Global Scientific JOURNALS

GSJ: Volume 8, Issue 8, August 2020, Online: ISSN 2320-9186

www.globalscientificjournal.com

AVAILABILITY OF E-RESOURCES FOR USE IN TEACHING AND LEARNING OF ENGLISH LANGUAGE IN PUBLIC SECONDARY SCHOOLS IN KAKAMEGA COUNTY, KENYA

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Abstract:

The Government of Kenya invested in e-resources considerably with a belief to support and transform learning outcomes. Despite the effort, English language registered dismal performance in Kenya Certificate of Secondary Education (KCSE) examinations in Kakamega County, Kenya. In the years 2012 – 2019 there was negative deviations: 0.007 – 0.01 in KCSE examinations respectively. The blame was on inadequate and inappropriate integration of e-resources in the curriculum. Specific objective of the study was to: Examine availability of e-resources for use in teaching and learning of English language in public

secondary schools in Kakamega County, Kenya. The study found out that e-resources were available but inadequate for frequent teaching and learning of English language. Based on the findings, the study recommended that Ministry of Education should provide adequate e-resources in public secondary schools.

Purpose: Assess integration of e-resources in teaching and learning of English language in public secondary schools in Kakamega County, Kenya

2. Methodology

The study was guided by Bruner's Constructivism Theory (1990) and adopted descriptive survey design. The study population was 150 head teachers, 10,000 Form Two students and 250 teachers of English. Simple random sampling technique was used to select a sample of 108 head teachers, 152 teachers of English and 370 Form Two students of public secondary schools in Kakamega County, Kenya. Krejcie and Morgan Table determined sample sizes (Krejcie & Morgan, 1970, The Research Advisors, 2006). Stratified proportional sampling was used to represent schools in the county in three categories namely national, county and sub–county. Research instruments included: questionnaire for head teachers, teachers and Form Two students; interview schedule and observation checklist were for teachers. Face and construct validity of research instruments was established by judgement of three experts in the Department of Educational Communication, Technology and Curriculum Studies. Reliability of research instruments was established through pilot study on 10 head teachers, 20 teachers of English and 30 Form Two students. The study used test-retest method to estimate degree of reliability of the instruments. The computed coefficients of reliability were 0.85, 0.85 and 0.80 for questionnaires of head teachers, teachers of English and Form Two students respectively. The small scale preliminary study assessed feasibility, duration, cost, adverse events and improved upon descriptive design prior to performance of full-scale research. Data was analysed through descriptive statistics that included frequencies, means and percentages. Statistical Package for Social Sciences (SPSS) was used to analyse the data.

Findings: E-resources were available but inadequate for frequent teaching and learning of English language.

Unique contribution to theory, practice and policy: The study contributed to development of teacher of English in regard to integration of e-resources in the curriculum. It also

generated new knowledge of searching, selecting, processing and using technological information adequately in learning of English language.

Keywords: Availability, e-resources, integration, teaching and learning

1. INTRODUCTION

The world changed rapidly and highlighted impact of electronic resources (e-resources) in all aspects of learning life. A report showed e-resources provided real world contexts for teaching and learning in the curriculum (Bransford, Brown & Cocking, 1999). The study of Oak (2016) referred e-resources as a system in which information was stored electronically and made accessible through electronic systems and computer networks. Information Communication Technology (ICT) based education depended on availability of web enabled and mobile compatible learning (Arnab & Dey, 2018). The study by Sampath (2018) pointed that only 20.7% rural students and 69.7% of urban students used computer for academic purposes. The results revealed inadequate use of computers by rural students. Based on Chetna (2015) findings, new technologies were scarcely used in Indian schools. Certainly, when e-resources were used in teaching and learning they increased productivity and retention rates. Chetna's study targeted ICT and quality education in Indian schools. However, the current study examined availability of e-resources for use in teaching and learning of English language in public secondary schools in Kakamega County, Kenya. Therefore, Chetna's study did not target specific teaching subject.

The analysis of Kenya National Examination Council (KNEC, 2019) indicated overall performance in English language for five years fell short of the ideal mean of 100(50%) nationally. This had not changed in Kakamega County where students' KCSE examinations performance in English language showed a downward trend. In the years 2012, 2013, 2014, 2015, 2016, 2017, 2018 and 2019 there was negative deviations: 0.0011, 0.007, 0.0097, 0.1067, 0.3693, 0.2 and 0.01 respectively (ROK, 2019, ROK, 2020). The dismal performance was attributed to inadequate and inappropriate integration of e-resources in teaching and learning of English language in public secondary schools in Kakamega County, Kenya. According to Ayere, Odera and Agak (2010), e-materials produced better results in teaching and learning process. Specifically, the study: Examined availability of e-resources for use in teaching and learning of English language in public secondary schools in Kakamega County, Kenya. Consequently, the following question was formulated to direct the study: Which e-resources are available for use in teaching and learning of English language in public secondary schools in Kakamega County, Kenya?

3. Results and Discussion

3.1 Availability of E-resources for use.

English Teacher's Questionnaire (ETQ) sought to find out from teachers of English number of e-resources available for teaching of English language. Teachers indicated whether e-resources were available or not available as summed up in Table 1.

Table 1: E-resources available for use

n =152 Teachers of English

Types of E-resources	Number of teachers (f)	Aggregate	(%)
Discs recording	152	200	100.0
Video cassette recorders (VCR)	42	80	27.6
Computer laboratories/rooms	49	50	32.2
Radios	152	152	100.0
E-resource persons	61	70	40.1
Film strip slides	8	8	5.3
Over Head Projectors (OHPs)	67	70	44.1
Whiteboards	58	60	38.2
CD ROM Discs	77	100	50.7
Computers	152	500	100.0
Printers	152	155	100.0
E-readers	40	50	26.3
Televisions (TVs)	152	160	100.0
Mobile phones	83	160	54.6
Videos	8	8	5.3
Films	5	5	3.3
E-newspapers	152	250	100.0

The results in Table 1 revealed that all 152 teachers of English (100%) indicated that their schools had discs recording, radios, computers, printers, TVs and e-newspapers. 42 (27.6%), 49 (32.2 %), 61 (40.1 %), 8 (5.3 %), 67 (44.1%), 58 (38.2%), 77 (50.7%), 40 (26.3%), 83 (54.6%), 8 (5.3%) and 5 (3.3%) teachers of English indicated availability of video cassette recorders (VCR), computer laboratories/rooms, e-resource persons, film strip slides, OHPs, whiteboards, CD–ROM discs, e-readers, mobile phones, videos and films for teaching English language respectively. The results suggested that available e-resources were inadequate for frequent teaching and learning of English language. Therefore were scarcely utilized in teaching and learning process. The current results concurred with the study of

Goko (2012). On the contrary, Goko's study did not target a specific teaching subject in the curriculum. According to the current results and that of Goko's study, it was apparent that inadequate e-resources infrastructure hindered integration of e-resources in teaching and learning in public secondary schools. Generally, teachers of English were faced with the problem of inadequate e-resources in teaching and learning process.

On the issue of inadequate e-resources, Muvango, Indoshi and Okwara (2019) blamed schools authorities' reluctance to purchase them. The schools management should provide enough funds for purchasing e-resources. They used saturated sampling to select small sample of 20 headteachers and 40 teachers of English in Kakamega East Sub-County, Kakamega County whereas the present research used simple random sampling to select large sample of 108 headteachers and 152 teachers of English in public secondary schools in Kakamega County, Kenya. The present research preferred large sample because it reduced bias such as non-response in the study (Kaplan, Chambers & Glasgow, 2014). Contrariwise, small sample affected reliability of survey's results due to high variability thus bias in the study (Simmons, 2018).

Conversely, from Table 1, all schools had discs recording (100%). The current results on discs recording were in tandem with Miima (2014) observation. She showed that all 45 public secondary schools had discs recording. Both Miima's study and the current results associated 100% availability of discs recording with their inexpensive nature and convenience of use in teaching and learning process. The study of Miima (2014) analysed data using descriptive statistics and inferential statistics (Chi-square and ANOVA). The present study also used descriptive statistics included frequencies, percentages and means; however it did not use inferential statistics in its analysis of data. Interrogation was done to establish why teachers preferred discs recording in teaching and learning of English language, one of the teachers asserted that:

> *Discs recording are easy to use, cheap and found in shops easily. I give subject champion student to operate for others and leave them to watch the programs. Sometimes, I do not go to class, students watch, discuss and write down notes themselves.*

Several observations indicated that majority of students used mobile phones at home to revise and to do assignments. For instance, students used Shupavu 291 app to access revision material, topics and Wikipedia summaries at home. It worked through SMS and USSD (Mworia, 2015). However, Table 1 showed inadequate use of mobile phones in

teaching and learning of English language. According to Komu (2016) smart phones with wireless internet connectivity were inadequate. Therefore, the prices of mobile phones should be made affordable. In addition, schools should intensify and embrace integration of mobile phones in teaching and learning process. The study of Sachs (2008) indicated that teachers used mobile phones to share information about the process of teaching, access internet and down load unlimited information for purpose of instruction.

Observation checklist sought to find out main location of e-resources in public secondary schools. The findings were summarised in Table 2.

Table 2: Access – Point of E-resources
n =108 Teachers of English

Locations	Available in number of schools (f)	Percentage (%)
Computer rooms	51	47.2
Administration offices	28	25.9
HOD Languages Offices	19	17.6
Schools' e-resource centres	10	9.3

In Table 2, 51 (47.2%), 28 (25.9%), 19 (17.6%) and 10 (9.3%) teachers of English confirmed that e-resources were kept in the computer-rooms, administration offices, HOD languages offices and schools' e-resource centres respectively. Only 51 schools (47.2%) had computer rooms however the current study established that all schools had computers. Therefore, the study showed that computer rooms and e-resource centres were inadequate for teaching and learning process. Computer rooms and schools' e-resources centres were right access–points of e-resources in the curriculum. These were points where students practised learning using digital content. Disadvantages of administration offices and HODs' languages offices as access-points of e-resources were that e-resources could not be freely accessed and used frequently by students. It was also tedious carrying them for classrooms use. Generally, schools should build more computer rooms/laboratories and schools' e-resource centres to enhance integration of e-resources in teaching and learning of English language. Lack of access to computer rooms/schools' e-resource centres was most common hindrance to integration of e-resources in teaching and learning process.

According to Anderson (1997), ICT use was still constrained by irregular or unavailable electricity supply in the curriculum. Thus, observation checklist sought to find out presence of electricity and generators in public secondary schools. Electricity was available in all schools however only 30 (27.8%) public secondary schools had generators. Rural

electrification project had availed electricity in learning institutions in Kakamega County, Kenya (ROK, 2009). Available generators (27.8%) as back up were inadequate in public secondary schools in the county. In case of power outage, electricity could not be restored in most schools that lacked generators. At least, the current study indicated 30 (27.8%) generators available. The research of Tella (2011) showed none of the colleges observed had a standby generator.

Accessibility of e-resources was a necessary condition for integration of e-resources in education (Plomp, Anderson, Law & Quale, 2009). ETQ sought to find out how teachers of English obtained various e-resources for teaching and learning of English language. The findings were summed up in Table 3.

Table 3: Accessibility of E-resources
n =152 Teachers of English

How E-resources were obtained	Number of teachers (f)	Percentage (%)
Students made them	46	30.3
Ministry supplied them	00	00.0
The school bought them	94	61.8
Teachers borrowed them	61	40.1
Teachers made them	73	48.0

Table 3 revealed that 94 teachers of English (61.8%) depended on school authorities to buy for them e-resources for teaching and learning of English language. 73 (48%) teachers of English indicated that they themselves made e-resources while 61 teachers of English (40.1%) borrowed from other institutions. 46 (30.3%) teachers of English suggested that students made e-resources for classroom use. Significantly, the method of doing and discovering enhanced learning amongst students (Dahama & Dhatnagar, 1992); it increased interaction which was a stimulus for better learning outcomes. Interactive learning formed cooperation between students' efforts and competition conditions (Aija & Inga, 2012). Therefore, teachers of English language should encourage learners to learn by creating and co-creating in the curriculum. In summary, the current results revealed that public secondary schools did not prioritize e-resources mobilization in teaching and learning of English language.

Moreover, from Table 3, results indicated that the ministry concerned never supplied public secondary schools with e-resources. Ministry of Education (MoE) commitment to provide e-resources was not forthcoming in public secondary schools. This was contrary to social

pillar of Vision 2030. Through the social pillar, MoE was obligated to provide quality education that prepared learners to competitively function within a highly integrated, technologically–oriented and information–based global economy (ROK, 2018). Alternatively, public secondary schools should work closely with donors, sponsors, Non–Governmental Organisations (NGOs) and schools management for provision of adequate e-resources in the curriculum.

Integration of e-resources should be guided constantly to enhance appropriate usage in the curriculum (Sharma, 2009). Head teacher's Questionnaire (HTQ) sought to find out how head teachers ensured that teachers of English used e-resources appropriately in teaching of English language. Findings were summarized in Table 4.

Table 4: Effective E-resources use

n = 108 Headteachers

Ensured appropriate use of E-resources	f	%
Head of subject supervised use of e-resources	32	29.6
Head teachers supervised it themselves	19	17.6
Encouraged team teaching and peer learning in their schools	21	19.5
HOD Languages supervised use of e-resources	36	33.3
Total	**108**	**100**

Table 4 depicted that 32 head teachers (29.6%) mandated head of subject (English) to supervise use of e-resources while 19 (17.6%) head teachers supervised use of e-resources themselves. 21 head teachers (19.5%) encouraged team teaching and peer learning in their schools for effective integration of e-resources in teaching and learning of English language. Team teaching and peer learning activities motivated teachers to teach better using e-resources. They enhanced interactive learning consequently; improved academic performance in schools. 36 head teachers (33.3%) allowed HOD languages to supervise use of e-resources in teaching and learning of English language. Significantly, integration of e-resources should be monitored by all stakeholders in the curriculum. However, HOD of languages was chief quality assurance and standards officer of the department. They selected, prepared and organised teaching and learning resources, and encouraged their effective use in the classrooms (CEMASTEA, 2014). Therefore, it was right for head teachers to ensure that teachers of English used e-resources appropriately during teaching and learning of English language so as to improve learning outcomes.

HTQ sought to find out from head teachers use of e-resources in the schools. The findings were summed up in Table 5.

Table 5: Use of E-resources

n =108 Headteachers

E-resources	Number of Head teachers (F)	Percentage (%)
Internet search/use	20	18.5
Word processor	59	54.6
Computer games	7	6.5
Internet assignments	19	17.6
Simulation software	3	2.8
Total	**108**	**100.0**

From Table 5, majority of head teachers 59 (54.6%) indicated teachers of English used word processors in teaching and learning process. The results implied that word processors were averagely used for teaching and learning of English language. Teachers of English should intensify and embrace use of word processors because (Mburu & Chemwa, 2004) they had superior editing tools such as thesaurus, autocorrect spelling and grammar checkers which improved writing process. The current results were in agreement with Magnesi (2011) study which showed word processing software was most often incorporated into pedagogic practices. Moreover, from Table 5, 20 (18.5%), 7 (6.5%), 19 (17.6%) and 3 (2.8%) headteachers indicated teachers of English used internet search, computer games, internet assignments and simulation software in teaching English language respectively. The current results showed inadequate integration of e-resources in teaching and learning of English language unlike the study of Ayere *et al.,* (2010) which recorded non-use of electronic media in teaching and learning of languages. Finally, there was inadequate integration of internet search (18.5%) and internet assignments (17.6%). The research revealed that most public secondary schools lacked funds to pay internet service providers.

ETQ sought to find out from teachers of English use of CD-ROM story books, computer games, internet assignments, class internet search, software drills and practices and e-mail in teaching of English language. 47 (30.9%), 33 (21.7%), 66 (43.4%), 59 (38.8%), 25 (16.4%) and 72 (47.4%) teachers of English used CD-ROM storybooks, computer games, internet assignments, class internet searches, software drills and practices and e-mail in teaching of English language respectively. Class internet searches (38.8%) were few in teaching and

learning of English language. The study of Machuki (2018) also showed few respondents used internet and e-mail in the curriculum. Information search should be intensified; it contributed positively to academic improvement (Ayere *et al.*, 2010).

In addition, class internet searches should be enhanced because several textbook publishers digitized hundreds of their titles which could be downloaded from internet retail site Amazon at almost a quarter the price of buying physical books (Achuka, 2016). Therefore, increased use of internet search enabled learners to acquire knowledge, skills and attitudes in the curriculum. Generally, the findings indicated inadequate integration of e-resources in teaching and learning of English language. The presence of few e-resources in public secondary schools was a pointer that the environment was not conducive for integration of e-resources in teaching and learning of English language.

Furthermore, majority of teachers used e-mail in teaching and learning of English language. However, its usage was inadequate (47.4%) in teaching and learning process. Integration of e-mail in teaching and learning should be intensified because (Sharndama, 2013) e-mail fostered interaction in learning process. Interactive learning was regarded as a stimulus for effective output (Long, 1996). Through the exchange of email, students expanded their vocabulary, structures and expressions in English language. Teachers sent learning materials to students via e-mail. They also gave assignments, assessed and posted feedback to the students' email boxes. In conclusion, the results established inadequate use of e-resources in teaching and learning of English language (Sharndama, 2013).

Learner's Questionnaire (LQ) sought to find out from learners on teacher use of class internet search, internet assignments, computer games, software drills and practices, word processors, CD-ROMs and e-mail in teaching and learning of English language. The results revealed majority of learners strongly agreed and agreed that teachers used class internet search (70%), internet assignments (70.3%), word processors (89.2%), CD – ROMs (59.5%) and e-mails (67.8%) in teaching of English language. These findings showed that teachers allowed learners to access and use class internet search, internet assignments, word processors, CD-ROMs and e-mail during learning process. Importantly, the results indicated that learners used internet to access information that enhanced knowledge, skills and attitudes in the curriculum. The current study established that class internet search, internet assignments, computer games, software drills and practices, word processors, CD-ROMs and e-mail were inadequately used but learners still appreciated using them for learning.

Therefore, institutions authorities and MoE should provide adequate e-resources to support learning in public secondary schools.

ETQ sought to find out ways teachers accessed content of e-resources. The findings were summarized in Table 6.

Table 6: Teachers access of E-content
n =152 Teachers of English

Content of E-resources	F	Percentage (%)
On computer screen	144	94.7
On phone screen	83	54.6
Download in storage devices	150	98.7
Print out	127	83.6

Table 6 indicated ways teachers accessed content of e-resources for teaching and learning of English language. 144 (94.7%), 83 (54.6%), 150 (98.7%) and 127 (83.6%) teachers of English accessed content from computer screens, phone screens, download in storage devices and print out from e-resources respectively. The results revealed that teachers were aware of various ways of accessing content from e-resources. However, content from phone screens was inadequately used in teaching and learning process. It was an indicator that cell phones were not integrated adequately in the curriculum. Teachers should embrace integration of mobile phones into teaching and learning of English language. Mobile phones were critical distribution platform for internet, video and audio application (Albarran, 2010). Therefore, a cell phone connected to a wireless network was a web surfer, word processor, dictionary and a gateway to the world's knowledge base (Wambugu, 2015b).

ETQ sought to find out how many times teachers of English used e-mail in teaching and learning of English language. Teachers rated usage of emails in terms of daily, weekly, monthly, fortnightly and never at all. The findings were summed up in Table 7.

Table 7: E-mail use

n =152 Teachers of English

Time duration	Number of teachers used E-mail (F)	Percentage (%)
Daily	2	1.3
Weekly	33	21.7
Monthly	71	46.7
Fortnight	46	30.3
Never at all	00	0.0
Total	**152**	**100.0**

The findings revealed that 2 (1.3%), 33 (21.7%), 71 (46.7%) and 46 (30.3%) teachers of English indicated using emails daily, weekly, monthly and fortnightly in teaching and learning of English language respectively. Majority of teachers of English (46.7%) used e-mail monthly during the school year. E-mail was inadequately used in the curriculum. In addition, the results 23% teachers of English daily (1.3%) weekly (21.7%) showed that email was inadequately used in teaching and learning process. According to Sharndama (2013), email use made learners active discoverers and explorers.

Observation checklist sought to find out how teachers accessed internet connection during teaching and learning of English language. 11 (10.2%), 12 (11.1%) and 10 (9.3%) teachers of English used satellite, wireless internet connection and cable to access internet respectively. The results showed that satellite, wireless internet connection and cable were inadequately used in teaching and learning process. However, all teachers of English (100%) used modems to access internet connection. This was because of their convenience of use and inexpensive nature. The study of Robinson (2010) differed with the current results. Robinson revealed that teachers mostly preferred to access internet connection related resources. The current study showed few teachers used satellite, wireless internet connection and cable to access internet. The present research showed that most public secondary schools did not afford high fees charged by internet service providers. Schools lacked enough funds to support computing facilities. To sum up, the findings pointed that teachers' access of internet was inadequate in teaching and learning process.

TIS sought to find out from teachers of English how they stored their work in teaching and learning of English language. Findings were summarised in Table 8.

Table 8: E-tools for Content Storage

n =108 Teachers of English

Type of storage	Number of teachers (f)	Percentage (%)
Cloud computing	92	85.2
Phone memory	81	75.0
Flash discs	108	100.0
CD discs	108	100.0

From Table 8, 108 teachers of English (100%) stored their work in flash discs and CD discs. Flash discs and CD discs were available in all schools. The results indicated that flash discs and CD discs were easily prepared and used in teaching and learning process (Lim, Chai &

Churchil, 2010). In addition, Okoth (2016) observed that videos or photos were stored in flash discs and CD discs thereafter displayed on laptop/computer for instruction use. 85.2% and 75% teachers of English used cloud computing and phone's memory to store their work respectively. Teachers of English were right to indicate how they stored their work because in case of content loss; it could be retrieved from back up easily. Alternatively, Wambugu (2016) noted that documents, programmes and other files should be stored on hard drive. Also, a portable USD drive could be used to add storage, or back up. Therefore, schools should check for computer memory and hard drive when purchasing school computers. Furthermore, interrogation was done to find out why flash discs and CD discs were preferred for storage in teaching and learning, one of the teachers asserted that:

> *CD discs and flash discs are readily available, cheap and portable. They are easy to use for storage and display purposes. However, flash discs can accommodate many documents, work and editing is done easily unlike CD discs.*

4. Conclusions and Recommendations

4.1 Conclusions

Availability and use of e-resources in teaching and learning was inadequate in the curriculum. Teachers indicated availability of e-resources but they were not using them in teaching and learning of English language. Most available e-resources were discs recordings, computers, radio, printers, e-newspapers and TVs. Film strip slides (5.3%), videos (5.3%) and films (3.3%) showed limited success of integration of e-resources in teaching and learning of English language. Teachers of English blamed the absence of e-resources on school authorities' reluctance to purchase them. Moreover, MoE commitment to provide e-resources was not forthcoming.

4.2 Policy Recommendations

The study recommended that MoE should come up with a program of provision of free or subsidized e-resources to every public secondary school. The government should provide adequate funding for schools to purchase, provide and develop relevant e-resources for teaching and learning of English language. Moreover, every educational division must have e-resource centre fully equipped and continually replenished by MoE. From e-centre, schools would borrow relevant e-resources for their English language lessons. Therefore, English Language E-resource Centre (ELEC) should be formed to be distributing e-resources to public secondary schools.

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