Classroom Use of Digital Resources in Teaching and Learning of English Language in Secondary Schools in Nyeri County, Kenya

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Abstract: Integration of information, communication technology (ICT) in teaching and learning in schools and factors affecting acceptance and use has been extensively researched in Kenya and globally. However, use of digital resources in classroom teaching and learning of various subjects in Kenyan schools has been grossly under-researched thus creating a gap in knowledge that this study filled. This study investigated classroom use of digital resources in teaching and learning of English language in secondary schools in Nyeri County. The objectives of the study were to investigate the extent of use of digital resources and role of attitude in classroom use of digital resources in teaching and learning of English language in secondary schools in Nyeri County. The study was guided by the technology acceptance theory. The respondents in the study were 45 teachers of English and 135 form three students from 16 extra county secondary schools purposefully sampled for the study. Data was collected using questionnaires, interview schedules and classroom observation schedules. Piloting was done in two secondary schools in Murang'a County to ascertain validity of the research instruments. Reliability was ascertained using Cronbach Alpha Co-efficient. Quantitative data was analyzed descriptively with the aid of statistical package for social science (SPSS) version 21 software and presented using percentages, tables, figures and written narratives. Qualitative data was analyzed using thematic analysis and presented in written narratives organized according to the study variables. The study found that teachers had positive attitude towards use of digital resources in teaching English language lessons. The study found that a variety of digital resources were used with a bias on easy to use resources such as television, radios and non-graphic internet generated materials which made lessons interesting, extended the concentration span of learners and simplified complex concepts in English language. The study recommended secondary schools to invest in modern digital resources and enacted of policies that initiated regulated and frequent use of digital resources in the English syllabus to not only mainstream the practice but also eliminate pockets of negative attitude towards technology among teachers and heads of institutions.

Keywords: Classroom use, Digital Resources, Teaching and Learning of English Language.

INTRODUCTION

Technology has become so important in modern life that even in the educational circles, tremendous efforts have been put in place to augment traditional methods of teaching with aspects of technological intermediation, though with differing levels of success across the globe (Ghavifekr & Rosdy, 2015). This intermediation of technology in teaching and learning involve both use of digital hardware and software that are collectively referred to as digital resources. Software includes applications, educational software and other content used together with appliances while hardware resources refer to the delivery tools and machines such as computers, internet connection, projectors, smart white boards, LCD and other equipment (Hamidi, Meshkat, Rezae & Jafari, 2011).

A stark difference in use of various digital resources in teaching and learning has been documented as existing between the developed world and the developing countries like Kenya. In developing countries like Kenya, there has been use of video discs, radio, televisions, projectors and smart phones while among the developed countries, use of advanced facilities such as video streaming, Skype, conferencing, and use of discussion boards is widespread (Sanchez & Aleman, 2011). An additional dichotomy is that research in developed countries have linked use of digital resources to specific learning outcome a development that is apparently missing in local studies. These learning outcomes include; simplifying difficult concepts, making learning fun and easy for both teachers and learners, stimulating interest in content being taught, encouraging practical learning and acquisition of additional subject information (Chien, Wu & Hsu, 2014).

More profoundly, research output from outside Kenya have linked use of a diverse range of digital resources to various outcomes in teaching and learning English language than studies done in Kenya. For example, Noytim (2010) linked use of computer games, animations and online repositories to acquisition of higher order skills in grammar, vocabulary and writing. Parvin and Salam (2015) linked use of digital resources to improved students- teacher classroom interactions. Zhao (2013) reported that use of digital resources boosted pronunciation, Kapp (2012) found that it promoted use of interactive teaching methods while Eaton (2010) found that digital learning not only promoted collaborative learning and avoided domination of class discussions by the teacher or a few vocal students. Leakey (2011) noted that use of digital resources in teaching and learning of

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English language motivated teachers and learners by providing additional information and making lessons exciting and enjoyable.

Integration of technology in teaching and learning across Africa, including Kenya, has been cited as low and inadequate despite teachers acknowledging its benefits especially in acquisition of skills in English language (Mafuruga & Muremi, 2017; Ntongeh, 2016). This has been attributed to various factors such as lack of skills, competence and confidence by teachers, negative attitude towards technology and its benefits by teachers and educational administrators, inadequate alignment of educational technologies with pedagogy and less than adequate training of teachers on effective teaching methodology using technology (Ntosokolo & Mlitwa, 2010).

Although the actual status of classroom use of digital resources in Kenyan secondary schools and the attendant benefits of using technology in teaching and learning of English language remain largely unknown due to limited research in the area, several challenges have been identified as barriers to use of technology in teaching and learning of English language in Kenyan secondary schools. These include lack of technical competence, heavy workload among teachers of English, negative attitude that prevent acceptance and use in the first place, lack of training in proper integration of technology, inadequate investment in digital resources and personal characteristics of teachers (Kadiri, 2015; Tenai, 2017; Luhombo, 2015).

While it has been documented that secondary schools in Nyeri County with adequacy of digital resources post better academic performance than those without (Wanjohi, 2011), other aspects such as the type of ICT resources used, the skills taught using these resources and linking of the use of digital resources to specific teaching and learning outcomes have not been adequately researched. As a result, the essence of this paper was to investigate the value added by the extent of use of various digital resources in terms of specific outcomes in teaching and learning of English language, the skills taught and the role of teachers' and students' attitude in the classroom use of these digital resources among well established secondary schools in Nyeri County with the requisite facilities to use technology in teaching and learning.

REVIEW OF RELATED LITERATURE

There is a growing body of literature on the range of ICT tools used in teaching various skills in English language. For example, use of technology in teaching and learning of English language as a second language have been linked to acquisition of very few skills in English language and mostly vocabulary and grammar (Zhao, 2013) Schools in some parts of the world such as China have been reported to be using advanced digital resources in teaching and learning of English language where students were reported to be using interactive social media tools such as face book, blogs, wiki and other platforms to share information on language (Li, 2017). The range of digital resources used in secondary schools in Kenya at the moment and the skills taught remain largely unknown.

Use of various digital resources in teaching and learning of English language have been linked to certain teaching and learning outcomes in studies done outside Kenya. For example, Chowdhurry, Al-Mahmood, Bashar and Ahmed (2011) linked use of audio-visual materials to acquisition of extra subject knowledge and simplifying of concepts. Muntean (2011) reported that use of multimedia resources promoted optimal learning and independence and autonomy of learners in acquisition of skills in English language. Johanna (2017) found that use of I-pad in teaching and learning of English language promoted cognitive growth of both teachers and students where there was adequate policies to regulate use of technology. There is a dearth of studies linking specific learning outcome to use of digital resources in Kenyan schools.

Attitude has been cited as a key determinant of acceptance and use of technology in education. For example, Ghavifekr and Rosdy (2015) found that teachers' attitude on the need and benefits of technology was the most important factor that determine classroom use of digital resources. The study found that the attitude was only positive if teachers had adequate training on integration of technology in pedagogy. Agbatogun (2012) concurred on the critical role of attitude in classroom use of technology adding that no computer literacy program will success if teachers lack the right attitude and conviction that technology is beneficial to them. Zhang (2013) found that although teachers in China had positive attitude towards use of technology in teaching English language, the positive attitude was not enough until it was complemented belief and

conviction that technology was as good as human teaching and be aided by skills in selecting the right media and controlling it.

Studies done among secondary schools in Kenya pointed to a faltering attitude among teachers of English on the benefit of technology in acquisition of language leading use of digital resources to teach only a few skills mostly in grammar and pronunciation (Okenyuri, 2016). Kadiri (2015) found that teachers in secondary schools in Kenya had negative attitude towards ICT as a result of lack of competence although most of the teachers appreciated the needs and benefits of technology. Studies have reported contradictory findings on the attitude of teachers towards use of technology in teaching and learning of English language in Kenya and thus the dire need for clarity. For example, Lack of accessibility of digital resources at the school level in most of secondary schools in Kenya aided in promoting negative attitude towards use of technology (Maina, 2018). Personal and negative attitudes towards technology and its benefit by teachers and students have been reported as significant determinants of use of ICT in teaching and learning activities (Ouma, Awour & Kajambo, 2013). However, studies conducted among secondary schools in Nyeri County reported positive attitude as a result of benefits of technology which were not specified. For example, Ngatia (2015) found that teachers in public secondary schools in Nyeri County had positive attitude on use of ICT in teaching and learning although they rarely used computers in classroom teaching and learning.

Ndirangu, Sossion and Wambugu (2015) found that teachers in secondary schools in Nyeri County had positive attitude towards use of ICT in teaching and learning which was being diminished by lack of access to digital resources at the school level. This study sought to investigate the benefits of technology that swayed the attitude of teachers on use in classroom teaching and learning of English language.

OBJECTIVES
The study was guided by the following objective:
1. To find out the extent of use of digital resources in teaching and learning English language in secondary schools in Nyeri County, Kenya
2. To assess the role of attitude on use of digital resources in teaching and learning of English language in secondary schools in Nyeri County, Kenya

Research Questions
The study sought to answer the following research questions:
1. Which is the extent of use of digital resources in teaching and learning English language in secondary schools in Nyeri County, Kenya?
2. How does attitude affect use of digital resources in teaching and learning English language in secondary schools in Nyeri County, Kenya?

Theoretical Review
The study was guided and informed by the technology acceptance model or theory popularly known as TAM. The theory was propounded by Davis (1989) and provides the salient features that drive acceptance and use of new technology namely; attitude of end users as manifested in their interaction with technology; perceived usefulness and ease of use of technology. The findings of the study validated the premises of the theory as follows; easy to use technology and digital resources had high frequent of use than sophisticated technology. Attitude was a key determinant of use of digital resources with the positive attitude being boosted by the numerous benefits of use of technology such as the additional information, superior presentation and an alternative voice to the teachers. Conversely, for the teachers who held faltering belief on importance of ICT in teaching and learning of English language, there was infrequent and non-effective use of technology.

RESEARCH METHODOLOGY
The study adopted a descriptive survey design. The study used purposive sampling to select 16 extra-County secondary schools as the cases where data will be collected. A census of the 45 teachers of English language in the 16 secondary schools to participate in the study was done. Some 235 form three students were the sample for the study using simple random sampling and use of Krejcie and Morgan tables for sample size determination. Data was collected using specifically designed questionnaires for both teachers and students. Interviews were conducted with 16 teachers who were head of departments in their respectful school. One lesson observation of English language lesson taught using digital resources was done in each secondary school guided by a lesson observation schedule. Quantitative data was analyzed descriptively with the aid of SPSS software and presented using tables and frequencies while qualitative data was analyzed

using content analysis and presented thematically using written narratives.

Research Variables

The dependent variable was teaching and learning of English language which was measured using indicators of making learning meaningful and interesting, simplifying concepts and providing interactive lessons among others. The independent variables of the study were extent of use of digital resources and role of attitude in use of digital resources in teaching and learning of English language were derived from the independent variable of the study.

Study Findings

The study on classroom use of digital resources in teaching and learning of English language was conducted in Nyeri County which is situated in the central region of Kenya among sixteen secondary schools purposively sampled because of adequacy of digital learning infrastructure. The respondents included a census of all 45 teachers of English and 235 form three students who were deemed adequately knowledgeable on teaching using digital resources in their respectful schools and capable of offering non-biased responses. All the teachers were professionally trained with a minimum of Diploma qualification in teaching and over five years of teaching experience. 71% of the teachers were females while 29% were males. The study enjoyed a response rate of 93%. The finding of the study was as follows:

Extent of Use of Digital Resources

The study investigated the extent to which the secondary schools in Nyeri County used digital resources in the teaching and learning of English and Literature and found the following: Over 70% of the students had used computers for academic or non-academic purposes in the school. This was mostly because all the schools had computer laboratories and offered computer studies and as such students had interacted with computers. It was found that 65% of the students had downloaded some form of materials from the internet though not necessarily for academic purposes.

Over 50% of the teachers had used materials downloaded from the internet for use during English language lessons. Even teachers with constrains in use of internet had drawn internet generated materials from many WhatsApp groups formed among teachers for sharing of content. It was found that teachers frequently used non-graphic notes from the internet because of ease of use and abundance of such materials especially for teaching grammar, vocabulary and spelling unlike online graphic materials that required considerable skills in downloading and editing which only a few teachers possessed.

Use of Various Types of Digital Resources

The study used a frequency scale to investigate use of various digital content delivery tools in classroom teaching and learning of English language and found the following:

Table 1: Use of Various Types of Digital Resources in Teaching and Learning

Method/Frequency	Always	Regularly	Often	Rarely	Never
a) Use of television presentation	0%	3.1%	9.2%	7.7%	80.0%
b) Use of Smart phones	32.9%	33.2%	16.2%	8.2%	9.4%
c) Use of Computers	0%	0%	3.1%	9.2%	87.7%
d) Use of internet streaming	0%	0%	1.5%	10.8%	87.7%
e) Use of projectors	0%	1.6%	1.6%	14.1%	82.8%

The study found that despite the massive investments by the government and the individual school in procuring of ICT resources, the digital resources were hardly taken to classrooms for actual teaching and learning because the classes lacked requisite facilities such as electricity connection and internet connectivity. The digital resources were domiciled in laboratories and halls where the researcher conducted lesson observation in almost all the secondary schools. Even the most frequently used mode of delivering digital lessons which was use of televisions connected to DVD players where the digital content was played was

conducted in halls thus the 80% reporting by respondents that they had never been taught using the facility in a classroom setting.

However, there was commendable and frequent use of smart phones by teachers in classes with over 66% of the respondents polling to have been taught using the device always and on regular basis. It was observed that teachers relied on smart phones to deliver content in classes including streaming of online content because of lack of internet connectivity in classrooms despite the fact that all secondary schools had internet

connectivity. There was hardly any use of computers for classroom instructions with 88% of the respondents reporting never to have received instructions using computers in the classrooms save for few teachers who used their personal laptops to deliver content in the classroom. It was established that most of the secondary schools continue to invest in desktop computers despite the obvious benefits of laptops that can be carried to the classrooms.

Likewise, there was infrequent streaming of online content to students in the classroom with over 87% of the respondents reporting never to have benefited from the service. The limited streaming of online content to learners was done by technology spirited teachers mostly from their smart phones and personal computers. However, teachers did stream content frequently in the staffroom and made notes to take to classrooms and teach using the conventional talk and chalk

method. Only a few secondary schools had the facilities to take projectors to the classroom with only 14% of the respondents reporting to have rarely been taught skills in English language using projectors. The challenge was compounded by the fact that only a few teachers who had undertaken in-service courses had the competence and confidence to use projectors with many struggling and needing assistance of technicians during lesson observation.

Skills Taught Using Digital Resources
The study sought to investigate the extent the digital resources were used to teach skills of pronunciation, debating, listening, plot development in literature, characterization and discussion of themes in literature using yes or No answers to propositions on if they had been taught or taught the following skills in English language using various forms of digital resources. The findings were as follows:

Table 2: Skills Taught Using Digital Resources

Skill in English	Yes	No
a)Pronunciation skills	70.6%	29.4%
b)Debating skills	14.9%	85.1%
c)Listening skills	19.3%	80.7%
d)Writing Skills	37.3%	62.7%
e)Vocabulary Development Skills	56.7%	43.3%
f) Skills in grammar	46.3%	53.7%

The study found that both digital hardware and software were being to teach a variety of skills in English language in secondary schools in Nyeri with differing frequency. The digital resources were mostly used in teaching pronunciation with some 70% of the respondents agreeing to such a proposition. This high frequency was as a result of availability of materials from Kenya Institute of Curriculum Development (KICD) in form of DVDs and in ready to use form for teachers who just inserted the DVDs and played. However there was minimal use of online content to teach pronunciation because of lack of skills in downloading and customizing the materials. Some teachers feared using content with native speakers of English language drilling in pronunciation for fear that they might be embarrassed on their mother tongue influence in pronunciation of some English words Digital resources were hardly used for teaching of skills in debating with 85% of the respondents reporting not to have been taught debating skills using digital resources. This was attributed to lack of ready content on the same supplied to schools by KICD and vendors and the fact that teachers lacked knowledge on existence

of such content online and those who knew lacked skills in downloading the content from sites such as you tube and customizing for their needs Listening skills in English were also infrequently taught using digital resources with over 80% of the respondents reporting not to have been taught the skills with digital resources. It was established that listening skills are mostly ignored even during ordinary lessons and equally the developers of content had not developed sufficient content on the same. Despite its importance, teachers assumed learners will automatically acquire the skills without conscious teaching.

There was only some moderate use of digital resources in teaching of skills in writing with only some 37% of the respondents reporting have been taught. Most of the teachers lacked adequate skills in using the rich online repositories and writing tutorials in preference of using non-graphic notes on key writing skills that are easy to download. Some 57% of the respondents reported to have been taught vocabulary development using digital resources. During lesson observation, it was confirmed that teachers mostly used on-line

speaking dictionaries and content supplied by vendors and KICD on vocabulary development and hardly used vocabulary teaching tutorials present in sites such as You Tube.

Teaching of skills in grammar was constrained with only 46% of the respondents reporting to have taught the skills using a digital resource that was mostly done using non-graphic downloaded notes because teachers lacked adequate skills to use games and animation of content to adequately teach grammar skills. Most of the available digital content lacked ready to use content on grammar

which was mostly taught using the traditional talk and chalk method.

Attitude and Use of Digital Resources
The study investigated the role of students' and teachers' attitude on use of digital resources in teaching and learning of English language. Proxies on merits and demerits of using digital resources in teaching and learning of English language were used to assess the attitude of the teachers on use of digital resources in teaching and learning of English language using an agree to disagree scale and found the following

Table 3: Teachers' Attitude on Use of Digital Resources

Provisions on merit / demerit of using digital resources	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a)Use of Digital Resources being faster than traditional methods	0%	0%	14.3%	42.9%	42.9%
b)Use of digital resources leading to improved content retention	42.9%	57.1%	0%	0%	0%
c) Use of digital resources leading to improved learner participation in lessons	42.9%	28.6%	14.3%	14.3%	0%
d) Use of digital resources improving students' concentration	42.9%	42.9%	14.3%	0%	0%

The study found that teachers in secondary schools in Nyeri County had positive attitude towards use of digital resources in teaching and learning of English language with all the teachers either strongly agreeing or disagreeing that use of digital resources increased content retention by learners. Over 90% of the teachers either strongly agreed or agreed that use of digital resources improved learner participation during lessons and a further 86% either strongly agreed or agreed that use of digital resources improved concentration span of students during English language lessons.

The positive attitude by teachers was borne out of appreciation that use of digital resources provided additional subject information, provided students with an additional refreshing voice from that of the teachers, was a break from the conventional talk and chalk method of teaching and offered superior presentation of content. This positive attitude was prevalent in all schools despite the difficulties teachers of English faced in access to digital resources due to lack of effective timetabling practices, favourable policies and administrative support in form of training and provision of technicians to aid teachers with challenges of competence and confidence in use of various digital resources.

However, the positive attitude towards use of digital resources by teachers was significantly diminished by the fact that it was considered too slow in delivery of content of a subject teachers confided that was too vast for adequate coverage even using the relatively faster talk and chalk method of teaching. In this respect, over 85% of the teachers polled either disagree or strongly disagreed that use of digital resources was a faster method of content delivery than traditional method of teaching.

It was observed that a considerable number of teachers who favoured faster delivery of content to cover the syllabus over acquisition of skills by learners unnecessarily interfered with flow of digital lessons with talk and chalk even when the content was self-explanatory to the chagrin of students enjoying the lesson. This was one of the many manifestations of lack of skills by teachers to properly integrate digital resources in classroom teaching and learning and involve students because of inadequate or lack of training.

Students' Attitude on Use of Digital Resources
The study sought to establish the attitude of students on use of digital resources in teaching and learning of English language by comparing students' experiences during lessons taught using digital resources to those taught using traditional

methods. The students were required to poll yes or no to indicate which method of teaching was superior in respect to the following experiences and the results were as follows:

Table 4: Students' Attitude on Use of Digital Resources

Experience / Scale	Yes	NO
Acquisition of extra knowledge	86.4%	13.6%
Helping in revising	77.95%	22.1%
Simplifying complex concepts	75.0%	25.0%
Providing new methods of teaching	29.4%	70.6%
Better content presentation	72.1%	27.9%

It was found that students had overwhelming positive attitude towards use of digital resources in teaching and learning of English language as they polled use of digital resources as being superior to traditional methods of teaching with over 70% in respect to acquisition of extra subject knowledge, aiding in revision, simplifying complex concepts in English language and offering better presentation of subject content. It was observed that students had great proficiency in use of various digital resources in few cases they were allowed to manipulate the resources and this being a generation brought up with technology and adept at using computers and smart phones their skills exceeded those of teachers in several schools and their positive attitude will be the divers of use of technology in schools in coming years as posited by the theory of technology acceptance.

However, over 70% of the students negated the proposition that use of digital resources provided new methods of teaching. this was as a result of infrequent use of technology by teachers, poor methods of integrating digital resources in teaching and learning by inadequately trained teachers who created two lessons in one by interfering flow of digital lessons with unnecessary talking and also use of sub-standard digital content that lacked provisions of students' engagement, feedback, superior presentation using audio-visual content or even lesson evaluation. The most common digital content procured from vendors were basically a recording of lessons offered in the conventional way and in most of the cases the students were not accorded an opportunity to interact with the digital resources.

CONCLUSION
The research attained its objectives, answered the research questions and it can be concluded that:
1. Use of digital resources in teaching and learning of English language is low and still less of a tentative enterprise in secondary schools in Nyeri County. Despite the massive investment in ICT resources at the school level, technology has not been taken to the classroom mainly because of lack of drive and appreciation of benefits of technology by decision makers, classrooms not being compliant for use of digital resources and lack of favourable policies.
2. Extent of use of digital resources affected use of digital resources in teaching and learning of English language as it determined which resources are deployed, how they are deployed and skills and learning outcomes obtained through use of various digital resources. It was concluded that secondary schools in Nyeri county deployed few and mostly easy to use digital resources to teach only a few skills in English language especially pronunciation and vocabulary.
3. Attitude was a key determinant of use of digital resources in teaching and learning of English language as it determined frequency of use of the technology, appreciation of the benefits of digital resources by both teachers and students and reception of technology by end users. It was concluded that both teachers and students had positive attitude towards use of digital resources in teaching and learning of English language mainly because of its numerous benefits in stimulating students' interest through superior presentation and supply of additional subject information. The positive attitude t was significantly diminished by challenges in access to the digital resources and lack of administrative support in training and policies.

RECOMMENDATIONS
Secondary schools should make more investment in making classrooms compliant with use of digital resources in teaching and learning through provision of electric and internet connectivity in classrooms.

1. Secondary schools should procure modern ICT facilities such as LCD projectors, laptops and subscribe to quality content for teaching and learning English language to increase the range and extent of use of digital resources

2. There should be elaborate and pointed in-service of teachers with emphasis on locating, downloading, customizing and delivering digital resources using the most effective methods that involve learners in use of technology and teaching of more skills in English language using digital resources

3. The positive attitude towards use of digital resources by teachers and students should be promoted through development of policies that increase frequency of use of digital resources by earmarking some lessons for delivery using digital resources and developing favourable policies in timetabling and access to digital resources in schools for teaching and learning of English language

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