; students could chain their blogs in order to share information. Yang (2008) also applauds blog as a free publish place, teachers have the responsibility to offer students chances to publish their work and also share with others, Thus, blog offers convenience to this action, so does Face book.

Grandzol and Grandzol (2010), points out that Wikipedia can be utilized as a forum to discuss different ideas and thoughts about books the students have read independently. Since these books have been discussed exclusively on the wiki, the discussions are student-centred and student driven. Taranto, Dalbonand Gaetano (2011) also claimed that while the wiki acts as a kind of moderator, the students are actually the driving force behind each discussion. The students "question, challenge, and respond to one another in a fast-paced, equal-opportunity environment with which they are extremely familiar; these mimics many of their social interactions on the Web outside of school".

According to Rumpagaporn (2007) ICT, students can use ICT to organize, present and work out their tasks in many different ways. Learners would normally be given work to do which may call for the use of ICT facilities and gadgets like working to produce a school magazine, word processing an assignment, preparing a power-point presentation or just carrying out research. When they carry out such tasks, they also learn to correct their own grammar mistakes, mechanical errors and effective means of communication. Related to Rumpagaporn's view is Huang (2005) who further pointed out that many ICT tools have word processing software that learners can access and manipulate as a way of learning. In the process they play around with text in ways that previously were a challenge to handle. As learners access those tools, at the same time, they make use of them, reflect on what they do and ultimately correct themselves.

Masood (2013) in order to address the sorry situation of language teaching in Pakistan where English is an official language and is almost limited to written work in offices and educational institutions, proposes the use of authentic material since they contain a lot of motivating energy and arouse student` interest. It is a great source of bringing the lively outside world into the classroom. In modern pedagogy, ICT has the potential of bringing not only authentic material in the classroom but also authentic activities in the classroom.

Yusimah and Amjah (2013) carried out a study in Brunei Darussalam to investigate teachers' strategies on how to attract students' interest in learning English as a second language. Survey questionnaires were distributed to English Language teachers and year 4 students in a few primary schools. The study revealed that, teachers used quite similar strategies in teaching English to students with the use of printed materials such books, display cards and posters as well as ICT, to support their teaching. They showed videos or pictures using projector and used audio with students. The most preferred strategy by students was the use of ICT and music since it helped them to focus and understand the lesson better. This also attracted students' attention and interest in following the lesson effectively. This finding was in agreement with Dawes (2001), who posits that ICT has the potential to support education across the curriculum and provide opportunities for effective communication between teachers and students.

ICT can also be used to promote collaborative learning, including role playing, group problem-solving activities and articulated projects (Forcheri and Mol, 2000). ICT tools make it possible for students to have more opportunities for interaction with each other in English both during the lesson as well as after the lesson. This can produce more fun and interesting lessons for students to learn. Teachers also used a lot of hands-on activities in their English language lessons with students. Yusimah and Amjah (2013) study affirmed the collaboration

strategy ICT in teaching English primary school, however, students preferred the teachers to provide activities, which involved word games. This study does not establish the place of student initiated activities which makes learning student centred. The present study endeavoured to establish whether teachers of English promote student collaboration using ICT.

Pedagogical consideration is that, language is vital in the development of thought and that there is linkage between language and the sense of self. The sense of self develops when the learner gains competence in the language they are using and when they can express themselves competently. With properly developed sense of self, the learner is able to identify their achievement, goals and means of achieving these goals. Competence in language instruction therefore would enhance the achievement of the learner in areas offered in the curriculum (Byre, 1979 cited in Okwara, 2009).Students are expected to express their academic ideas effectively in order to score high marks in examinations, they are also expected to acquire communicative competence (Onchera and Manyasi, 2013). Learners should therefore be helped to acquire nearly every skill that will enable them express their ideas clearly and effectively for now and later in life. Ability to use language well is essential as it influences chances of success, personal development and relation with other people (Onchera and Manyasi, 2013). To achieve this, it is important that instructors use approaches that will yield the best results.

Considering the strategies discussed, the Kenyan context, show problems associated with strategies of teaching English and the environment in which it is taught. In a study carried out on the implication of using English as a medium of instruction Makori and Mumiukha (2008) found out that there was a clear problem for students using English to convey thoughts. They concluded that this might be one of the reasons for declining performance in national

examinations. This is worrying since examinations are done in English. As a consequence, it was imperative the present study evaluate the teaching strategies employed in teaching of English.

Ayere (2009) in a study on comparison of ICT application in NEPAD and NON-NEPAD schools in Kenya found out that the learners in NEPAD schools performed better than their counterparts in NON-NEPAD schools in KCSE examinations and that the number of ICT resources available, the number of ICT literate teachers available in the school, and the schools' rules and regulations from the ICT department influenced the students use of ICT. However, her study did not focus on the strategies employed in integrating ICT by teachers in teaching English. This was one of the major concerns of the current study.

Miima, Ondigi & Mavisi (2013) in a study on the perception of Kiswahili teachers on the integration of ICT in Kakamega County, found out that Kiswahili teachers had not embraced integration of ICT strategies in their teaching and learning activities. Furthermore, most of the teachers preferred using CDs, DVDs and to a small extend power point. None of the teachers were found to use Animation, Captions, Internet, E-mails and Blogs which are more interactive and offer more opportunities for teaching. The study recommended that there was need for teachers to integrate ICT in their teaching activities. Their study, however, did not assess the strategies used by teachers in the teaching of English in secondary schools.

Owino (2016) carried out a study to investigate the extent to which teachers were using ICT in teaching and learning of English in Nyakach Sub-county of Kisumu County. The study found out that the use of ICT was still at the formative stage. The study attempted to investigate stages of ICT integration; however, it targeted all schools in the sub-county which were not at same level in ICT infrastructure. While the present study targeted ICT model schools in Kisumu County which acquired ICT infrastructure at the same time. Owino's

study agrees with Okewa (2011) who although investigated ICT adoption in public secondary schools without being subject specific, found out that adoption of ICT was still low in Kisumu county. Okewa' study does not explicitly determine the level of integration.

Literature reviewed indicated that strategies employed play a vital role in the success of integration of ICT in teaching. Studies suggest a number of approaches that teachers can adopt in integration of ICT. They include: referring students to specific websites, creating face book pages, blogs and wikis where students can write and post composition and discuss language aspects. There is a gap in determining not only the strategies but also the most effective strategies in integrating ICT in teaching of English. Lliterature reviewed also demonstrate that there is minimal empirical data on strategies employed in integrating ICT in the teaching of English in secondary schools in Kenya, Kisumu County. This necessitated the present study to identify the strategies used by teachers of English in integrating ICT in the teaching of English in secondary schools in Kisumu County.

2.4 Challenges of ICT Integration in Teaching

Integrating ICT into teaching is currently a major trend in education, and whether or not the teacher possesses ICT teaching abilities may become a critical factor in pushing the integration of information technology into teaching activities. Thus, the teacher's knowledge and computer literacy is becoming more important. The teachers' experience of teaching students in the web-based collaborative learning contests showed that several challenges may influence the contest process (Hsi-ch, Chih-Feng & Tien-ch, 2010).

First; there is the influence of teachers' individual factors, which may be the most important factors. Hsi-ch, Chih-Feng & Tien-ch (2010) pointed out that many teachers in Taiwan have doubts about the usage of technology. Teachers are often heavily loaded with class-hours each week, and spent a lot of mental and physical effort on the job of teaching preparation.

As a result, they may not be able to spare more time to design teaching materials to integrate information technology into teaching. Participating in the ICT collaborative learning contest requires the use of extra time, for example, the lunch break. In addition, since English is the major communication tool for this contest; it is also a challenge to Taiwanese teachers. That is to say, insufficient language ability can make teachers reluctant to get involved in this type of activity.

Second, the school environment could not support teacher to conducting web-based collaborative learning. To implement web-based collaborative learning, one very important point is whether or the school has built up a suitable environment. For example, the grouping of the students, the school's information equipment, and internet connection speed all affect the teachers' willingness to integrate information technology into their teaching (Hsi-ch, Chih-Feng & Tien-ch, 2010).

Third, students' abilities in word processing and on-line discussion are another limitation. The literature showed that many students appreciate the Internet's apparent "easiness:" lots of information is only 'one mouse clicks away' (Large and Beheshti, 2000; Hsi-ch, Chih-Feng and Tien-ch, 2010). Hsi-ch, Chih-Feng & Tien-ch (2010) reported that the contest asked students to use the web differently, staying focused on the research question, searching purposefully, and learning how to express the project in an organized manner. There were some gaps between the students' expectations and their web use preferences. Hence, teachers required more structure, support and guidance to enhance students' motivation and participation.

The final factor to consider is the influence of credentialism. According to Hsi-ch, Chih-Feng & Tien-ch (2010), studies have shown that there were no significant differences in achievement between traditional and technology-based instructions. Especially in junior high

schools in Taiwan, the impact of the admission system has a major influence on teaching techniques. Most teachers implement traditional lectures as the major teaching strategy (Hsi-ch, Chih-Feng & Tien-ch 2010). Special teaching methods or innovative teaching methods are not always easily accepted by the students or their parents. Some high-achievement students may ask the teacher not to waste their class time to avoid a negative impact on their achievement. This would dampen the teachers' morale and other students' zeal.

Secondary schools in the Sub-Saharan Africa lack robust and reliable infrastructure required to support the use of ICT in education. Internet access is limited, slow, and unreliable. Technology is old and outdated for many reasons; it was donated second hand or never maintained; it suffers from the tragedy of the commons; or it is simply obsolete and there is no money to update it. A case in point is Mauritius, where after initially distributing tablets to secondary school students in grades 10 and 11, the government had to rethink its strategy due to poor device quality, poor/lacking school connectivity, a lack of digital materials and relevant learning resources, theft and hacking of the devices, and a lack of utilization strategy (Jugee and Santally, 2016).

ICT facilities such as laptops, cellular phones and television are widely available for the private use by learners. This could become a problem to the teachers of English as they could be challenged by learners where they integrate technology in their language learning skill lessons. When teachers face these challenges, successful implementation of ICT integration in instruction of English to improve is questionable and doubtful. When they face these problems, they choose to disregard integration of ICT in instruction of English and resort to traditional chalk and talk method. (Teressa, 2013).

Teacher anxiety over being replaced by technology or losing their authority in the classroom as the learning process becomes more. Teaching and learning becomes learner -centred which

becomes a barrier to ICT adoption. This can be alleviated only if teachers have a keen understanding and appreciation of their changing role. The teachers therefore need to take part in training on integration of ICT in teaching to adequately enrich problem solving ability and attitude towards ICT use in teaching. Chigona and Chigona (2010) employed qualitative approach to collect and analyse empirical data on factors preventing teachers from using ICT in teaching in Khanya schools in South Africa. Fourteen educators were sampled from four high schools and interviewed. The study revealed that inadequate training, lack of access to computer laboratories lack of technical support and inadequate technology resources were factors discouraging teachers from implementing ICT into their teaching.

Another challenge is the overwhelming volume of resources, the vast array of Web sites, the complexity of Internet searches, the questions of validity, and ease of use can make finding high-quality resources for different level of users a daunting, if not sometimes impossible, task. Digital libraries are one possible venue for the collection and organization of digital resources. However, developers do not create most digital libraries and search mechanisms for all education users, and this presents a number of challenges for educators in both formal and informal settings. These challenges include the variety and scope of the collections; the fragmentary nature of material; lack of teacher guides; search engines not designed for the average user; teachers' lack of experience in using non-text resources; as well as challenges related to alignment of standards and the struggle between in-depth inquiry and curriculum breadth.

Several factors influencing the adoption and integration of ICT into teaching have been identified by researchers. Buabeng-Andoh (2012) identified five technological characteristics or attributes that influence the decision to adopt an innovation. Buabeng-Andoh (2012) also identified user characteristics, content characteristics, technological considerations, and

organizational capacity as factors influencing ICT adoption and integration into teaching. Buabeng-Andoh (2012) identified the factors as teacher-level, school-level and system-level. Teachers' integration of ICT into teaching is also influenced by organizational factors, attitudes towards technology and other factors (Chen, 2008; Van Braak and Valcke, 2008; Lim and Chai, 2008; Clausen 2007). Buabeng-Andoh (2012) claimed that technological, individual, organizational, and institutional factors should be considered when examining ICT adoption and integration. Neyland (2011), cited factors such as institutional support as well as micro factors such as teacher capability influencing the use of online learning in high schools in Sydney.

In a study on Use of ICT in the Teaching and Learning Process in Secondary Schools in Cameroon Mua (2016) found out that students were not allowed to carry ICT devices to school because it was assumed that it was a distracting tool in their academics. Furthermore, principals were not aware of their new role they had to take as technology leaders. They were not proactive in formulation of school policies on ICT integration, provision of ICT infrastructure, training and supervision of ICT integration in teaching. As a result of their unawareness, some of the teachers could not effectively incorporate ICT in their classrooms while others did not even have knowledge of how to use the tools pedagogically (Mua, 2016).

Ochieng (2013) carried a study, to establish the determinants of ICT integration in the teaching of sciences in Public Secondary Schools in Kisumu East district, with a view to suggest strategies to be employed to enhance integration of ICT in teaching of Sciences. The study objectives were: to determine availability of ICT infrastructure in public secondary schools in the teaching of sciences, to determine ICT skill level of Science teachers, to establish the frequency of ICT use in the teaching of Science and to identify strategies used by Secondary Schools to promote ICT use in the teaching of Science in Kisumu East District.

The study established that availability of ICT infrastructure influenced ICT integration and schools that offer Computer Studies in their curriculum had well established infrastructure and the study found out that majority of their lessons were ICT integrated. The findings further established that majority of science teachers were not well equipped with ICT skills and knowledge and this limited their ability to integrated ICT in their lessons. On frequency of use to deliver lessons, it was established that Science teachers rarely use ICT to deliver their lessons. The study also found out that schools have strategies to improve on ICT integration especially by in servicing of Science teachers, building and equipping science laboratory and purchasing of more ICT equipments. Ochieng's study did not however look into the challenges faced by teachers of English in Kisumu County.

The literature reviewed identified a number of challenges of integrating technology in teaching. They include teachers' individual factors, school environment factors, student ability in using technology and a lot of resources available on offer by ICT. The is a gap in determining the most experienced challenges in teaching of English, furthermore, there is a gap in identifying challenges that are specific to the area of study that is ICT in teaching of English in Kisumu county. There appears to be no empirical study that has been carried out to assess the challenges of integrating ICT in particular in the teaching of English in secondary schools in Kenya Kisumu County. Therefore, this study sets to establish the challenges teachers of English face in integrating ICT in the teaching of English in secondary schools in Kisumu County in Kenya.

2.5 Contribution of ICT Integration to the Teaching of English

Contribution of ICT integration to the teaching of English would prompt various aspects such as whether a learning outcome (particular knowledge, skill or behaviour) is exhibited by a student after a period of study (World Bank, 2013). Student learning outcomes are defined in

terms of the knowledge, skills, and abilities that students have attained as a result of their involvement in a particular set of educational experiences (YCCD Academic Senate, 2005). According to the World Bank, (2013) measuring learning outcomes provides information on what particular knowledge (cognitive), skill or behaviour (affective) students have gained after instruction is completed.

Usually success is attributed to completion of a program, graduation of students, achieving a set target of workshops/training planned. However, according to (Bhatti, 2015) often the most fundamental questions are overlooked including but not limited to: Did we achieve Program Educational Objectives of Campaign/Institute? Did student gain all the desired skills he is expected to have acquired by the time he finished the program (whatever level)? Did the instructor design the course plan in compliance with Program Learning Outcomes? Did Instructor design class activities to achieve Course Learning outcomes? How do we compare progress of this year with results of last year or last offering of same program / course?

Globally as the use of ICT gets entrenched in teaching in the educational and training sectors, educationist have recognized the value of evaluating its effects on student outcomes such as learning, performance, and satisfaction (Olson and Wisher, 2002). Use of ICT for instruction offers learners access to instructional resources that cannot match what the traditional teaching offers. It also makes possible learning experiences that are open, flexible, and distributed, providing opportunities for engaging, interactive, and efficient instruction (Annie, (2013); Zhu and Bu, (2009))

Yaqot (2018) in a study on using ICT to enhance students' motivation in reading English literature established that the use of visual aids offered by ICT enables the students to engage closely with literary texts. The study suggested that literature taught by visual aids helps to enhance students' creative and critical thinking skills. Further, the study suggested that if

teachers changed their attitudes and the students had positive attitudes for the use of visual aids, the lecture processes would be more interesting and creative. ICT tools have a variety of visual and audio aids that can stimulate learners' interest in literature. Apart from establishing the role of visual aids offered by ICT in literature the study also was interested in the attitude of both the students' teachers.

Further, Yaqot (2018) observed that, teachers of literature in Algeria encounter a lot of difficulty, following a decrease in interest in reading books, there is a need to motivate students, which ICT resources can help accomplish. In the Algerian English context, English is officially stated and taught as a foreign language learning English, leaning literature is not easy. This difficulty arises because learning literature in English as a foreign language class always poses many language and cultural obstacles. Learners find it difficult to comprehend literary texts well. Thus, most teachers should think of the use of ICTs in teaching literature in their EFL classroom in order to better their lectures. This study established that teaching and learning of English context in Kenya tends to be similar Algeria which teaches English as a second language. The present study was interested in establishing the contribution of ICT integration in teaching of English which includes literary skills.

Voogt and McKenney (2007) also carried out a study to examine how technology could support the development of emergent reading and writing skills in four- to five-year-old children. The study set about to establish how technology-supported lesson materials for this age group could be designed and implemented. Results from the study established that regular and frequent use of technology could have a positive learning effect on literacy development of 4-5 year olds, at least in cases where adult facilitation is present. Similarly, studies have shown that technology use can positively affect both cognitive and affective

learning outcomes for reading (Lewin, 2000; Mioduser, Tur-Kaspa and Leitner, 2000) and spelling (VanDaal and Reitsma, 2000).

Segers and Verhoeven (2002) found that young children can extend their vocabulary with the help of an adaptive and interactive software program. Cordes and Miller (2000) also established that technology had a positive contribution on children's vocabulary development.

A study conducted by Hirvela and Boyle (1988) showed that the main aspects causing difficulty in literary reading include interpretation of theme, vocabulary, cultural differences, literary style and structure. Consequently, teaching and learning English literature for EFL students seems difficult since the EFL students have lack of language proficiency and inadequate supply of teaching to comprehend better and easily any literary text. Such a situation mirrors the Kenyan experience which this study sought to solve using ICT.

The Ministry of National Education in Colombia undertook several projects concerning utilization of ICT in the classroom. The projects aimed at making technology accessible, improve the educational process, reduce dropouts, and increase academic achievement in the long run have teachers and citizens trained in the use of ICT (Ministry of National Education, 2012) to provide students with opportunities to interact with technological sources. Consequently, in a study on writing using blogs in Colombia, Rojas (2011) established students improved the writing skill, because they consider it could be learned by taking advantage of technological resources such as computers, blogs and web pages. They also reported that students felt they had developed writing more than the other language skills because they had been in touch with English through readings, guides, texts, among other items.

According to a study by Sidhu (2003) most EFL students have negative attitude towards reading English literary books. Therefore, teaching and learning English literature may need the integration of a new tool that is the integration of ICT. There are numerous benefits in using ICT in teaching English literature which are of great importance to improve reading interest among students. The use of visual aids in teaching literary texts creates strong engagement between students and the texts. Blogs is one of the popular ICT tools commonly used in the teaching of writing skills. Blogging offers "a real-world digital medium for communication". It is a multi-dimensional tool that provides opportunities for writing and also has the possibility of multiple audiences and access points" (Sidhu, 2003).

In affirmation, Kelly and Safford (2009) carried out a study on the effectiveness of using the online writing approach in teaching writing. Their research project was conducted in 6 different classes during 2006 Soccer World Cup to analyse how the students employed complicated sentence structures in their writing on a soccer weblog. They explored how the effect of a short-term, popular, worldwide event and an online platform for communication provided an opportunity of writing skill improvement where students started to use complex sentence structures. The study established that the students' developed interest in presenting ideas and responding to their classmates' ideas by commenting on the blog. Online blogs allow bloggers get feedback from more than one person, and this kind of peer feedback is more effective than traditional self-correction (Holder, 2006). Furthermore, blogs are common platforms for teenagers to express their viewpoints, and there is sufficient evidence to support that students having personal blogs tend to be successful writers in the school. By using blogs in the teaching of writing, the positive interactivity for the teaching and learning of sentence grammar will be increased (Lenhart et al., 2008)

In a study related to Science, Scardamalia and Bereiter (2000) investigated how to utilize ICT as a knowledge-supporting material in science lessons. The study involved 1110 primary and secondary school students who were divided evenly into two groups according to their stages. The study was conducted in Seoul, South Korea. The effectiveness of using ICT as a knowledge-supporting material was evaluated. The experiment lasted three years, and the findings indicated that 76% of the students increased their interest in obtaining knowledge through using ICT. In addition, the primary school students showed dramatic improvements in terms of memorising, retrieving information, and using computers, greater than the impact on their peers in high school.

According to the study, teachers believed that ICT can have a positive impact on teaching and learning. However, they agree most strongly with those statements which are a reflection of the "technical" or motivational aspects as outlined in the research, over any prevailing "pedagogical" motives. This suggests that many teachers are still working on a basis that ICT impacts pupil learning through look and feel, as opposed to any deeper impact on learning. However, the interviews reveal a belief from many teachers that ICT does offer "deeper" benefits than simply making lessons more attractive to students. For instance, interviewees suggest that ICT offers increased opportunities for participation, group activities and constructive, real-life examples. This depicts a situation whereby some teachers "buy-in" to the student-centred paradigm of constructivism, and the opportunities offered by ICT to embed this (Nico, Ruttena & Wouter, 2012).

Annie (2013) in a study conducted in five schools from Pondicherry established that students exposed to ICT instruction performed better than the students exposed to traditional instruction in their post-test total mean scores. It was also noted that there was a significant difference between web-based and Traditional methods. Hence it can be inferred that the

achievement level of the students depends upon the method of teaching and learning. The achievement levels of web-based students were found to be more than that of the traditional method students in mathematics. Zhu and Bu, (2009) in a study in Chinese EFL students' experiences in College English Instruction found out that student benefited from online discussion and writing practice. The findings showed that they were contented with and motivated by the well-structured online tasks and that they expanded the use of the target language to enlarge their knowledge beyond the classroom setting. Besides, it revealed that online-based learning empowers students to be actively involved in the learning process and to be responsible for their own learning. Furthermore, the study demonstrated that ICT facilitate the interaction between the students and the teacher as the latter had systematically guided, assisted, and provided constructive feedback to the students.

Hong, Lai and Holton (2003) in a study among postgraduate students in a Malaysian university found out that majority of the students exposed to ICT embedded instruction were satisfied with their learning experience and achieved comparable learning out comes to students in the face to face version of the course. Students appreciated the flexibility of anytime, anywhere learning. The majority of the students was motivated to learn and had adequate technical support to complete the course. Improvement in computer skills was an incidental learning outcome from the course. The student - student and student/teacher communication was satisfactory but a few students felt isolated learning in the Web environment.

In a study done by Erdogan, Bayram & Deniz (2008) to investigate the factors that affect learners' academic achievement and attitudes in web-based education, they found that web based education have positive effects on the improvement of academic achievement. The effect of ICT on attitude toward learning suggested that ICT use had positive effects mainly

on motivation for learning and interested in the lessons. In a study by Annie (2013) to compare the effectiveness of online and classroom learning by attempting to go beyond grades and to include a logical assessment of interaction, effectiveness in achieving learning objectives, and student persistence, the results of this study indicated that although student performance is independent of the mode of instruction, certain courses are less challenging to students who persist in the virtual environment than in the classroom.

Ayere (2009) in a study on comparison of ICT application in NEPAD and NON-NEPAD schools in Kenya found out that the learners in NEPAD schools performed better than their counterparts in NON-NEPAD schools in KCSE examinations and that the number of ICT resources available, and the schools' rules and regulations from the ICT department influenced the students use of ICT.

Okewa (2011) sought to investigate the factors that affect ICT adoption; types of ICTs adopted and benefits of ICT adoption in public secondary schools in Kisumu County. The study found out that schools benefited from ICT in administration and management of the school. The study was not however able to determine the benefits of ICT in teaching more so specific subjects like English.

The literature reviewed indicated integration of ICT in teaching results in improved quality of teaching and learning process. Literature also showed that ICT integration in teaching of English enhanced students reading, writing, speaking, listening, study and literary skills which are crucial skills in language teaching. Further, studies suggested that use of ICT increases level of interaction, motivation and improved academic achievement. Literature, therefore, showed that ICT contributes positively to instruction of science, mathematics and English however, there seems to be minimal literature on the contribution of ICT tools in teaching of English in Kenya Kisumu County.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter of the thesis deals with the description of the methods applied in carrying out the research study. It is organized under the following sections; research design, study area, study population, study sample, research instruments procedures for data collection and data analysis presentation.

3.2 Research Design

Descriptive survey was used to gather data in this study. Kasomo (2006) defines descriptive research as a method concerned with conditions that exists. A survey is an attempt to collect data from members of a population with respect to one or more variables (Kerlinger, 1983).

Descriptive survey research design was used to gather information on the status of ICT integration in the teaching of English in secondary schools in Kisumu County. In particular, this study collected data on the teachers' competence in integrating ICT in teaching English in secondary schools, the strategies employed in integrating ICT in the teaching English, the level of integration of ICT in the teaching English and the challenges faced by teachers in secondary schools in Kisumu County.

3.3 Study Area

This study was carried out in secondary schools in Kisumu County in Kenya. Kisumu County is located in the western region of Kenya. It borders Vihiga County to the North, Kericho County North-West, Siaya County North-East and Homabay County South. The county was selected for study because the performance of English in KCSE examination has consistently remained below average for the last five years despite the efforts made by the government, parents and the private sector to provide ICT infrastructure and personnel to facilitate ICT integration. The English KCSE performance for the period (2014-2017) were 2014 (3.5),

2015 (3.3), 2016(3.8) and 2017 (3.8) (KNEC, 2017). Compared to Siaya, Homabay, Nyamira, Kisii and Migori Counties for the period (2014-2017) Kisumu County had lowest average mean of 3.6 whereas Siaya(3.9) Homabay (3.9), Nyamira(3.9), Kisii(3.8) and Migori (3.7). The county setting is both urban and rural with many public secondary schools. The county is involved in agricultural activities such as cultivation of rice, maize sorghum and beans for both subsistence and sale. Fishing is also done along the shores of Lake Victoria. There are a number of industries in Kisumu County such as in the cement, food processing and generation of electricity at Sondu-Miriu power plant. The schools in the County have varied access to ICT infrastructure. The county received funds for I2 ICT models school the government of Kenya at inception. This pioneer ICT model schools were targeted by the present study. Other schools have established ICT infrastructure through PTA projects. The map of Kisumu County is attached as Appendix V.

3.4 Population Size

Study population is the total number of items about which information is sort (Kothari, 2003). Population is also described as any group of institutions, people or objects that have at least one characteristic in common (Kasomo, 2006). The study population included 48 teachers of English, 12 Principals in 12 ICT model secondary schools in Kisumu County and 1 County Quality Assurance and Standards Officer. The 12 schools were targeted as they were pioneer schools under the Economic Stimulus Program by the Kenyan government. Teachers who form part of the population were well versed with the expectations of the syllabus and were better placed to comment on their schools' ICT integration to teaching English. The study also targeted 12 Principals of the 12 ICT model schools who are TSC agents on the ground tasked with supervision of implementation of ICT integration in schools. The County Quality Assurance Officer was also included as they are in charge of quality and standards in the

County. They have an overview of ICT integration in teaching of in secondary schools in Kisumu County.

3.5 Sample Size and Sampling Techniques

Sampling is a research procedure that is used for selecting a given number of subjects from a target population as a representative of that population, (Mugenda & Mugenda, 2003). They further suggest that for descriptive studies, fifty percent or above of the accessible population is enough for the study. This study therefore used a sample size of 43 teachers of English (90%), 10 Principals (83.3%) and 1County Quality Assurance officer (100%) from Kisumu County. The study sample is presented in the Table 3. Purposive sampling technique was also used to select teachers of English who participated in the study. The County Quality Assurance and Standards officer (CQA&SO) and (10) principals of participating schools were selected using saturated sampling technique to participate in the study. The sample size is captured in Table 3.1.

Table 3.1: Study Sample Frame

Category of respondents	Population size	Sample size	%
Teachers	48	43	90
CQASO	1	1	100.0
Principals	12	10	83.3

3.6 Research Instruments

The study used the following research instruments, questionnaire; interview schedules and document analysis guide to collect data.

3.6.1 Questionnaire for Teachers

The study used the questionnaire for teachers of English to collect data on what actually takes place in and out of the classroom on integration of ICT in the teaching of English. The questionnaires captured teacher competencies, level of integration of ICT, strategies employed by teachers in the integration of ICT, challenges encountered in integrating ICT

and their opinions on contribution of ICT in the teaching of English. The teacher's questionnaire is attached as Appendix I.

3.6.2 Interview Schedules for Principals

The interview schedule for the principals' captured data on teachers' level of competence in ICT integration, level of integration of the individual schools, Strategies teachers use in ICT integration the challenges schools experience in ICT integration in teaching and the impact of ICT integration to the teaching of English in their respective schools. The principal interview schedule is attached as Appendix II.

3.6.3 Interview Schedules for CQA&SO

The CQA&SO interview schedule captured data on the plans and strategies the Ministry of Education had put in place to ensure that teachers had the necessary competencies to enable them integrate ICT in their teaching. The level of integration and strategies for integration as well as challenges encountered were addressed at the county level. The CQA&SO interview schedule is attached as Appendix III.

3.6.4 Documentary Analysis Guide

Documentary analysis guide was used to determine the extent to which achievement in English in KCSE examination had improved for the period (2004-2008) that is five years before inception of ICT integration programme and the period (2013-2017) that is five years during the process of implementation of ICT integration in ICT Model schools. This was done by comparing the mean aggregate of KCSE English results in the schools under study prior to introduction of integration ICT and after integration of ICT. Analysis of the results was made 5 years (2003-2007) before and 5 years (2013-2017) after ICT integration. The gap between the two periods (2008-2012) was allowed to take into account the teething problems in the implementation of ICT integration such as acquisition of infrastructure, training teachers and construction of computer lab. Documentary Analysis Guide was also used to

analyse schemes of work to determine whether teachers of English use of ICT in teaching which therefore confirmed whether they integrate ICT in teaching or not. The Document analysis was also used to find out whether schools in the study had Policy document, Guide to ICT integration and any other document useful to the teachers in ICT integration. Such documents the study deemed were important in guiding and giving a reference framework for integration of ICT. Documentary analysis guide is attached as Appendix IV.

3.7 Validity and Reliability of Research Instruments

Reliability refers to the degree to which a particular procedure gives similar results over a number of repeated trials (Orodho, 2004). Validity is the degree to which empirical measure of several measures of the concept, accurately measures the concept (Mugenda & Mugenda, 2003). Further, Orodho (2004) argues that content validity is a non-statistical method relying on a panel of specialists to access the relevance of the content in the instrument.

3.7.1 Validity of the Research Instruments

Validity of the instruments was ascertained using content validity that was ensured through consultation with various experts in the Department of Educational Communication, Technology and Curriculum Studies of Maseno University. The experts analysed the content of the questionnaire, interview schedules and documentary analysis guide. The experts' suggestions were considered in reviewing all instruments. An instrument is said to be valid if it measures what it claims to measure (Koul, 1986). Pilot study was also used to ensure the instruments were valid.

3.7.2 Reliability of Research Instruments

A pilot study was conducted in two secondary school where five teachers filled the questionnaires and two principals were interviewed. The schools in the pilot study were not included in actual study. The pilot sample was guided by Mugenda and Mugenda (2003) who

suggested that a pilot sample of above 10% was sufficient for a small sample size. The researcher also analysed documents in the schools.

The study used the test re-test (coefficient of stability) method to estimate the degree of reliability of the instruments. The following test, re-test techniques were undertaken:

(i) The developed questionnaire was given to a sample of five teachers of English

(ii) The answered questionnaire was scored manually

(iii) The same questionnaire was administered to the same group of respondents after a period of two weeks.

(iv) The questionnaire responses were scored manually again.

(v) A comparison of both results was made.

Adjustments were made on the instruments to ensure that the instruments were reliable at Pearson's coefficient 'r' of 0.781 for the teacher of English questionnaire. This authenticated the reliability of the instruments.

3.8 Data Collection Procedure

The researcher obtained a permit from authorities of Maseno University Ethics Review Committee. The researcher then sought permission from NACOSTI and Kisumu County Director of Education to allow the researcher carry out the research in the county. The researcher requested and booked an appointment with the County Quality Assurance Officer (CQA&SO) for an interview. On the appointed date the researcher visited the Kisumu County Education Offices to interview the CQA&SO. The researcher visited each participating school a week before the actual data collection to request for permission from the head of institutions and booked appropriate appointment with teachers who participated in the study. The researcher then agreed with the school administration on the date and time of the main visit. On the material day, the researcher met the respondents and assured them that their

information was to be treated confidentially. The researcher administered the teacher's questionnaire to teachers of English. He requested to visit the examination office to analyse documents on KCSE English results, scheme of work and Guide to ICT integration. The researcher then interviewed the Principal after which he thanked them for participating in the study.

3.9 Ethical Considerations

Ethical consideration refers to a set of norms and guidelines that a researcher is obligated to follow. Mugenda and Mugenda (2003) explain that researchers are genuinely concerned about people's quality of life. They should not undertake research for personal gain or research that can affect others negatively. There are also laws that prohibit unethical behavior.

The researcher sought approval from Maseno University Ethics Review Committee (MUERC) and NACOSTI to collect data for this study. The researcher also sought permission from Kisumu County Education office to carry out research in the county after which the researcher sought permission from Principals of participating schools. The permit and approval from NACOSTI are attached as Appendix VI and VII while approval by MUERC is Appendix VIII.

The researcher sought voluntary participation of the respondents. The permission for participation was done through school Principal. Furthermore, the respondents were assured of the confidentiality of their responses in that the findings would only be used for the research purpose only. The researcher ensured the respondents of their anonymity by protecting their identity, ensuring that participants did not write their name and school on the research tools. The researcher ensured that data collected was not accessible to any other person by storing it in a lap top with a password only known by the researcher.

3.10 Data Analysis and Presentation

Data analysis refers to examination of what has been collected in a survey or experiment and making deductions and inferences. It involves uncovering underlying structures, extracting important variables, detecting anomalies and testing the underlying assumptions (Tromp & Kombo, 2006). Survey responses were rated on a four point Likert type scale ranging from "Very Low (1)" to "Very High (4)". The raw data collected through questionnaires was classified and analysed through descriptive statistics that include: frequencies, percentages, means and standard deviations based on the objectives of the study.

The Statistical Package for Social Sciences (SPSS) was used as a tool for data analysis. Quantitative data collected from the questionnaires was analysed first by coding and inputting coded responses into the computer for analysis.

The open-ended questions and data collected from the interview schedules were transcribed and categorized thematically according to the study objectives. Interview responses and data from document analysis were triangulated for discussion while narratives were used for qualitative data. The data was presented in percentages, frequencies, bar graphs and tables in relation to research objectives. Conclusions and recommendations were made from the findings.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents results as collected and guided by the key thematic areas which include: level of competence of teachers in integration of ICT, level of integrating ICT in teaching of English, strategies for integration of ICT in teaching of English , challenges of integrating ICT in teaching of English and contribution of integrating ICT in the teaching of English. The results from questionnaire, from teachers, interview schedule and documentary checklist guide were integrated.

4.2 Response Rate

According to Mugenda and Mugenda (1999) a threshold of 80% and above is sufficient enough to continue with the research. The response rate in this study was 100% as all the English teachers selected for the study responded to the teacher questionnaires. Ten principals in the selected schools were interviewed. While ten documentary analysis guides were used to collect documentary data.

4.3 Level of Competence of Teachers in Integrating ICT in Teaching English

The first objective for this study sought to assess the level of competence of teachers of English in integration of ICT in teaching. Descriptive statistics was sought to establish five parameters: Initial teacher training (educational and academic background), training in basic ICT skills and training in pedagogical ICT integration skills which included competence in use of ICT tools and competence in use of ICT tools in aspects of teaching. The descriptive statistics from competence in use of ICT tools in teaching of English Table 4.5 were used for purpose of correlation.

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The teachers' level of education was sought to determine whether teachers in the study met the basic requirement to teach in Kenyan schools. The study findings on teachers' level of education are presented in Table 4.1.

Table 4.1: Education Profile of Teachers'

Education Program		Frequency	Percent
	Postgraduate	4	9.30
Valid	Bachelors	37	86.0
	Diploma	2	4.70
	Total	**43**	**100.0**

The study revealed that 37 representing 86.0% of teachers of English had bachelor of Education degree. Four teachers of English representing 9.3% had postgraduate qualification. Only 2 teachers of English representing 4.70% had a diploma in education. The findings revealed that teachers of English in this study have the basic education and professional requirements to teach English in secondary school. The teachers in Kisumu County, therefore, were found to be competent in teaching English using conventional traditional book, chalk and chalkboard teaching methods which might be insufficient in technologically rich environment.

The study also sought to establish whether the teachers of English have training in basic ICT skills. Basic ICT skills are vital since a teacher can only be able to integrate ICT in teaching when they have skills in general use of ICT tools. The levels included postgraduate, bachelors, diploma, certificate, in-service and others. Training in basic ICT skills is necessary pre-requisite for successful application of any ICT tool in any field including teaching of English. The findings are presented in Table 4.2.

Table 4.2: Descriptive Statistics on Basic ICT Competence

Training in Basic ICT Skills	Frequency	Percent
Postgraduate	2	4.70
Bachelors	3	6.98
Certificate	26	60.47
In-service	3	6.98
Any other	9	20.93
Total	**48**	**100.0**

The study revealed that 26 representing 60.47% of teachers of English had a certificate in ICT from various colleges. This implies that teachers of English have taken short courses in basic ICT skills. Nine (9) representing 20.93% had obtained their ICT skills through in-self initiatives. Three (3) representing 6.98% of the respondents had basic ICT skills through In-service training. Likewise, 3 representing 6.98% of the respondents had a degree in ICT, while only 2 representing 4.70% had post graduate qualification in ICT. The findings therefore established that efforts have been made by teachers to acquire skills in ICT affirming that the teachers of English recognize the importance of ICT to teaching. The findings also reveal that Universities training teachers might not have sufficient ICT training component in their teacher training programs.

On the question "*to what extent are English teachers trained in basic ICT skills in your school?*" Typical responses of the principals were:

I have been conducting and sending teachers to workshops on basic ICT skills. I give priority to science, mathematics and geography teachers because they are subjects that are in line with ICT. The lesson delivery in has greatly improved.

Principal School A: *The teachers have training in teaching and basic skills in ICT. Teachers are able to use ICT but not in a manner to support teaching in actual sense. They use ICT tools for general communication and leisure.*

Principal School C: *Though the ICT resources are not adequate the teachers especially of English tend not to understand how they may apply ICT in there day to day teaching.*

Principal School E: *Teachers are able to manipulate smart phones which are mini computers, they have and use laptops and are able to use a variety of*

> *ICT tools available in school.   However, they have maintained the traditional chalk and board approach as there is no clear link between ICT and pedagogy.*

Principal School G and **Principal School H** cited issues of inadequate ICT infrastructure and lack of enough training on ICT, based on lack of funds from the government. **Principal School I** argued that despite lack of sufficient ICT resource the teachers are trained to equip them with ICT skills through workshops.

The study therefore established that most of the teachers of English 72.15% have competence in basic ICT skills. However, most of the teachers have certificate qualification in basic ICT skills. Certificate qualification is low and might not equip the teacher with essential skills that might make them effective users of ICT tools.   Nevertheless, basic ICT skills mark the first step towards application of ICT in teaching. The teachers of English are aware of the value of ICT as a majority have made effort to acquire ICT basic skills.

The findings showed an improvement in the acquisition of ICT skills as revealed by Ayere, Odera and Agak (2010) who found that 51% of the teachers in Kenya have taken self-initiative ICT training. The findings also concur with the Ministry of Higher Education, Science and Technology report that 57% have trained in certificate level on basic computer skills (GOK, 2010). The study affirmed the findings of Rodyer *et al* (2004) who proposed that all teachers should undertake some ICT skill at any of the level to assist in increasing efficiency and effectiveness in lesson delivery. Basic ICT skills are therefore an important stage in integration of ICT in teaching however they do not automatically lead to successful integration of ICT in teaching (Sandholtz and Reilly, 2004).

Further investigations were done to establish whether further training had been undertaken on pedagogical ICT integration skills. The findings are captured in Table 4.3.

Table 4.3: Descriptive statistics on Training in ICT Integration

SN	Training Program	Yes	No
1	Workshop	31(72.09%)	12(27.91%)
2	Seminars	10(23.26%)	33(76.44%)
3	Conferences	5(11.63%)	38(88.37%)
4	Independent studies	35(76.74%)	8(23.26%)
5	Others (Online and peer tutoring)	43(100.0%)	0(0.0%)

The study revealed that 31 which represents 72.09% of the teachers had attended a workshop on pedagogical ICT integration skills, 9 representing 27.91% had attended seminars. Five (5) representing 11.63% had attended a conference while 35 representing 76.74% and 43 representing 100% had acquired pedagogical ICT integration skills through independent studies and others respectively.

Typical responses from principals interview schedule on the question "Have the teachers in your school undergone any of the following workshop, conference, seminars, and induction courses in pedagogical ICT integration skills?" were:

A few of the teachers in my school have attended a three day workshop on pedagogical ICT integration organised by CEMASETEA. It has not been possible to train all the teachers because financial constraints.

I only send the teachers who seem to be very good at computers. Those who do not have any skills in computers are not considered for training in pedagogical ICT integration in teaching.

From the data the study it is evident that teachers of English need specialized training in ICT integration which is in consonance with Roblyer *et al,* (2004) who reported that teachers need new pedagogical skills to take full advantage of ICT to enhance learners learning. Teachers require some training that could equip them with the required knowledge on how to develop an appropriate and effective lesson that requires use of ICT to bring meaningful teaching and learning.

Teachers' competence in the use of specific ICT tools such as word processing, data processing, presentation, spreadsheet, internet, e-mail, blogs, wiki and Face book were

investigated. The results were summarized in the Table 4.4. The responses were rated on a four scale likert scale where VC, C, LC and I represented very competent, competent, less competent and incompetent respectively.

Table 4.4: Descriptive statistics on Level of Competence in use of ICT Tools

SN	COMPETENCE IN ICT TOOLS	VC =4	C=3	LC=2	I=1	Mean
1.	Word processing (e.g. Microsoft word	18(41.86%)	25(58.14%)	0(0.0%)	0(0.0%)	3.279
2.	Data processing (e.g. Microsoft Access)	12(27.90%)	23(53.49%)	7(16.28%)	1(2.33%)	3.070
3.	Presentation (PowerPoint)	12(27.90%)	20(46.51%)	7(16.28%)	4(9.31%)	2.930
4.	Spreadsheet (e.g. Microsoft Excel)	11(25.58%)	21(48.83%)	10(23.26%)	1(2.33%)	2.977
5.	Internet (WWW)	25(58.14%)	15(34.88%)	3(6.98%)	0(0.0%)	3.512
6.	e-mail	26(60.47%)	14(32.56%)	2(4.65%)	1(2.33%)	3.512
7.	Blog	0(0.0%)	9(20.93%)	24(55.81%)	10(23.26%)	1.977
8.	Wiki	2(4.65%)	8(18.60%)	24(55.81%)	9(20.93%)	2.070
9.	Face book	10(23.26%)	27(62.79%)	5(11.63%)	1(2.33%)	3.069
	Average sum of means					2.933

The study established that 25 representing 58.14% teachers of English were competent in Word processing while 18 representing 41.86% of the respondents were very competent. This implies that teachers were competent in using word processors like Microsoft Word at mean of 3.279. The competence level was lower in data processing than word processor where 23 teachers representing 53.49% were competent, 12 (27.9%) claimed to be very competent, 7(16.28%) less competent and 1(2.33%) incompetent. The findings revealed that teachers are less competent in Microsoft Access which is not commonly used with a mean of 3.070.

The study also assessed competence level in the use of ICT tools in teaching. The findings are represented in Table 4.5. The responses were rated on a four point likert scale where VERY MUCH ABLE (4), ABLE (3) LESS ABLE (2), NOT ABLE (1).

Table 4.5: Level of Competence in use of ICT Tools in Teaching English

S/N	STATEMENTS	VERY MUCH ABLE (4)	ABLE (3)	LESS ABLE (2)	NOT ABLE (1)	Mean
1	I am able to send and receive e-mails	30(69.770%)	13(30.23%)	0(0.0%)	0(0.0%)	3.698
2	I am able to chat online	29(67.44%)	14(32.56%)	0(0.0%)	0(0.0%)	3.674
3	I use social networking website (yahoo, Face book, etc)	12(27.91%)	18(41.86%)	13(30.23%)	0(0.0%)	2.977
4	I use presentation software for instruction (power point)	5(11.63%)	23(53.49%)	9(20.93%)	6(13.95%)	2.628
5	I use online resources to prepare lessons	13(30.23%)	25(58.14%)	5(11.63%)	0(0.0%)	3.186
6	I am able to use e-mail to communicate with teachers	10(23.26%)	26(60.47%)	5(11.63%)	2(4.65%)	3.023
7	I am able to create and edit documents using word processing	6(13.95%)	25(58.14%)	10(23.26%)	2(4.65%)	2.535
	Average sum of means					3.103

The study established that teachers of English competence in sending and receiving of e-mails, chatting and using social media was high with a mean of 3.698, 3.674 and 2.977 respectively. It was also established that teachers have competence in online research and email communication with other teachers during preparation of lessons with a mean of 3.186 and 3.023 respectively. The study also found out teachers of English are less competent in the

use of ICT presentation tools for instruction and word processing for creation and editing of document with a mean of 2.628 and 2.535 respectively.

The study also sought to find out from Principals and the CQA&S Officer if the schools had materials to guide the teachers on integration of ICT in teaching of English. Typical responses from Principals were:

In my schools we have language revised syllabus for languages, scheme of works and lesson plans. We don't have guidebooks on ICT integration and policy documents on ICT integration. We got some manuals from CEMASETEA which teachers consult on ICT integration. I must admit that I have made my observation that teachers who had taken courses in ICT integration were more competent in integrating ICT in teaching than those who have not taken any training.

The principals' responses therefore suggest that schools have inadequate teaching and learning resources to guide ICT integration. This revelation is a pointer to the fact that both the teachers and school administration are not aware that some of the materials that may be used to guide ICT integration can be downloaded from the internet.

The CQA&SO response was:

The Ministry of Education through CEMASETEA organises a three-day workshop on integration of ICT every year in each of the sub-counties. The Principals nominate a teacher from each selected school to attend the workshop after which they are expected to disseminate the same to the rest of the teachers. A majority of the teachers who attend such workshops are science and mathematics teachers. Only few teachers of English attend such workshops.

On whether the CQA&SO made follow up on dissemination of skills to the rest of the teachers. The CQA&SO response was:

My office has not been able to determine whether the skills the teachers get in the workshop are passed to those who do not attend. Again not all schools have been included in the program. The teachers have competence to teach from their teacher training and ICT basic skills but need to be trained in ICT integration in teaching.

The CQA&SO also noted that most schools lack supporting material to consult and for their guidance in integration of ICT. As a consequence, the training of teachers on ICT integration is inadequate and not uniform.

The data from documentary analysis guide revealed that all the schools in the study had current scheme of works properly prepared. However, in four of the schools the schemes of work did not have any indication of plan to use ICT in teaching. This was interpreted to mean the teachers did not intend to use ICT in teaching and if they eventually use it might incidental and therefore not effective. Furthermore, the schemes of work in the section of teaching and learning activities did not indicate how the ICT tools would be used for those that had shown that they would use.

The study revealed that most of the teachers' competence level is high in electronic communications which include use of internet and e-mail. Both are essential tools for research and communication. The teachers were also competent in word processing, data processing, spreadsheet and presentation which are essential for lesson delivering. These findings concur with Prestride (2012) who argued that ICT packages that were essential for secondary level were internet, data processing, word processing, use of spreadsheet, presentation and e-mail. On the other hand, the teachers were less competent in blogs and wiki but competent in Face book these are chatting social media platform. The results indicate that the level of competence is low in integration ICT communication, interaction and collaboration tools in the teaching of English. Therefore, the ICT integration programme may not produce desired results in teaching of English that requires students to communicate, collaborate and interact in English. Teachers are able to send e-mails, chat online, social networking, use online resources for lessons, e-mail communication with other teachers, use word processing in creating documents and use presentation software for class presentation. The above data therefore disadvantages the students. This is in contrast to Greenhow, Robelia and Hughes (2009) who reported that teachers should use ICT tools to engage students in communication, collaboration and interaction. There is then a need to enrich the English

curriculum with pedagogical ICT integration skills among the teachers of English a view that is supported by Melhuish (2008). The principals' interview reveals similar results as the teachers' questionnaires on the level of competence. Most of the principals reported that teachers are occasionally sent to ICT training. They however reported that there were inadequate finances which had minimized the schools' ability to send teachers to attend training in pedagogical ICT integration skills offered yearly by CEMASETEA. They reported that some teachers of English had at least undergone training in ICT workshops, however, the skills acquired had not been adequately been passed on to the rest of the teachers because the skills are subject specific. This leads to unequal application of ICT integration not only among the teachers of English in particular schools but also across schools. For effective integration of ICT in teaching there is need for the unique instructional capabilities, support for the instructional approaches and collaborative learning and problem-based learning that (Havriluk *et al*, 2004).

This study therefore showed that pedagogical ICT integration skills are insufficient and non-uniform in ICT model schools in Kisumu County. The study findings agree with Chao (2015) whose study established that teachers in Mombasa County lacked the necessary training to enable them to use the ICT to enhance learning. Chao's study further indicated that teacher ICT training was haphazardly done due to lack of policy and standards. Similarly, inadequate ICT integration skills in English corresponds to Ochieng (2013) who found out that majority of science teachers were not well equipped with ICT skills and knowledge which limited their ability to integrated ICT in their lessons. Lack of competence in pedagogical ICT integration skills in teaching of English undermines the improvement that technology offers in second language teaching. Emhamed & Krishnan (2011) in discussing the role of technology in second or foreign language learning posit that technology is useful as it gives both teacher

and student more accessibility to the target language in various aspects. Technology in language education increase the variety or diversity of learning opportunities and the quality of the learning experience in making input of varied kinds learnable and accessible to individual learner.

The study therefore raises fundamental case for development of pedagogical ICT integration skills for effective adoption of ICT in teaching of English. This is in agreement with Sandholtz & Reilly (2004) who reported that ICT pedagogical training and effective technical support are key to successful integration of ICT in teaching.

4.4 Level of integrating ICT in Teaching English

The study in the second sought to assess the level of integration of ICT in the teaching of English in Kisumu county secondary schools. This was important because the output of ICT integration in teaching program is influenced by the level at which the program is. The study adopted the (UNESCO, 2010) model for evaluating level of integration of ICT. According to the model ICT integration undergoes four stages: emerging level, applying level, infusing level and transformation level. The indicators for emerging stage was: (i) acquisition of ICT infrastructure and (ii) training in ICT skills; applying stage: (i) use of ICT for professional development (ii) use of ICT to enhance traditional teaching methods and (iii) use of ICT to guide students on problem solving; Infusing stage: (i) ICT for managing learning environment (ii) ICT for particular tasks and (iii) us of ICT tools in combination; Transforming stage: (i) transformed teaching approach(ii) use of ICT tools in all teaching and learning activities (iii) creating and managing learning environment. The level of integration of ICT was measured on a likert scale of (4) where respondents were to indicate whether the aspects were VERY MUCH APPLIED, APPLIED, LITTLE APPLIED AND NOT APPLIED. The results on level of integration are captured in Table 4.6.

Table 4.6: Descriptive statistics on Level of ICT Integration

SN	LEVEL OF ICT INTEGRATION	VERY MUCH APPLIED(4)	APPLIED (3)	LITTLE APPLIED (2)	NOT APPLIED (1)	MEAN
1	EMERGING LEVEL (a) My schools has just acquired ICT infrastructure (computers, electricity. Projectors, internet	36(83.72%)	5(11.63%)	0(0.0%)	2(4.65%)	3.744
	(b) Am in the process of training in ICT skills	34(79.06%)	7(16.28%)	0(0.0%)	2(4.65%)	3.698
2	APPLYING LEVEL (a) I use ICT for professional development	8(18.6%)	32(74.41%)	2(4.65%)	1(2.33%)	3.093
	(b) I use ICT generally to enhance traditional methods	6(13.95%)	31(72.09%)	5(11.63%)	1(2.33%)	2.977
	(c) I use ICT to guide students on complex problems	6(13.95%)	23(53.49%)	13(30.23%)	1(2.33%)	2.791
3	INFUSING LEVEL (a) I use ICT to manage learning environment	0(0.0%)	19(44.17%)	21(48.84)	3(6.98%)	2.372
	(b) I use ICT for particular tasks	2(4.65%)	15(34.88%)	24(55.81%)	2(4.65%)	2.395
	(c) I use ICT for in combination to solve problems	2(4.65%)	17(39.53%)	20(46.51%)	4(9.03%)	2.395
4	TRANSFORMING LEVEL (a) I have transformed teaching approach	0(0.0%)	8(18.6%)	23(53.49%)	12(27.91%)	1.906
	(b) I use ICT tools in all teaching and learning activities	0(0.0%)	7(16.28%)	20(46.51%)	16(37.21%)	1.791
	(c) I create and manage interactive learning environment (blogs, wikis, Face book)	0(0.0%)	7(16.28%)	24(48.84%)	12(27.91%)	1.884

The data from Table 10 revealed that 36 teachers who represent 83.72 % have adequate ICT infrastructure in their school, 5 teachers who represent 11.63% said that they have satisfactory ICT infrastructure while 2 teachers representing 4.65 % said the ICT infrastructure is not adequate. Thus, most schools among the ICT model schools are passed emerging level where the schools a mean of 3.744.

The findings also revealed that 34 teachers representing 79.06% of the teachers have undergone very satisfactory training in ICT, 7 teachers representing 16.28% have undergone satisfactory training in ICT while 2 representing 2.33% have minimal training in ICT. The ICT model schools have a mean of 3.698 on training in ICT skills confirming that they are passed emerging level.

To complement the results from the teachers' questionnaire the results from interview schedules from Principals indicated that all the 10 ICT schools in Kisumu County have a computer laboratory equipped with computers, electricity and connection to the internet. Typical responses from principals were:

My school received 40 computers from the government of Kenya to support the ICT integration program in teaching. The school also is connected to the internet that enables the teachers to access on line material. However the ICT facilities are sufficient to cater for the large population of students.

Teachers in my school have made personal initiatives to purchase laptops, iPad and smart phones which they use to support teaching and learning. Further, my school has purchased projectors which the teachers are expected to use.

Teachers have taken self initiatives to attend short courses on ICT basic literacy which are self sponsored. They however advance as they continue using the ICT tools. The school has only facilitated the training of a few teachers on ICT pedagogical integration. The trained teachers are encouraged to induct the rest of the teachers.

The responses from the Principals reveal that teachers are aware of the importance of ICT in teaching. However they lack support to build their capacity as they have to pay for their training. All the principals in the 10 schools confirmed that 90% of the teaching staff

including teachers of English had basic ICT literacy skills. However, only 6 principals indicated that they had facilitated at least one teacher of English to attend training on pedagogical ICT integration skills. Thus, all the 10 ICT schools have passed the emerging stage of ICT integration.

The findings from teachers' questionnaires, principals and CQA&SO interview schedule show that all the 10 ICT schools have ICT infrastructure, the teachers have basic ICT skills and are aware of ICT. Therefore, all the 10 ICT secondary schools in Kisumu County have passed the Emerging stage of ICT integration.

The teachers' questionnaire on applying level sought to find out (a) whether the teachers use ICT for professional development. The findings revealed that 8 representing 18.6% of the teachers use ICT for professional development very satisfactorily, 32 representing 74.41% of the teachers use ICT for professional development satisfactorily, while a small group of 2 representing 4.65% of the teachers use ICT for professional development unsatisfactorily and 1 representing 2.33% does not use ICT for professional development at all. These data translated to a mean of 3.093.

The data on applying level also revealed that 6 representing 13.95% of the teachers very satisfactorily use ICT to enhance the traditional methods of teaching, 31 representing 72.09 % of teachers use ICT satisfactorily to enhance traditional methods of teaching, 5 representing11.63% of the teachers less satisfactorily use ICT to enhance the traditional method of teaching while1 representing 2.33% does not use ICT to enhance traditional method of teaching adding up to a mean of 2.977.

The findings on applying level also revealed that 6 representing 13.95 of the teachers use ICT to guide students in complex problem solving very satisfactorily, 23 representing 53.49% use ICT to guide students on problem solving satisfactorily, 13 representing 30.23% of the

teachers less satisfactorily use ICT to guide students on problem solving while 1 representing 2.33% of the teachers does not use ICT to guide students on problem solving. The data gave a mean of 2.791.

On whether the schools have reached the applying level, typical responses from the principals were:

Teachers in my school use ICT resources available to prepare scheme of work, lesson plans and lesson notes. The processing, analysis of exams and preparation of report forms are done on the computer. Some prepare slides and video clips that enrich their lesson delivery.

The Applying stage according to UNESCO 2010 involves use of ICT for professional development, use of ICT to enhance traditional methods and guide students in solving complex problems. The findings from the questionnaires' revealed that the 9 ICT secondary schools are at applying stage. The results from principals' interview schedule agree with the findings with the teachers' questionnaire where all the teachers of English use ICT to enhance traditional methods and for professional development.

The findings from the interview schedule revealed that teachers of English from 7 schools of the 10 ICT schools use ICT tools for professional development through self-tutorials to improve their competence in teaching of English. All the principals also indicated that teachers of English use ICT for general use such as surfing the internet for general information, typing exams on the computer and computing marks using Excel. The results thus established that the 10 ICT model schools in Kisumu County have also undergone the applying stage of ICT integration.

The study under infusing level sought to find out in part (a) whether the teachers of English used ICT to manage learning environment. The findings revealed that 19 representing 44.19% of the teachers' satisfactorily use ICT to manage learning environment, 21 representing 48.84 less satisfactorily use ICT to manage learning environment while 3

representing 6.98% do not use ICT to manage the learning environment. These data yielded a mean of 2.372.

The data also revealed that 2 representing 4.65% of the teachers use ICT for particular tasks very satisfactorily, 15 representing 34.88% of the teachers use ICT for particular tasks satisfactorily, 24 representing 55.81% use ICT for particular tasks less satisfactorily while 2 representing 4.65% did not use ICT for particular tasks yielding a mean of 2.395.

The findings also indicated that 2 representing 2.33% of the teachers very satisfactorily use ICT in combination to solve problems, 17 representing 39.49 % satisfactorily use ICT in combination to solve problems, 20 representing 46.51% less satisfactorily use ICT in combination to solve problems while 4 representing 9.03% of teachers do not use ICT to in combination to solve problems.

Similarly, 5 principals from the interview revealed that teachers use ICT tools for specific tasks such as processing and analysing English exams. They also noted that the teachers of English allow students to use word processing application to write composition, save and edit them from time to time. Two of the principals also revealed that the teachers of English are identifying specific areas where ICT is applicable in the teaching of English. Few teachers were reported to use ICT tools in combination when teaching English. Thus only a few schools have reached the infusing stage of ICT integration. The infusing stage is a critical level as it enables teachers to manage learning environment, allow teachers to use specific tools for teaching specific language skill and use a combination of ICT tools for problem solving (UNESCO, 2010). The findings therefore established that only a small number of schools have reached the infusing stage.

The study under transforming level sought to assess (a) whether teachers have transformed their teaching environment. The findings reveal that 8 representing 18.60% have

satisfactorily transformed their teaching approaches, 23 representing 53.49% of the teachers have less satisfactorily transformed their teaching approaches while 12 representing 27.91% have not transformed their teaching approaches. The data yielded a mean of 1.906.

The findings in (b) on use of ICT in all teaching and learning activities revealed that 7 representing 16.28% satisfactorily use ICT in all teaching and learning activities, 20 representing 46.51% less satisfactorily use ICT in all teaching activities while 16 representing 37.21 do not use ICT in teaching and learning activities. This data yielded a mean of 1.791.

The findings in (c) on use of ICT to create and manage interactive learning environment revealed that 7 representing 16.28 satisfactorily use ICT to create and manage interactive learning environment, 24 representing 48.84% less satisfactorily use ICT to create and manage interactive language learning environment while 12 representing 27.91% do not use ICT to create and manage interactive learning environment. This data yielded a mean of 1.884. This implies that most of the ICT model schools have not reached the transforming level of ICT integration.

The results from interview schedule revealed that teachers of English in only 2 schools had transformed the traditional English learning environment. The teachers in the two schools make use of ICT tools such as word processing every day in lesson plan, updating lesson notes, keeping records. They also use internet for research, Email and Whatsapp for communication to inquire and share pedagogical issues from other teachers of English and use projectors for lesson delivery. Therefore, only two schools qualified to be in the early stages of transformation. The study therefore established that ICT model secondary schools are yet to reach the transformation stage that is expected to improve the quality of teaching of English.

The responses for frequency of ICT integration in teaching phases in English were rated on a four point likert scale where Always(4), Sometimes (3), Rarely (2) and Never (1).

Table 4.7: Frequency of ICT Integration in Teaching Phases in English

SN	Teaching Phases	Always (4)	Sometimes (3)	Rarely (2)	Never (1)	Mean
1	Lesson preparation	3(6.98%)	38(88.37%)	2(4.65%)	0(0.0%)	3.023
2	Lesson delivery	2(4.65%)	20(46.51%)	20(46.51%)	1(2.33%)	2.535
3	Evaluation	3(6.98%)	30(69.77%)	10(23.26%)	0(0.0%)	2.837
4	Communication	0(0.0%)	24(55.81%)	19(44.19%)	0(.0%)	2.558
	Average sum of means					2.738

The study further intended in part (b) to investigate the frequency of using ICT tools in the different phases of teaching. The different phases adopted for this study were: lesson preparation lesson delivery, Evaluation and communication. The study established that 3 representing 6.98% of the teachers used ICT tools frequently in lesson preparation, 38 representing 88.37 of the teachers used ICT tools sometimes for lesson preparation while 2 representing 4.65 students rarely used ICT tools in preparation of their lesson. These results gave a mean of 3.023. The findings also revealed that 2 representing 4.65% of the teachers used frequently ICT tools for lesson delivery, 20 representing 46.51% of the sometimes used ICT tools for lesson delivery, 20 representing 46.51 of the teachers rarely used ICT tools for lesson delivery while 1 representing 2.33 % of the teachers never used ICT tools for lesson delivery. This data yielded a mean of 2.535.

The findings of the study also established that 3 representing 6.98 % of the teachers frequently used ICT tools for evaluation, 30 representing 69.72 % of the teachers sometimes used ICT tools for evaluation, 10 representing 23.26 % of the teachers rarely used ICT tools for evaluation. This data yielded a mean of 2.837.

The study on the frequency of integration of ICT tools in communication revealed that 24 representing 55.81% of the teachers sometimes used ICT tools for communication, 19 representing 44.19% of the teachers rarely used ICT tools for communication. The data yielded a mean of 2.538. Teachers of English use ICT tools for lesson planning and evaluation more than lesson delivery and communication. Minimal use of ICT tools in delivery of English lessons and communication with the both teachers and students denies the English teaching and learning process the important aspects of interaction, collaboration, communication and motivation that ICT tools offer at the transformational stage of ICT integration (UNESCO, 2010).

Table 4.8: Frequency of Integration of ICT Tools in Teaching Phases in English

S N	TEACHIN G PHASE	Ms Word	Ms Excel	Ms Power Point	Intern et	Email	Combin ation of two	None
1 .	Lesson preparation	33(76.74%)	0(0.0%)	0(0.0%)	7(16.28%)	0(0.0%)	3(6.98%)	1(2.33%)
2 .	Lesson delivery	0(0.0%)	0(0.0%)	36(83.72.0%)	0(0.0%)	0(0.0%)	0(0.0%)	6(13.95%)
3 .	Evaluation	2(4.65%)	33(79.74%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(2.33%)
4	Communicat ion	0(0.0%)	0(0.0%)	0(0.0%)	2(4.65%)	37(86.05%)	0(0.0%)	4(9.30%)

The study further sought to establish the kind of ICT tools integrated at each phase of teaching. The study revealed that 33 representing 76.74% of the teachers used Ms Word for lesson preparation, **7** representing 16.28% of the teachers used internet for lesson preparation while 1 representing 2.33% of the teachers used none of the ICT tools for lesson preparation.

The study revealed that 36 representing 83.72% of the teachers used Ms Power point for lesson delivery, **6** representing 13.95% of the teachers used none of the ICT tools for lesson delivery. On evaluation the study revealed that 1 representing 2.33% of the teachers used Ms

word for evaluation**, 33** representing 76.74% of the teachers used Ms excel for evaluation while 1 representing 2.33% of the teachers used none of the ICT tools for evaluation. The study also revealed that 37 representing 86.05% of the teachers used email for communication**, 1** representing 2.33 % of the teachers used face book for communication while 4 representing 9.3% of the teachers used none of the ICT tools for communication.

The County Quality Assurance Officer (CQA&SO) reported;

Since the inception of ICT model schools the rate of growth and utilization has not been uniform. The 10 ICT model schools did not receive ICT infrastructure at the same time hence they are not at same level of integration. The inconsistency has also been occasioned transfer of teachers had trained in ICT which has slowed down the transition from one level of integration to another. Therefore, the level of integration varies from school to school.

According to UNESCO (2010) integration of ICT goes through four stages: emerging stage, applying stage, infusion stage and transformation stage. It is at the transformation stage that it is expected that ICT integration in teaching should produce maximum results. Unwin (2007) observed that growth and utilization of ICT in institutions of learning has not been uniform. This study on the level of integration ICT is in agreement with Unwin's view in that although ICT schools acquired infrastructure within the same period, they are not at the same level.

Further, the findings of the present study agree with the Becta (2005) findings which reported that as much as most countries have prioritized the use of ICT in education in the last decade the situation in application in education has not been uniform. In some countries some schools have integrated ICT into the curriculum and have transformed teaching and learning with the use of innovative technologies. However, most schools across the world are still at the basic level in integrating ICT and no records for significant improvements have been achieved.

4.5 Strategies for Integrating ICT in Teaching English in Secondary School

The study in objective three sought to assess the strategies used in integration of ICT in the teaching of English. The teachers were in this section required to identify the strategies they apply and the frequency of use. Results on strategies adopted on integration of ICT in English lesson are captured in the following Table 4.9. The responses were rated on a four point likert scale where VERRY MUCH USED (4), USED (3), LITTLE USED (2) and NOT USED (1).

Table 4.9: Frequency of use of specific Strategies for Integration of ICT

SN	STRATEGIES FOR INTEGRATION OF ICT	VERY MUCH USED (4)	USED (3)	LITTLE USED (2)	NOT USED (1)	Mean
1	I encouragement students to use blogs and wikis to communicate with their colleagues and post their work	0(0.0%)	2(4.65%)	23(53.49%)	18(41.86%)	1.628
2	I subscribe to teacher interaction sites for information sharing e.g. Listserv	0(0.0%)	9(20.93%)	23(53.49%)	11(25.58%)	1.953
3	I create interaction sites to share information with other teachers of English	4(9.3%)	11(25.58%)	22(51.16%)	6(13.95%)	2.302
4	I design ICT activities for my students	0(0.0%)	6(13.95%)	22(51.16%)	15(34.88%)	1.791
5	I use internet as course book to find appropriate material and lesson plan	21(48.84%)	20(46.51%)	2(4.65%)	0(0.0%)	3.442
6	I use ICT for task-based activities i.e. communication, information collection and problem solving.	2(4.65%)	9(20.93%)	26(60.47%)	6(13.95%)	2.163
7	I use ICT rewarding system to assess students' performance	2(4.65%)	26(60.47%)	12(27.91%)	3(6.980%)	2.628
8	I distribute administrative data and information via MS Access	2(4.65%)	24(55.81%)	13(30.23%)	4(9.3%)	2.558
9	I present lessons using MS Power Point	4(9.3%)	24(55.81%)	5(11.62%)	10(23.26%)	2.512
	Average sum of means					2.331

The study findings revealed that teachers of English least encourage students to use blogs and wikis to communicate with their colleagues. Only 2 representing 4.65% used the strategy, 23 representing 53.48% little applied while 17 representing 41.86% did not use this strategy. Similarly, Only 2 principals reported that the teachers in their school allow students to write emails as practice to functional writing where they integrate other types of writing such as recipes, reports, minutes and reviews.

Very few teachers of English tailor make their own ICT activities for the students: 6 representing 13.95% used, 22 representing 51.16% little used while 15 representing 34.88% did not use this strategy. This was the second least applied strategy with a mean of 1.791. This indicated that, teachers seem to lack confidence in manipulating the ICT tools and resources they offer to come up with own activities that suit their students. They only use activities designed by other teachers that might not meet the needs of their students undermining the effectiveness of ICT in teaching.

Nine 9 representing 20.93 % had subscribed to teacher interaction sites for information sharing, 23 representing 53.49% used this strategy to a small extent while 11 representing 25.58% did not utilize this strategy. However, the results from the interview schedule revealed that teachers of English have formed Whatsapp groups where they interact, share information, experiences and challenges on teaching of English. The study also reported that teachers of English communicate with each other through email, face book and Whatsapp. However, the communication is not necessarily on teaching of English.

The study findings from the questionnaire also revealed that teachers of English used ICT for task-based activities like communication, information collection and problem solving to a less extent with a mean of 2.163. This was followed by the strategy of creating interaction sites to share information with other teachers with a mean of 2.302.

Power point presentation was used to a satisfactory extend with a mean of 2.512. Use of ICT for distribution of administrative data and information via MS Access had a mean of 2.600 while the most used strategy was application of ICT rewarding system to assess students' performance. This implies that teachers seem not able to use strategies that engage the students in tasks as well as communication which ICT should enable them to enhance English language skills. The findings are in agreement with the results from Principals interview schedules that revealed that teachers use ICT for administrative purposes where they keep the student's data in Computer. They also use data processing application like MS excel and Ms Word for processing exams, preparation, analysis, storage and distribution. The findings of the study undermine the benefits of ICT in teaching language given that the recipients of teaching are the students. Encouraging application of ICT communication tools by the students would offer the student the much needed opportunity to practice the target language in a natural and authentic environment not found in a classroom as well as extending teaching and learning beyond the four walls of the classroom.

The study further sought to establish from the teacher of English which strategies were more effective. The findings are presented in Table 4.10. The responses were rated on a four point likert scale where VE (4) - very much experienced, E (3)-experienced, LE (2)-less experienced and NE(1)- not experienced.

Table 4.10: Descriptive statistics on Effectiveness of ICT Strategies in Teaching English

SN	STRATEGIES	VE (4)	E (3)	LE (2)	NE (1)	Mean
1	Encouraging students to use blogs and wikis to communicate with their colleagues and post their work	26(60.49%)	17(39.53%)	0(0.0%)	0(0.0%)	3.604
2	Subscribing to teacher interaction sites for information sharing eg Listserv	8(18.60%)	35(81.4%)	0(0.0%)	0(0.0%)	3.196
3	Creating interaction sites to share information with other teachers of English	12(27.91%)	31(72.09%)	0(0.0%)	0(0.0%)	3.279
4	Designing ICT activities for my students	18(41.86%)	24(55.81%)	1(2.33%)	0(0.0%)	3.395
5	Using internet as course book to find appropriate material and lesson plan	25(58.14%)	16(37.21%)	2(4.65%)	0(0.0%)	3.535
6	Use ICT for task-based activities i.e. communication, information collection and problem solving.	9(20.93%)	34(79.07%)	0(0.0%)	0(0.0%)	3.209
7	Using ICT rewarding system to assess students' performance	11(25.58%)	30(72.5%)	4(4.65%)	0(0.0%)	3.209
8	Distributing administrative data and information via MS Access	8(18.6%)	33(76.74%)	2(4.65%)	0(0.0%)	3.140
9	Presenting lessons using MS Power Point	11(25.58%)	30(69.77%)	2(4.65%)	0(0.0%)	3.209
	Average sum of means					3.295

The study found that the strategy of encouraging students to use blogs and wikis to communicate with their colleagues and post their work was the most effective, where among the sampled teachers 26 representing 60.47% reported that it was very effective, 17 representing 39.53% of the respondents noted it was less effective with a mean of 3.604. The strategy of encouraging students to use wikis and blogs was found to be effective in integrating ICT in teaching English. This view is supported by Tu *et al*., (2007) who suggested teachers can use weblogs to create a communicative learning environment in which students write collaboratively and edit their peers' writing. Wikis and blogs enable students to communicate, interact and collaborate with fellow students, teachers and parents. They are able to use English in a more authentic way therefore getting motivation. Students' engagement using tools that support communication, collaboration and interaction are guided by both communicative teaching approach and task based approach to teaching of language.

The study established that subscribing to teacher interaction sites for information sharing was effective, however the teachers least apply the strategy. The study proved that the strategy was effective with a mean of 3.196. On the other hand, creating interaction sites to share information with other teachers of English was found to be effective with a mean of 3.279. Both strategies for subscribing to teacher interactive sites and creating interactive site strategy are not utilized yet they are vital for real time experiences and information sharing in content, teaching methodology, ICT skills, ICT integration strategies. The underutilization of this strategy deviates from the position of Lucia, (2008) who posits that ICT has the potential of keeping both the teacher and the student with up-to-date materials and activities that are real and useful.

The strategy on tailor making activities for students was also found to be effective at a mean of 3.395. The strategy of using internet as course book to find appropriate material and

lesson plan was found to be very effective by 25 respondents representing 58.14%, 16

respondents representing 37.21% indicated it was effective while 2 respondents representing

4.65% indicated the strategy was least effective with a mean of 3.535. The findings revealed

that the strategies that allow the students to engage in tasks and communication are more

effective and beneficial to learners than the strategies that only involve teachers.

Typical responses from principals' interview schedule were:

Teachers of English use internet to research on most up to date material for teaching English and literature such as guides on teaching of literature set books, sample questions and answers.

Teachers of English occasionally use Power point to project and highlight language aspects such as stress, intonation and pitch which pose a challenge to explain using the traditional method.

Teachers of English use of adaptation of set books (novels, plays and short stories) in CD form which they allow students to watch on the computer. This they observed stimulated students' interest and motivated them to read the text more times enhancing their understanding.

Teachers of English in school make use of print out notes in teaching literature which are prepared using Ms Word application. The hand out materials affords the teacher more time to for explanations and clarification instead of students taking more time on copying notes.

To promote the integration of ICT in schools the County Quality Assurance and Standards

Officer observed:

My office makes a lot of official communication such as sharing of information online through Whatsapp and email rather than the traditional hard copy letters. The challenge I am faced with is how to facilitate teacher to adapt strategies for integration of ICT that involve students especially through communication.

The findings reveal therefore that strategies that involve learners such as blogs, whatsapp,

email this contradicts Holder (2006) who established that online blogs allow bloggers to get

feedback from more than one person, and this kind of peer feedback is more effective than

traditional self-correction. Further, using blogs in the teaching of writing offer positive interactivity for the teaching and learning of sentence grammar (Lenhart *et al.*, 2008)

The results from both the principals' questionnaire and the CQA&SO revealed that most of the strategies employed by teachers of English have to do with engaging teachers themselves they do not engage the students. Such strategies may build the capacity of the teacher in terms of knowledge and skills but might not be very effective in students' language learning thus undermining student centred strategies.

The study established that some of the teachers of English create interaction sites for sharing information. They also use ICT as a course book where they search for relevant material in their preparation of lessons. Some of the teachers also use ICT for task-based activities like communication, information collection and problem solving.

The study also established that some of the teachers use ICT rewarding system to assess the students' performance. They also use ICT for distribution of administrative data and information. They also use ICT in lesson delivery.

Therefore, teachers of English do not access up-to-date information and experiences from the field that may help them shape their strategies for integration of English. The study also established that few teachers tailor make ICT activities for their students. This may be as a result of lack of ICT skills to innovate own activities for students. Thus, the teachers use strategies that do not enhance student interaction and communication.

On assessing the effectiveness of the various strategies, the study established that strategies that enhance students' interaction and communication are more effective than those that are basically used to enhance teacher knowledge. The study established that encouraging students to use blogs and wikis to communicate and post their work is most effective, followed by use

of internet as a course book. Tailor making ICT activities by the teacher for the students was found to be more effective. The study suggests that the teachers of English seem to have information on the most effective strategies for ICT integration but have limitation in terms of applying the same strategies in teaching. This might be as a result of lack of competence as suggested in findings of objective one.

4.6 Challenges of Integration of ICT to Teaching English in Secondary School

The results on challenges teachers of English face in ICT integration are captured in Table 4.11. The responses were rated on a four point likert scale where VE (4)- very much experienced, E(3)-experienced, LE(2)-little experienced and NE(1)- not experienced.

Table 4.11: Frequency of Challenges for integration of ICT in teaching of English.

SN	CHALLENGES	Very Much Experienced (4)	Experienced (3)	Little experienced (2)	Not experienced (1)	Mean
1	Inadequate and poor training on ICT use	24(55.81%)	16(37.21%)	3(6.98%)	0(0.0%)	3.488
2	Inadequate ICT tools in schools	4(9.3%)	36(83.72%)	3(6.98%)	0(0.0%)	3.023
3	Lack of technical support	0(0.0%)	37(8605%)	6(13.96%)	0(0.0%)	2.860
4	Limited and unreliable supply of electricity	0(0.0%)	4(9.3%)	35(81.4)	4(9.3%)	2.000
5	Limited access to internet	4(9.3%)	35(81.40%)	3(6.98%)	2(4.65 %)	3.000
6	Negative attitude towards computers in school	0(0.0%)	17(39.53%)	23(53.49%)	3(6.98%)	2.325
	Average sum of means					2.783

The finding on challenges on integration of ICT from the teachers' Questionnaire revealed that among the sampled teachers 24 representing 55.81 % reported that inadequate and poor

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training on ICT integration is very much experienced, 16 representing 37.21% experience while 3 representing 6.98% of the teachers said it is less experienced with a mean of 3.488. All the 10 principals also reported that though a majority of teachers have ICT skills, there is inadequate and non-uniform training on ICT integration in the teaching especially of English and other subjects that are not science based. A lot of the training has been to improve the STEM subjects using ICT at the detriment of languages. The study therefore proved that inadequate and poor training on ICT use is a major challenge to integration of ICT. Inadequate and poor training on ICT integration may be attributed lack of capacity by the principals on the value of ICT in teaching (Chepkonga, 2015).

The teachers' questionnaire, Principal interview schedule and the CQA&SO interview schedule concur that the training of teachers on ICT integration is not adequate, poor and not uniform. This view is in agreement with Chingona and Chingona (2012).

The study also revealed that among the sampled teachers 4 representing 9.3% of the teachers very much experienced inadequate ICT tools in schools, 36 representing 83.72% had experienced inadequate ICT tools, 3 representing 6.98% little experienced with a mean of 3.023. This in agreement with all the 10 principals who reported that ICT facilities are not sufficient to the extent that not all the teachers who may wish to use the ICT resources may be able to access them at the time required. Thus the teachers are discouraged from giving assignments and tasks that will require them to use ICT because the students will have problems accessing the required ICT tools. From the study it is clear that schools do not have adequate ICT tools to facilitate effective integration of ICT in teaching of English. The competition for the few ICT facilities by both the teachers is also a major challenge. In that teachers who may wish to experiment and put to use some of the ICT tools in their teaching

are discouraged because of unavailability when they need them. These findings concur with Chingona and Chingona (2012).

There is lack of technical support in secondary schools in Kisumu County. Thirty-seven 37 representing 86.09% experienced lack of technical support while 6 representing 13.96% little experienced with a mean of 2.86. The findings are in agreement with the results from the principals' interview schedule. Seven of the principals reported that there schools lacked technical support especially when the equipment break down it becomes not only expensive but also takes a lot of time for the school to have the equipment repaired affecting consistency of use. Typical responses of principals on challenges of ICT were:

In my school we face the problem of technical support which interferes with ICT integration. The connection of the ICT equipment especially where the teacher has to use a combination prove to be a challenge. This has made the school administration to put restrictions on the use of ICT equipment to reduce cases of tempering with the equipment. My school unreliable electricity as much as the government has tried to connect all schools to electricity we lack back up in case of blackout. As a result programmed use of ICT tools is interrupted. Further, more we have had cases where electric outages have tempered with our computers subjecting the school to heavy losses in repair.

My school doesn't have reliable internet connection. This poses a challenge as it interferes with online communication, interaction and access to online materials. This interferes with the integration of authentic ICT communication tools such as email, Face book, blog and wikis yet ICT is expected to extend and enhance student communication.

Most of the teachers of English have a lot of workload, a majority are teaching an average of 28 lessons a week. This leaves them with little time for research and innovation that is crucial for ICT integration.

The study also revealed that among the sampled teachers 4 representing 9.30 % experienced limited and unreliable electricity, 35 representing 81.44% little experienced while 4 representing 9.30% did not experience which yielded a mean of 2.00.

Limited access to the internet by teachers and the restriction to the students pose a challenge to integration of ICT in the teaching of English. Four teachers representing 9.30% very much experienced limited access to internet, 35 representing 81.40% experienced, 3 teachers

representing 6.98% little experienced, while 2 representing 4.65% did not experience, which yielded a mean of 3.0.

The study findings also established that negative attitude to technology is a hindrance to ICT integration of ICT in the teaching of English. Seventeen 17 teachers representing 39.53% experienced negative attitude on computers, 23 representing 53.49 little experienced while 3 teachers 6.98% did not experience the challenge which yielded a mean of 2.325. Some teachers of English are techno phobic partly because they fear they may make mistakes before students who may be more competent than them. The principals also contribute to this attitude where they give preference to STEM teachers in terms of training opportunities and access to ICT tools in school. This greatly disadvantages teachers of English. This finding concurs with the findings of Buabeng-Andoh, (2012), Chen, (2008), Lim and Chai, (2008).

Most of the teachers of English have a lot of workload, a majority are teaching an average of 28 lessons a week. This according to the principals leaves them with little time for research and innovation that is crucial for ICT integration. The study findings agree with Hsi-ch, Chih-Feng, Tien-ch (2010) who established that many teachers are often heavily loaded with class-hours each week, and spent a lot of mental and physical effort on the job of teaching preparation. As a result, they may not be able to spare more time to design teaching materials to integrate information technology into teaching. However, the study notes that as much as teacher workload might be a valid impediment to ICT integration in teaching of English, innovative application of ICT integration in teaching would drastically lessen the strain of the teacher. This according to constructivist tenets students are more involved in the learning process.

All the 10 principals also observed that the teachers have a challenge of using smart phones which are mini computers and are readily available to engage students in teaching given that

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phone for use by students is prohibited by school policy. This aspect is similar to what Mua (2016) found out in Cameroon secondary schools that students were not allowed to carry ICT devices to school because it was assumed that it was a distracting tool in their academics. Such facilities would be ideal in extending learning during holidays and non-school hours and days through interaction on Face book, wiki, and blogs.

One of the principals from school D observed that some of the teachers of English in the school felt challenged by the students who seemed to be more conversant with ICT tools than them. This is as a result of the fact that ICT facilities such as laptops, cellular phones and television are widely available for the private use by learners. It therefore becomes a problem to the teachers of English as they could be challenged by learners where they integrate technology in their language learning skill lessons (Teresa, 2013).

The study therefore established that secondary schools in Kisumu County lacked leadership and guidance on how to carry out integration of ICT in teaching of English. The principals faced a challenge in their role of leading the process of ICT integration in teaching of English. The findings concur with Mua (2016) who established that principals were not aware of their new role they have to take as technology leaders. They have not fully equipped the schools with the necessary ICT infrastructure, electricity and internet connection. Their priority on training of teachers on ICT pedagogical skills is not only inadequate but also skewed to STEM subjects as opposed to teaching all subjects inclusive of English.

A teacher in school A revealed that incorporation of ICT tools in the teaching slows the coverage of the syllabus. As much has to be put in place in preparation, assembling of ICT tools and management of tools in the classroom. The teacher therefore according to the study looks at ICT as a barrier to teaching rather than an enabler. The study therefore interprets

such an observation by a teacher to mean that the teacher lack both ICT basic competence and ICT pedagogical integration competence.

Teachers in school B and D also reported that the time allocated for training in ICT is inadequate for the few who are lucky to be afforded the opportunity. That most of the training opportunities are three day to five day seminar or workshop. Furthermore, the training in ICT integration offered is not subject specific. This aspect of subject specific training was important to this study as each subject has unique strategies that might not be applicable in another subject so is with ICT integration.

A teacher of English from school C reported that there was also lack of motivation to teachers who make effort to acquire skills in ICT integration. That some teachers sponsor themselves for training while others undertake independent studies yet the same is not recognized and appreciated by the teachers' employer. The only recognition which according to the teacher is not adequate is being named the school ICT champion.

The teachers of English reported that students were not keen to use ICT tools for educational purposes. They use ICT tools for entertainment and communication to friends and relatives. As much as the teachers looked at this aspect as a challenge the study looks at it as an opportunity ICT provides for the students to use language in a real and authentic situation.

The CQA&SO also observed:

There is lack of ICT coordinator at the county level to develop a master plan for ICT integration and offer advice to schools on technical and financial sustainability of ICT integration program. This has hampered uniform implementation of ICT integration in secondary schools. Given that ICT program is costly if not well thought of there is need to offer guidance on the best and practical practices that may be effective in Kisumu County.

It has come to my attention that some teachers of English suffer from technophobia. They are not able to try to use ICT themselves in filling KRA returns, wealth declaration and teachers' professional appraisal and development online, they seek the assistance of cybercafé attendants. Such fear makes them not able to attempt using ICT in teaching at all.

A teacher of English from school C reported that there was also lack of motivation to teachers who make effort to acquire skills in ICT integration. That some teachers sponsor themselves for training while others undertake independent studies yet the same is not recognized and appreciated by the teachers' employer. The only recognition which according to the teacher is not adequate is being named the school ICT champion.

The Principals in school D, F, H and I also observed that there was lack of resources in terms of books to be used for references to build the capacity of teachers in ICT integration in teaching not only English but also other subjects. The findings from the principals' interview schedule concur with data from documentary analysis guide which revealed that in eight of the schools ICT policy document to guide ICT integration was missing. Nine schools also did not have any guide on ICT integration. However, five schools had CEMASETEA Modules for ICT integration that may be helpful in guiding the teacher on ICT integration. The study therefore established that ICT model schools lack relevant resources and documents that may guide the teachers in ICT integration in teaching of English.

4.7 Contribution of Integration of ICT to Teaching of English in Secondary Schools

The results on the contribution of ICT integration to the teaching of English are captured in Table 4.12. The responses were rated on a four point likert scale where VMI (4)- very much improved, I (3)-improved, LI (2)-little improved and NI (1)-not improved.

Table 4.12: Descriptive statistics on Contribution of ICT in Teaching English

SN	Frequency of ICT contribution to teaching English	VMI (4)	I (3)	LI (2)	NI (1)	Mean
1	Integration of ICT has improved students speaking skills	0(0.0%)	17(39.53%)	26(60.47%)	0(0.0%)	2.395
2	Integration of ICT has improved students listening skills	3(6.98%)	11(25.58%)	29(67.44%)	0(0.0%)	2.395
3	Integration of ICT has improved students writing skills	0(0.0%)	17(39.53%)	26(60.47%)	0(0.0%)	2.395
4	Integration of ICT has improved students reading skills	0(0.0%)	15(34.88%)	27(62.79%)	0(0.0%)	2.302
5	Integration of ICT has improved students literary appreciation	0(0.0%)	20(46.51%)	23(53.49%)	0(0.0%)	2.465
6	Integration of ICT has improved students' achievement in English	2(4.65%)	14(32.56%)	27(62.79%)	0(0.0%)	2.279
	Average sum of means					2.372

The study in this section sought to assess the contribution of ICT in the teaching of English. The study sought views of the teachers of English who are the implementers of integration of ICT on whether the integration has contributed to the various aspects of teaching English. The various aspects identified for this study were: speaking skills, listening skills, reading skills, writing skills, literary skills and the general performance of English by the students.

The findings revealed that among the sampled teachers 17 representing 39.53% reported that integration of ICT in teaching has improved learners speaking skills, 26 representing 60.47% reported that integration of ICT in teaching has less improved learners speaking skills. The

study also showed that among the sampled teachers 3 representing 6.98% reported that integration of ICT in teaching has very much improved learners listening skills, 11representing 25.58% reported that integration of ICT in teaching has improved learners listening skills while 29 representing 67.44% reported that integration of ICT in teaching has less improved learners listening skills. The study also established that the use of ICT resources that include aural and visual comprehension activities contributed a significant difference to a pupil's listening skills development. They offer alternatives in listening lesson that enhances stimulus variation and interest as opposed to only listening to voice of one teacher of English. Pupils have to acquire listening skills, which they will need in all areas of the curriculum.

The study also established that among the sampled teachers 17 representing 39.53% reported that integration of ICT in teaching has improved learners writing skills, 26 representing 60.47% reported that integration of ICT in teaching has less improved learners writing skills. This result gave a mean of 2.395. The findings also suggested that ICT tools could be used to make sequencing words easier in sentence writing. One of the teachers reported that there are many products available to help with sentence writing skills, such as Textease or Clicker, and many offers added speech facilities to help pupils check their work.

The study also established that among the sampled teachers15 representing 34.88% reported that integration of ICT in teaching has improved learners reading skills, 27 representing 62.79% reported that integration of ICT in teaching has less improved learners reading skills. This result gave a mean of 2.302. Further, the study reported that there are many products available that offer paper-based comprehension activities alongside sound, animations and video from ICT tools. These multimedia products open up a world of experiences to the pupil, allowing them to develop comprehension skills without even realizing it.

The study also established that among the sampled teachers 20 representing 46.51% reported that integration of ICT in teaching has improved learners' literary skills, 23 representing 53.49% reported that integration of ICT in teaching has less improved learners' literary skills. This result gave a mean of 2.465. Similarly, one of the teachers suggested that interactive dictionaries if used in the classroom can prove invaluable. It makes it not only easy but fun for learners to search for meaning of vocabulary. Therefore, the essential development of vocabulary is made easier through interactive resources.

The study also established that among the sampled teachers 2 respondent representing 4.65% of the teachers reported that integration of ICT in teaching has very much improved learners performance in English skills, 14 representing 32.56% reported that integration of ICT in teaching has improved learners performance in English while 27 representing 65.0% reported that integration of ICT in teaching has less improved learners performance in English. This result gave a mean of 2.279.

Teachers in school D observed that ICT integration had improved their content and pedagogical. ICT has enabled them research an access a variety of materials on the internet on English and literature therefore deepening of their scope understanding. As a result their delivery of lessons in English and literature to enhance student participation was improved.

A teacher in school B reported that ICT integration has changed his role from an instructor to a guide making his work easy and interesting. This aspect was very key to this study as change of the role of the teacher in the teaching and learning process to that of a guide increases the participatory role of the student. This transforms the teaching learning process from teacher centered to learner centered.

Integration of ICT in teaching of English in ICT model schools has contributed to teacher professional development through enrolling for postgraduate studies offered on line. A teacher in school A reported that through use of ICT tools in teaching of English, he was able to register and study a masters degree on line to completion.

Most of the principals were unable to single out specific skills that have improved in the teaching of English especially those that do not teach the subject. However, all were in agreement there was a general improvement in the mastery and usage of English in their respective schools since the inception of integration of ICT albeit to a small extent. They observed that since almost all the content dispensed via ICT is English, that aspect increased the students' extensive reading which is a key component in language acquisition and learning.

Seven principals pointed out that students' interest in literature increased after watching adaptation of the set books and discussions played on the computers. The findings concur with Yaqot (2018) who found out that ICT enhance students' motivation in reading English literature through enabling the students to engage closely with literary texts.

Typical responses on contribution of IC to teaching of English were:

Students in my school write their compositions by typing using Ms Word they save on the computer and are allowed to edit from time to time until they perfect it there by putting into practice the process approach to teaching and learning writing which has more advantages than the product approach to teaching writing.

Teachers in my school allow students to engage in online communication through email, wikis and blogs for a limited period with their parents and friends. This aspect has improved students interest in writing which was a challenge before the introduction of the program.

Students in form one and two in my school are give opportunity to access e-story books for their extensive reading that are saved on the computer. This approach has renewed interest in students reading which is beneficial to their reading skills.

Three of the Principal also reported that students in their school had shown improvement in reading skills. This was attributed to the fact that the use of the various ICT tools involves reading thus a lot of reading practice is done.

All the 10 principals indicated that their schools had not only improved in English but also in other subjects. This was attributed to improvement in teacher preparation for lessons, lesson delivery, enhanced communication and interaction, extended learning, improved mode of evaluation and enriched and up to date content.

The study further sought to establish whether there was improvement in achievement in KCSE examination for the period 2013-2017 five years after integration of ICT in teaching as compared to English results in KCSE for the period 2003-2008 five years before the ICT integration program as one of the indicators of the contribution of ICT integration teaching of English. This was done by comparing KCSE examination mean scores in English for the period (2004-2008) and (2013-2017) in ICT model schools in Kisumu County. The results are captured in the Table 4.13 and illustrated in Figure 4.1.

Table 4.13: Comparison of English subject Mean 5years before and 5 years after implementation of ICT

ICT Integration	Years	Mean Score
Before ICT Integration	2004	5.418
	2005	5.597
	2006	5.706
	2007	5.615
	2008	5.508
After ICT Integration	2013	6.371
	2014	6.673
	2015	6.961
	2016	6.161
	2017	6.976

The English mean sore in KCSE 2003-2008 and 2013-2017 in Table 4.13 was used generate the bar graph in Figure 4.1 to give a clear picture.
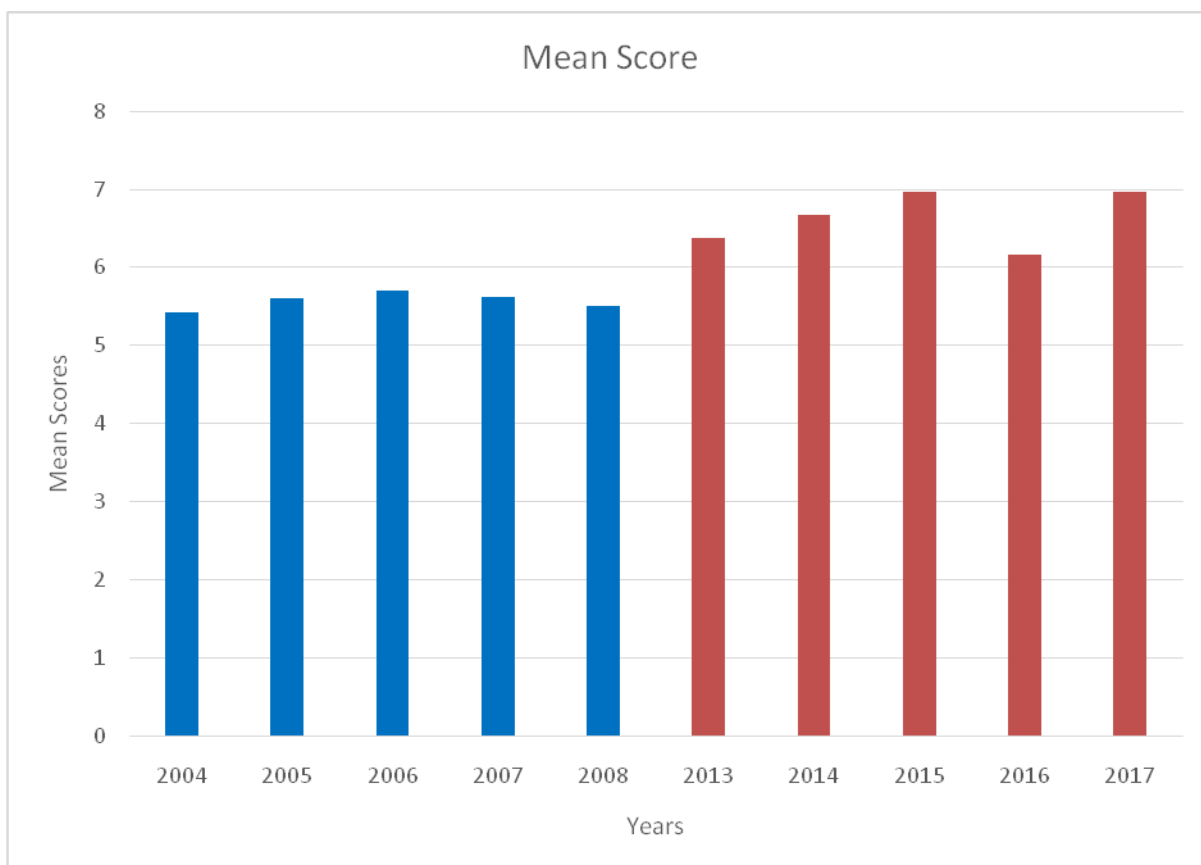
Figure 4.1: Comparison of English subject Mean 5years before and 5 years after implementation of ICT

The findings in Figure 4.1 above revealed that five years before the introduction of ICT (2004-2008) the performance of English average mean score in the 10 ICT schools was below 6.0. However, five years after the introduction of ICT (2013-2017) the performance improved at an average mean of 6.50.

The findings from the Figure 4 indicated that there was a steady improvement from the year 2013 to 2015 then a decline in 2016 and an improvement in 2018. This may be attributed to the contribution of ICT integration in the teaching of English.

The study also compared performance of English across the ICT model schools. This was done in order to determine the whether there was uniformity in improvement in performance. In part this would establish whether the ICT model schools are at the same level of

integration. The KCSE mean score for the period 2004-2008 and 2013-2017 are captured in
Table 4.14.

Table 4.14: Comparison of KCSE English mean across ICT schools

Year	A	B	C	D	E	F	G	H	I	J	Mean
2004	4.23	5.23	6.2	4.23	4.11	6.02	6.23	6.42	5.29	6.22	5.418
2005	5.82	4.21	6.43	5.4	4.07	5.28	5.89	5.92	6.55	6.4	5.597
2006	5.47	4.52	5.92	5.52	5.02	5.76	6.72	6.34	5.91	5.88	5.706
2007	4.3	6.22	6.33	5.31	4.82	5.21	6.62	5.21	6.21	5.92	5.615
2008	4.5	5.18	6.73	5.21	4.13	5.3	6.33	5.45	6.15	6.1	5.508
2013	5.62	7.02	6.73	5.9	5.13	6.7	6.51	6.77	6.42	6.91	6.371
2014	5.72	7.18	7.3	6.21	4.98	6.89	6.42	7.76	7.44	6.83	6.673
2015	4.52	8.68	7.98	7.34	4.18	7.02	6.31	8.69	7.68	7.21	6.961
2016	4.34	6.72	7.4	6.42	5.06	6.23	6.11	5.5	7.33	6.5	6.161
2017	5.74	7.77	7.8	7.51	4.68	7.01	6.78	7.23	7.94	7.3	6.976

Table 4.15: Comparison of mean scores before and after integration per school.

SCHOOL	A	B	C	D	E	F	G	H	I	J
Before ICT Integration (2004-2008)	4.864	5.072	6.322	5.134	4.43	5.514	6.358	5.868	6.022	6.104
After ICT Integration (2013-2017)	5.188	7.474	7.442	6.676	4.806	6.77	6.426	7.19	7.362	6.95

The average mean score in KCSE in English for each school for the period (2004-2008)
before ICT integration was compared to the period (2013- 2017) after ICT integration in
Table 4.15. The scores in Table 4.15 were used to generate Figure 4.2 to give a clear picture
of the comparison.
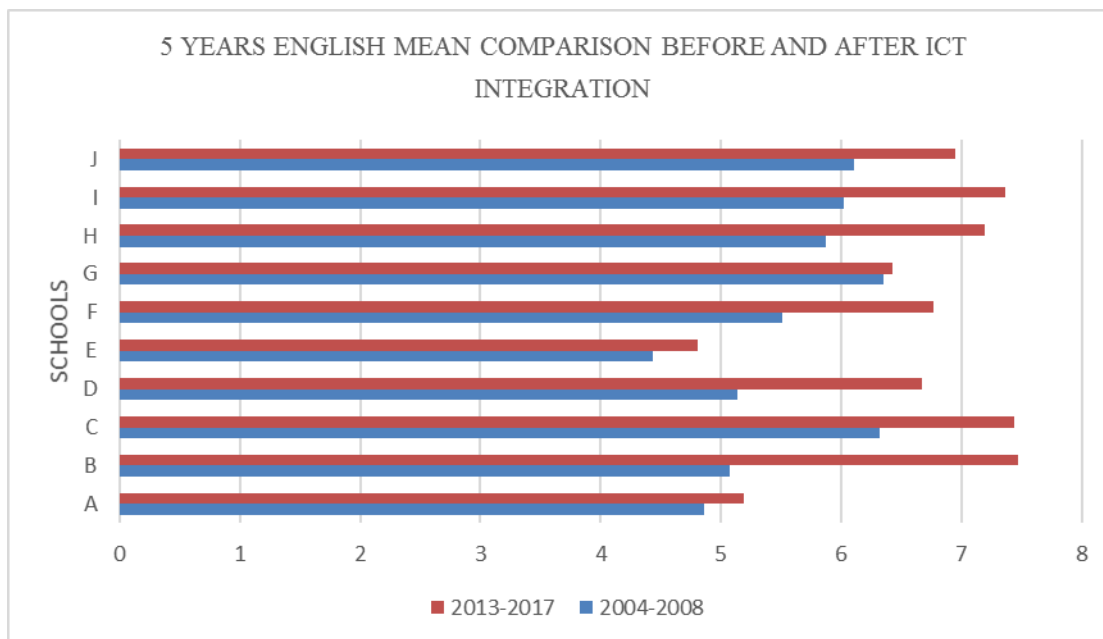
Figure 4.2: Comparison of English mean across schools

The findings from the Figure 4.2 indicated that in all the 10 ICT schools, there was an improvement in achievement in English when the average mean score of English for the period 2004-2008 five years before integration of ICT was compared to the average mean score for English for the period 2013-2017 five years after integration of ICT. However, bar graph indicates that the improvement was not uniform where school B had the highest improvement.

The findings from the questionnaire, interview schedule and document guide schedules established that all the five skills taught in English: speaking, listening, reading, writing and literary appreciation improved as a result of ICT integration in the teaching of English. The findings were in agreement with Voogt & McKenney, (2007) who established that ICT support the development of reading and writing skills. Similarly, Kelly & Safford (2009) reported that online platform for communication provided an opportunity of writing skill in that Students were able to use complex sentence structures. Students' developed interest in presenting ideas and responding to their classmates' ideas by commenting on the blog. There

was much improvement in literary appreciation followed by writing and speaking skills and lastly listening and reading skills.

The study also established that there was an improvement in achievement in English in all schools for the period (2013-2017) that is 5 years after integration of ICT was introduced in the ICT schools as compared to the period (2004-2008) five years before the inception of ICT integration program in teaching of English in secondary schools in ICT model schools in Kisumu County. The findings from the teachers of English in the sampled schools concurred with the findings from the Principals interview schedule, CQA&SO interview schedule and the Document Analysis Guide. However, the Document Analysis Guide revealed that the improvement was not same in all the schools. This is in agreement with Annie (2013), Hong Lai & Holton (2003), Endogan, Bayram & Deruz (2008) found out. The study findings on ICT integration and achievement are in agreement with what Ayere (2009) found out between NEPAD and NON NEPAD schools. Similarly, the study findings agree with Otiang'a, Ayere and Rabari (2018) who established that there was significant association between teachers use ICT in teaching of Chemistry and performance of the students.

The study also established that the level of interaction and communication among teachers of English had greatly improved. The teachers were able to consult and share information on the teaching of English. This aspect was very vital in preparation of lessons and handling emerging issues in the teaching of English. The study however revealed that ICT has not been used to a great extent to enhance communication and interaction between teacher/ student and student / student which is contrary to the position Annie (2013) and Zhu & Bu (2009) hold that ICT enhances interaction and communication. With limited use of ICT tools that facilitate interaction and communication the full benefits of ICT integration may not be realized.

This study revealed that since the inception of ICT integration in the teaching of English students' motivation had improved especially in literary appreciation. The findings are in agreement with (Zhu & Bu, 2009) who established that ICT integration in teaching enhances motivation and persistence.

4.8 Relationship of the Findings to Theoretical Framework

The present study was based on Jaradat, Quablan, & Barham (2011) Activity theory and Mishra and Koehler (2006) TPACK model. Activity theory which borrows from constructivist theory recognizes the centrality of the learner in the teaching and learning process that is facilitated by ICT. It proposes a shift of the role of the teacher from that of an instructor to that of a facilitator. In integrating ICT in teaching of English effectively offers the student the opportunity to interact, communicate and collaborate with fellow students, teachers, parents and English language in a more authentic way. In which case, communicative language teaching approach and task based language teaching approach are put to use improving the quality of teaching English. Activity theory also describes the various aspects that are involved in ICT integration in teaching and learning process of English identifying the role each plays.

In order to apply constructivist principles effectively in ICT integration in teaching of English, Mishra and Kohler (2006) TPACK model that proposes the development and acquisition of ICT pedagogical integration competence that are subject specific.

The study established that attempts have been made to integrate ICT in teaching of English through the training of teachers of English in ICT pedagogical integration; however, the training programs are not only inadequate but also not uniform. As a consequence, the process transforming of teaching of English from teacher centred to learner centred has not been achieved.

The study also established that the level of integration has not reached the transformation level and therefore communication, interaction collaboration and independent study strategies prescribed by activity theory have not been effectively applied. However, the study proved that the communication, collaboration and interaction strategies that can be afforded through the use of ICT tools such as wikis, blogs, face book and Whatsapp were more effective in teaching of English.

The study also established that ICT integration program in teaching of English face a number of challenges that impede the implementation the program. At the level of implementation, the study proved that ICT integration program has contributed to teachers of English accessing a variety and current information on teaching of English. They are able to communicate, interact and collaborate among themselves which enhances their level of preparedness in teaching of English. The study however, established that the integration of ICT in teaching of English has not benefited the end user: the student. The students are not offered opportunity to use ICT tools to enhance their communication, interaction and interaction in order to improve on their English language.

The using Activity theory and TPACK model to analyse successes, failures, and contradictions in ICT-mediated in ICT models schools in Kisumu County therefore established the strengths and shortcomings of the program which may be used to improve the program.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Findings

The study sought to assess the integration of ICT and its contribution to the teaching of English in ICT model schools in Kisumu County, Kenya. In particular the study focused on teachers level of competence in teaching of English, level of ICT integration; strategies for ICT integration; challenges for ICT integration and contribution of ICT in teaching of English. The sample consisted of 40 teachers of English language and 10 Principals of ICT model secondary schools of Kisumu County. Summary of the research findings were based on research questions which guided the study. The major findings were discussed under the following themes: level of teachers' competence in ICT integration in teaching of English; level of ICT integration; strategies for ICT integration; challenges faced in ICT integration and contribution of ICT integration to teaching of English in secondary schools in Kisumu County.

5.1.1 Level of Competence of Teachers in ICT Integration in Teaching English in Secondary School

The study showed that teachers of English have basic educational and professional qualification in secondary school in Kenya. A majority have a bachelor of Education degree while a few have diploma in Education and postgraduate qualification. The study also established that teachers of English who participated in the study had satisfactory teaching experience of above 3 years. Further, the teachers of English had ICT training in basic ICT skills which included postgraduate, degree, certificate, in-service and self-initiative. The training is not only inadequate but also lacks uniformity. Thus, there is disparity in teacher competence in basic ICT skills.

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The study also established teachers of English have inadequate training in pedagogical ICT integration skills which is not harmonized. Few teachers of English have attended organized ICT integration training forums such as workshops, seminars and conferences. Many of the teachers of English have acquired ICT integration skills through independent initiatives. Pedagogical ICT skills are key to successful integration of ICT in teaching.

The study also proved that teachers of English are more competent use of internet, email, word processing, data processing, face book, spreadsheet and power point presentation. However, they were less competent in use of wikis and blogs. Further, the study proved that teachers of English are competent in sending and receiving Email, communicating with other teachers through email, using social networking sites and using online resources. However, they are average in competence in use of power point and creating and editing documents using word processing.

5.1.2 Level of ICT Integration in Teaching of English in Secondary Schools

The study proved that all schools in the study had gone through the emerging stage of ICT integration. The schools have satisfactorily acquired ICT infrastructure: electricity, computers, power point projectors, internet connection Further, the teachers have also taken basic ICT skills training and are aware of the potential of ICT in teaching. The Study also proved that all schools have gone through applying stage of ICT integration. Teachers use ICT to enhance traditional method of teaching. They also use ICT for professional development and in helping in guiding the students in solving complex problems. Only a few schools are at the infusing stage where teachers are in the process of using ICT in managing learning environment. None of the schools have reached the transformation stage. The study thus, proved that the level of integration of ICT in teaching of English in ICT schools is at applying stage.

5.1.3 Strategies for ICT Integration in Teaching of English in Secondary Schools

The study findings proved that teachers of English utilize strategies that build their capacity. They include using internet as course book to find appropriate and up to date material and lesson plans; distributing administrative data and information via MS Access; using ICT rewarding system to assess students' performance and creation of interaction sites to share information. Such strategies are important in equipping the teacher with skills and knowledge on language teaching.

However, the study revealed that teachers of English use to a less extent the ICT strategies that enhance task based and communicative approach to teaching language.

The study showed that teachers of English do create own ICT tailor made activities for their students to a less extent. They do not allow students to communicate through wikis, blogs, face book and email with other students, teachers and parents. Given that this are communication modes that students are already exposed to would imperative for the teachers of English to utilize this avenue to enhance student's language tasks and communication.

The study on the assessment of the effectiveness of strategies of integration of ICT on teaching proved that strategies that enhance students' engagement in language tasks and communication were more effective than teacher-based ICT tasks.

5.1.4 Challenges for ICT Integration in Teaching of English in Secondary Schools

The study established that there is inadequate and poor training in ICT integration in teaching of English. When any training is available science teachers are given preference disadvantaging teachers of English. Further, training opportunities available are varied thus lacking uniformity.

The study also established that schools do not have adequate ICT tools to facilitate effective ICT integration. This has led to high competition for the few ICT tools available. Preference is given to science and technical subjects discouraging teachers of English.

The study also proved that there is limited and unreliable internet connection. This restricts the teachers and students from accessing up to date information. Lack of reliable internet limits the interaction and communication tools such as email, face book, blogs and wikis which are important in enhancing and extending student communication, use of language and learning.

5.1.5 Contribution of ICT Integration in Teaching of English in Secondary Schools

The study proved that ICT integration contributed positively in attainment of all the five language skills: listening, speaking, reading, writing and literary appreciation albeit to a minimal extent. The study as well proved that ICT integration enhanced motivation of the students in literary appreciation more than the other skills since much improvement had been reported.

The study also established that ICT integration has enhanced interaction, communication and collaboration among teachers of English. The teachers consult their colleagues and communicate among themselves. The teachers are also able to get up to date information and emerging issues in teaching of English. However, the study established that there is little interaction, communication and collaboration between students and students, teachers and students and students and the outside world. This limits the impact of ICT integration to students. The study observed that for ICT to have a transformative impact on teaching of English and achievement, opportunities offered by ICT should be made available to the students.

The study proved that there was an improvement in achievement in English for the period (2004-2008) 5 years after inception of ICT integration compared to the period (2013-2017) that is 5years before integration of ICT. However, the improvement in achievement was not uniform. The findings reflect the disparities in teacher competence in ICT integration, level of integration of schools and the challenges each school face.

ICT integration has also enhanced assessment of English through accurate, clear, timely analysis and release of English results to the students. ICT integration has also enhanced storage and easy access of English results. This facilitates monitoring of individual students, class as well as schools achievement.

5.2 Conclusion
Based on the findings above, it can be concluded that:

5.2.1 Level of Competence of Teachers in Integrating ICT in Teaching English in Secondary Schools

1. ICT integration in teaching of English is not effective due to inadequate ICT pedagogical integration competence

2. Teaching of English does not maximally benefit from ICT integration in teaching English since the program has not reached the transformation level.

3. Teaching of English has not benefit from communication, collaboration and interaction strategies offered by ICT integration.

4. ICT integration face challenges that impede effective teaching of English in secondary schools

5. The integration of ICT in the teaching of English has minimally enhanced the quality of teaching English in secondary schools

5.3 Recommendation

Universities should design a curriculum for ICT integration in teaching to equip student teachers of English with ICT pedagogical integration skills.

The Ministry of Education in collaboration with KICD and universities to offer in-service training on ICT integration in teaching English in secondary schools.

The ministry of Education to further equip schools with enough ICT infrastructure.

Teachers of English should engage the students using communication and collaboration tools such as face book, email, whatsapp, wiki and blogs to enhance their communication and interaction using English.

5. 4 Recommendation for Further Studies

Further studies should be done on:

1. Students' role in effective integration of ICT in the teaching of English.

2. Experimental studies on the impact of integration of specific ICT tools in teaching specific language skills.

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APPENDICES

Appendix I: Teachers' Questionnaire

Dear Sir/Madam

Thank you for accepting to participate in the study that requires information on integration of ICT in teaching of English in Kisumu County. Kindly respond to all questions as honestly as possible. The information obtained will be treated with utmost confidentiality for the purpose of this study.

1a. Level of Education

       (i)Postgraduate   (   )

       (ii)Bachelors   (   )

       (iii) Diploma   (   )

       (iv) Any other   (   )

b. Level of training in basic ICT skills

(a) At what level are you trained in ICT?   Tick in the appropriate box.

SN	COURSE	Tick( )
1.	Postgraduate	
2.	Bachelors	
3.	Diploma	
4.	Certificate	
5.	In-service	
6.	Any other(Please specify)	

(b). Level of competence in of integrating ICT in teaching English

(a) Which training programmes have you undergone in ICT integration? Please tick where applicable.

SN	TRAINING PROGRAMME	PLEASE TICK APPROPRIATELY
1	Workshop	
2	Seminars	
3	Conferences	
4	Independent studies	
5	Others (Please specify)	

(b) What is your level of competence in regard to the following competencies?

Measuring scale: VC-Very competent (4), C-Competent (3), LC- Less competent (2), I-Incompetent (1),

SN	COMPETENCE IN ICT TOOLS	VC(4)	C (3)	LC (2)	I (1)
1.	Word processing (e.g. Microsoft word				
2.	Data processing (e.g. Microsoft Access)				
3.	Presentation (PowerPoint)				
4.	Spreadsheet (e.g. Microsoft Excel)				
5.	Internet (WWW)				
6.	e-mail				
7.	Blog				
8.	Wiki				
9.	Face book				
10	Any other (please specify)				

(c) What is your opinion on the following statements relating to your ability to integrate of ICT in teaching of English?

Measuring scale: Not able (1), Less Able (2), Able (3), Very Much Able (4)

S/N	STATEMENTS	VERY MUCH ABLE	ABLE	LESS ABLE	NOT ABLE
1	I am able to send and receive e-mails				
2	I am able to chat online				
3	I use social networking website (yahoo, face book, etc)				
4	I use presentation software for instruction (power point)				
5	I use online resources to prepare lessons				
6	I am able to use e-mail to communicate with teachers				
7	I am able to create and edit documents using word processing				

C. Level of integration of ICT resources in teaching of English

7. (a) At what level are you in terms of level of integration of ICT in teaching in your school?

Measuring scale: Not Applied (1), Less Applied (2), Applied (3), Very Much Applied (4)

SN	LEVEL OF ICT INTEGRATION	VERY MUCH APPLIED	APPLIED	LITTLE APPLIED	NOT APPLIED
1	EMERGING LEVEL (a) My schools has just acquired ICT infrastructure (computers, electricity. Projectors, internet				
	(b) I am in the process of training in ICT skills				
2	APPLYING LEVEL (a) I use ICT for professional development				
	(b) I use ICT generally to enhance traditional methods				
	(c)I use of ICT to guide students on complex problems				
3	INFUSING LEVEL I use of ICT to manage learning environment				
	I use of ICT for particular tasks				

	I use of ICT for in combination to solve problems				
4	TRANSFORMING LEVEL I have transformed teaching approach				
	I use ICT tools in all teaching and learning activities				
	I create and manage interactive learning environment (blogs, wikis, face book)				

(b) How often do you use ICT tools in teaching English in the following learning phases?

SN	Teaching Phases	Always (4)	Sometimes (3)	Rarely(2)	Never (1)
1	Lesson preparation				
2	Lesson delivery				
3	Evaluation				
4	Communication				

(c) For each teaching phase specify the ICT tool you have used.

SN	TEACHING PHASE	ICT TOOLS USED
1.	Lesson preparation	
2.	Lesson delivery	
3.	Evaluation	
4	Communication	

D. Strategies adopted by teachers in integrating ICT in teaching English

8. (a) To what extent do you use the following strategies in integrating ICT in teaching of English?

Measuring scale: Not Used (1), Less Used (2), Used (3), Very Much Used (4)

SN	STRATEGIES FOR INTEGRATION OF ICT	VERY MUCH USED	USED	LITTLE USED	NOT USED
1	I encourage students to use blogs and wikis to communicate with their colleagues and post their work				
2	I subscribe to teacher interaction sites for information sharing eg Listserv				
3	I create interaction sites to share information with other teachers of English				
4	I design ICT activities for your own students				
5	I use internet as course book to find				

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	appropriate material and lesson plan				
6	I use ICT for task-based activities i.e. communication, information collection and problem solving.				
7	I use ICT rewarding system to assess students' performance				
8	I distribute administrative data and information via MS Access				
9	I present lessons using MS Power Point				

Which other strategies do you use in the teaching of English?

    1. ....

    2. ....

    3. ....

(c) Indicate the level of effectiveness of the following strategies in integrating ICT in teaching of English.

Measuring scale: Not Effective (1), Less Effective (2), Effective (3), Very Much Effective (4)

SN	STRATEGIES	VERY EFFECTIVE	EFFECTIVE	LESS EFFECTIVE	NOT EFFECTIVE
1	I encourage students to use blogs and wikis to communicate with their colleagues and post their work				
2	I subscribe to teacher interaction sites for				

	information sharing eg Listserv		173		
3	I create interaction sites to share information with other teachers of English				
4	I design ICT activities for students				
5	I Use internet as course book to find appropriate material and lesson plan				
6	I use ICT for task-based activities i.e. communication, information collection and problem solving.				
7	I use ICT rewarding system to assess students' performance				
8	I distribute administrative data and information				

	via MS Access				
9	I present lessons using MS Power Point				

D. Contribution of integration of ICT in the teaching of English.

9. To what extent has the integration of ICT contributed to the teaching of English in your school?

Measuring scale: Not Improved (1), Less Improved (2), Improved (3), Very Much Improved (4)

SN	CONTRIBUTION OF ICT IN ACHIEVEMENT	VERY MUCH IMPROVED	IMPROVED	LITTLE IMPROVED	NOT IMPROVED
1	Integration of ICT has improved students speaking skills				
2	Integration of ICT has improved students listening skills				
3	Integration of ICT has				

	improved students writing skills		175		
4	Integration of ICT has improved students reading skills				
5	Integration of ICT has improved students literary appreciation				
6	Integration of ICT has improved students performance in English				

Any other contribution of ICT to the teaching of English and literature in secondary school

1. ....

2. ....

3. ....

E. Challenges

10. (a)To what extent do you experience the following challenges in the process of integration of ICT tools in the teaching of English?

Measuring scale: Not experienced (1), Less Experienced (2), Experienced (3), Very Much Experienced (4)

SN	CHALLENGES	Very Much experienced	Experienced	Little experience	Not experience
1	Inadequate and poor training on ICT use				
2	Inadequate ICT tools in schools				
3	Lack of technical support				
4	Limited and unreliable supply of electricity				
5	Limited access to internet				
6	Negative attitude towards computers in school				

Any other challenge:

1…………………………………………………………………………….

2. …………………………………………………………………………

Thanks for participating in this study.

Appendix II: Interview Schedule for School Principals

Dear Sir/Madam

Thank you for accepting to participate in the study that requires information on integration of ICT in teaching of English in Kisumu County. Kindly respond to all questions as honestly as possible. The information obtained will be treated with utmost confidentiality for the purpose of this study.

A. LEVEL OF COMPETENCE

(a) To what extend are English teachers trained in ICT in your school?

(b)Have the teachers in your undergone any of the following workshop, conference, seminars, and induction courses in ICT integration.

(c) Do you have any of the following materials to guide teachers on integration of teaching English?

B.   LEVEL OF INTEGRATION OF ICT
(a)At what level is your school in integration of ICT in teaching of English?

C. STRATEGIES FOR INTEGRATION OF ICT

a) Which strategies do teachers of English in your school use in integrating ICT in the teaching of English?

D.CONTRIBUTION TO ACHIEVEMENT

a). In your opinion has there been improvement since the inception of integration in teaching of English?

E. CHALLENGES

a)   What are some of the challenges encountered by the teachers of English in the integration of ICT tools in the teaching of English in secondary school

Appendix III: Interview Schedule for County Quality Assurance Officer

Dear Sir/Madam

Thank you for accepting to participate in the study that requires information on integration of ICT in teaching of English in Kisumu County. Kindly respond to all questions as honestly as possible. The information obtained will be treated with utmost confidentiality for the purpose of this study.

A. LEVEL OF COMPETENCE

(a)To what extend are English teachers trained in ICT integration in Secondary school in your county?

(b)Have the teachers of English in your county undergone any of the following workshop, conference, seminars, and induction courses in ICT integration.

(c) Do you have any of the following materials to guide teachers on integration of teaching English.

B.LEVEL OF INTEGRATION OF ICT

(a) At what level are schools in your county in regard to integration of ICT in teaching of English?

C. STRATEGIES FOR INTEGRATION OF ICT

a). Which strategies do teachers of English in your school use in integrating ICT in the teaching of English?

D.CONTRIBUTION TO ACHIEVEMENT

a) In your opinion has there been improvement since the inception of integration in teaching of English in secondary schools?

E. CHALLENGES

a) What are some of the challenges encountered by the teachers of English in the integration of ICT tools in the teaching of English in secondary schools?

Appendix IV: Document Analysis Guide

A. Performance 5 years before ICT integration and 5 years' after

Thank you for accepting to participate in the study that requires information on integration of ICT in teaching of English in Kisumu County. Kindly provide information based on all questions as honestly as possible. The information obtained will be treated with utmost confidentiality for the purpose of this study.

A. DOCUMENTS

1. KCSE English examination results for the period 2004-2008?

    i.   2004 ------------

    ii.   2005 ------------

    iii.   2006 -----------

    iv.   2007 ------------

    v.   2008 ------------

2. KCSE English examination results for the period 2013-2017?

    i.   2013 -----------

    ii.   2014 -----------

    iii.   2015 -----------

    iv.   2016 -----------

    v.   2017 -----------

3. Current schemes of work for teaching English

4. Policy document on ICT integration in schools

5. Guide to ICT integration in schools.

6. Any other document relevant to ICT integration.

Questions to guide analysis

1. Did your school register any improvement in KCSE English examination results in the period (2013-2017) compared to the period (2004-2008)?

2. What are the factors that may have affected the KCSE English examination during the period 2003-2008

3. What are factors that may have affected the KCSE English examination during the period 2013-2017

4. What are the reasons for the improvement or no improvement in relation to ICT integration?

5. Does the scheme of work indicate use of ICT in lesson delivery?

6. How does the presence or absence of the policy document in school affect ICT integration?

7. How does the presence or absence of the guide to ICT integration affect ICT integration?

Appendix V: Map of Kisumu County
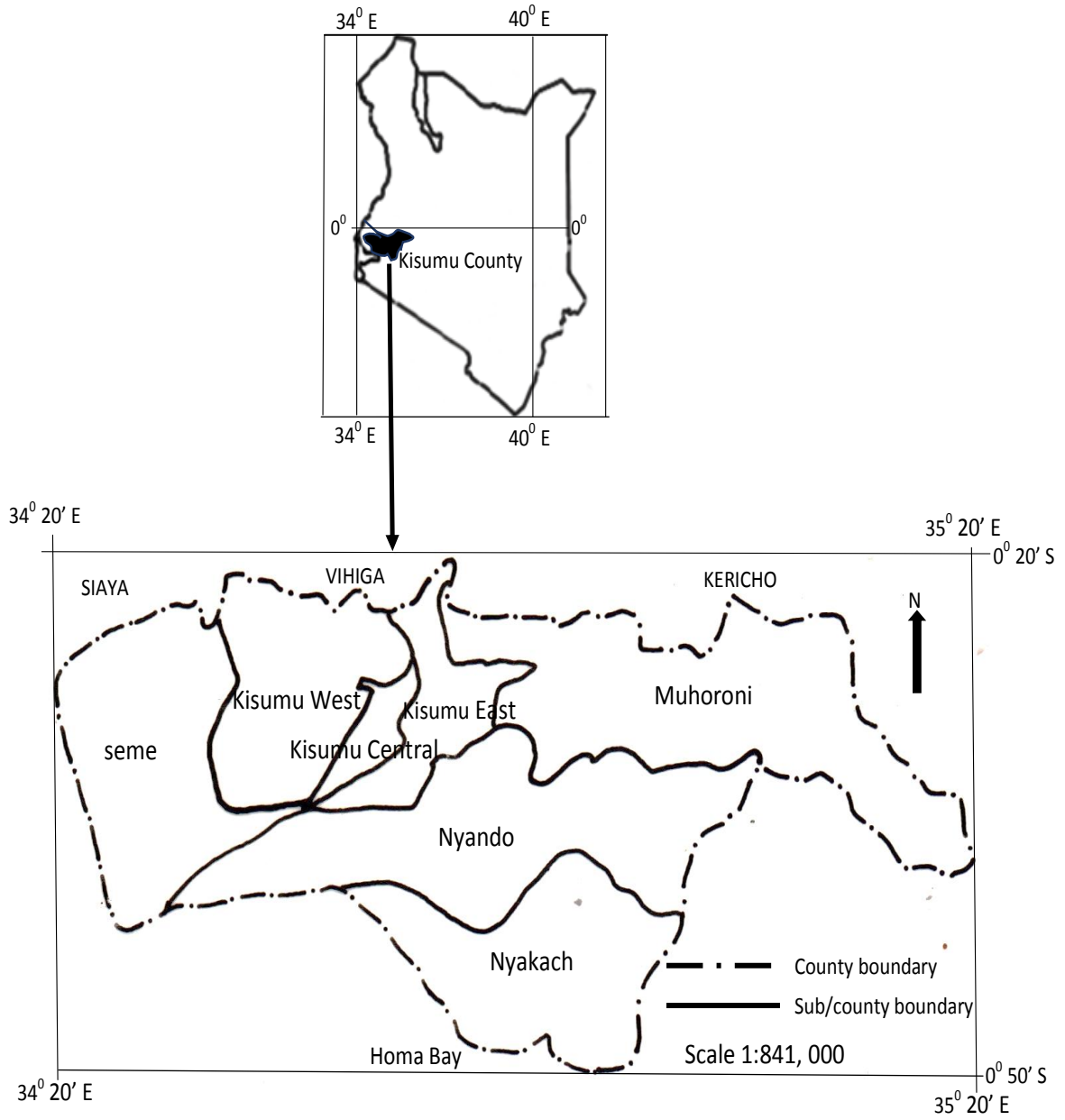
Appendix VI: Research Authorization

**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/72753/30028**

Date: **23rd May 2019**

Indembukhani Kennedy
Maseno University
Private Bag
MASENO.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"Assessment of integration of ICT in the teaching of English in ICT secondary schools in Kisumu County."* I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for the period ending **23rd May, 2020.**

You are advised to report to **the County Commissioner, and the County Director of Education, Kisumu County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.

National Commission for Science, Technology and Innovation is ISO9001:2008 Certified

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Appendix VII: Research Permit

THIS IS TO CERTIFY THAT:
MR. INDEMBUKHANI KENNEDY
of MASENO UNIVERSITY, 0-0
MASENO, has been permitted to conduct
research in *Kisumu County*

on the topic: *ASSESSMENT OF*
INTEGRATION OF ICT IN THE TEACHING
OF ENGLISH IN ICT SECONDARY
SCHOOLS IN KISUMU COUNTY

for the period ending:
23rd May, 2020

Permit No : NACOSTI/P/19/72753/30028
Date Of Issue : 23rd May, 2019
Fee Recieved : Ksh 2000

Applicant's
Signature

Director General
National Commission for Science,
Technology & Innovation

Appendix VIII: Maseno University Ethics Review Committee Authorization

FROM: Secretary - MUERC   **DATE**: 4th April, 2019

TO: Kennedy Indembukhani   REF: MSU/DRPI/MUERC/00604/18
         PG/PHD/00046/2014
         Department of Educational Communication,
         Technology and Curriculum Studies
         School of Education, Maseno University
         P. O. Box, Private Bag, Maseno, Kenya

RE: **An Assessment of the Integration of Information and Communication Technology in Teaching of English and its Contribution to Academic Achievement in ICT Model Secondary Schools in Kisumu County, Kenya. Proposal Reference Number MSU/DRPI/MUERC/00604/18**

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 4th day of April, 2019 for a period of one (1) year. This is subject to getting approvals from NACOSTI and other relevant authorities.

Please note that authorization to conduct this study will automatically expire on 3rd April, 2020. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 15th March, 2020.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach the MUERC Secretariat by 15th March, 2020.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advice MUERC when the study is completed or discontinued.

Thank you.

Dr. Bernard Guyah
Ag. Secretary,
Maseno University Ethics Review Committee.

Cc: Chairman,
Maseno University Ethics Review Committee.