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Programme in Public Primary Schools in Kitui West Subcounty,
Kenya**



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Teacher Workload and Implementation of Digital Literacy Programme in Public Primary Schools in Kitui West Subcounty, Kenya

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Abstract

Purpose: The aim of the study was to investigate the influence of teacher workload on implementation of digital literacy programme in Kitui County, Kenya. The research question addressed the following key items: The status of teacher workload among primary school teachers, activities that limit teachers from integrating ICT in learning and the challenges that teachers faced while preparing for ICT classes and the mitigation measures that may help in ensuring teachers integrate ICT fully in teaching and learning.

Methodology: The study used descriptive survey design where both qualitative and quantitative data were analysed. Inferential statistics was used to determine the influence of independent variable on the dependent variable. Statistical Package for Social Sciences was used to analyse data which was presented using two sample t-test tables and percentages. The target population for the study was all 80 head of institutions, 710 teachers and 1550 Grade 1 pupils from all 80 primary schools in Kitui West Subcounty. Simple random sampling technique was used to select the sample size of 24 headteachers, 213 teachers, and 155 Grade 1 pupils. Data were collected using questionnaire for teachers, interview guides for headteachers and focus discussion guides were used for pupils.

Findings: The finding indicated that there was a positive coefficient of 0.611 was realized on teacher training, hence teacher training had influence on execution of the digital programme. On teacher workload, a difference of 2.1666 was recorded implying that teacher workload was significantly less in schools where teachers were frequently using ICT devices

Unique Contribution to Theory, Policy and Practice: The recommendations of the study were; the Teachers Service Commission should recruit additional teachers to address the high workload and create more time for digital utilization in classroom teaching. Moreover, there is need to have proper planning on the time allocated for an ICT class so that teachers deliver adequately during the lessons.

Keywords: *Digital Literacy, Teacher Workload, Digitization, Technology-driven Education*

Introduction

Background to the Study

Digital literacy has been adopted in many countries mainly because it has made teaching and learning interesting than before to both learners and teachers. Aldhafeeri and Al-Awidi (2017) indicated that though teachers in Kuwaiti had portrayed increased pedagogical and technological preparedness to implement digitization in learning, some factors have slowed down the journey to successful implementation, they include; time limits that leads to increased workload.

Globalization has necessitated the need to equip learners with 21st Century skills to adapt to the fast-changing universe (Nguli, 2019). The recent improvements in ICT continue to flock this era of technology-driven education systems (Munyantore & Mbalire, 2017). The Economic Organization for and Development and Cooperation (OECD) report of 2016 indicated that by 2012, (43%) of the learners had access to laptops while (11%) had access to tablets in most of her member states. These rates were observed in countries such as; Russian Federation (64%), Australia (89%), Denmark (91%) while Sweden and Norway had (87 %) and (75 %) respectively. The laptop-procurement projects increased access to over (20%) in Uruguay, Chile, Australia as well as Sweden while institution tablets were distributed on a ratio of one is to five students in Singapore, Jordan, Australia and Denmark by 2012.

Rwanda became the first country in Africa to embrace this technology after a successful partnership with One Laptop Per Child (OLPC) to provide affordable and low power laptops in her primary schools. Gisoda (2016), conducted a descriptive survey on how OLPC impacted the quality of education in Rwanda. The survey indicated that the program had constructive impact on education that increased from (63.3%) to (67.5%) on the quality of education in all taught subjects.

Similarly, in KICD (2015), launched the Basic Education Curriculum Framework where digital literacy skill was among competencies included in the framework and considered as the fundamental competence for not only education but also life in the digital driven world. This curriculum change was informed by the necessity to adjust the system of education with 2010 Constitution and Vision 2030. Consequently, government launched the digital literacy programme (DLP) in 2016 also known as 'Digischool'

However, despite the initial drive about the integration of ICT in education, there are some critical issues on the impacts it has brought in education activities in Africa and beyond (Kafu, 2016). For example, a study by Smadi and Raman (2020) disclosed that teachers lacked sufficient time to integrate ICT in education and teachers could not accomplish their task on time. The study further recommended increase of classroom time from forty-five minutes to a full hour to solve the timing problem.

LITERATURE REVIEW

Teacher Workload and Implementation of Digital literacy Programme

Strange (2018) notes that teachers are unlikely to integrate technology in education regularly without adequate time to prepare. A survey by Confederation of American Teachers on Quality of Life, Education and Work (2017) revealed that demanding workload was not only related to teaching but also with the introduction of new technological demands in the curriculum without removing the previous tasks to balance their workload (Malik 2019). Kilinc et al., (2018) noted that working with digital technologies in schools is often difficult because they present new challenges and demands for teachers.

Research by Smadi and Raman (2020) on effect of time on application of ICT during social studies. The study results revealed that heavy workload had a direct influence on technological integration in teaching, the classroom observations revealed that busy schedules hindered all the teachers from implementing ICT in the curriculum. The study recommended that educational policy makers should increase the time allocated for a lesson from 45 minutes to a full hour to enable teachers apply ICT in learning activities efficiently and solve the timing problem. This is because developing a quality and technology-rich lesson plan needs extra time which many educators lack (Andrei, 2017).

Aldhafeeri and Al-Awidi (2017) assessed teacher preparedness in execution of digitalized curriculum in Kuwaiti institutions, the results indicated that a vast majority of teachers had high teaching load lacked sufficient time to set up the digital- based activities. Moreover, teachers reported that the schedules were quite rigid thus unable to implement the curriculum because they had to strictly adhere to the teaching schedule from the Ministry of Education. Kihara and Sutter (2019) in their study, on determinants of effective execution of the digital programme in Baringo Subcounty, observed that increased teacher workload reduces the likelihood of embracing digital technology in learning activities. The study revealed that overcrowded curriculum is an obstacle to them as they were unable to find time to not only integrate ICT in teaching but also attain training on digital technologies.

Study Hypotheses

H₀₁: There is no significant influence between teachers' workload and implementation of digital literacy programme in public primary schools in Kitui West Subcounty.

THEORITICAL FRAMEWORK

This study was guided by Adaptive Structuration Theory (AST) by Desanctis and Poole (1994). This theory seeks to comprehend the kind of structures which are brought along by enhanced technologies and the structures that develop in people's actions as human beings intermingle with these technologies. The capability to achieve organizational goals when adopting new technology does not rely on the use of new technology but rather how the organization responds to the structures of the technology as well, as organizing its own structures in response to the demands of the new technology (Lethbridge 2003). Technological adaptation relies on the set procedures, tasks, skills, and their interpretations to the new technology (Ahuja & Thatcher 2005). In this regard,

introducing new technology to an existing task prompts alterations such as task alterations to create time for the recent innovation (Beaudry & Pinsonneault 2005).

METHODOLOGY

Research Design

According to Kothari (2004), a research design is a scheme, plan and framework approach established with the aim of getting responses to research queries. This research used the descriptive survey design because survey research involves collection of information from people by capturing their answers to questions (Check & Schutt 2012). The researcher adopted this design to explain the teacher elements namely: teachers' attitudes, teacher workload, teacher training and how accessibility of ICT infrastructure and their influence on implementation of digital literacy in Kitui West Sub-County Sub County. It was the most appropriate in capturing attitudes and opinions of teachers on the implementation of digital literacy programme.

Target Population

Kumekpor (2002) defines target population as a whole group of individuals that a researcher aims to study about. The target population of this study consisted of 80 public primary schools, 80 head teachers, 710 teachers and 1550 Grade 1 pupils from all 80 public Primary schools in Kitui West Subcounty (TSC Subcounty Director's Office Kitui West, July 2021).

Sample Size and Sampling Procedures

A sample is a small percentage of the total population that is assumed to be a representative of the entire population (Orodho, 2010). Sampling entails drawing assumptions about the larger population using an element of the population. The researcher applied simple random sampling to choose a sample size of thirty percent of all respondents. According to Mugenda and Mugenda (2003), a sample size of (15-30%) is very reliable for considerable a small population. The researcher used 30 percent in sampling the schools, headteachers and the teachers because the population is not that large. Twenty-four schools, 24 Headteachers and 213 teachers. The sampling design illustrated in Table 1

Table 1: Sample Framework

Target Population	Population Size	Sample Size	Percentage
Public Primary schools	80	24	30.0
Headteachers	80	24	30.0
Teachers	710	213	30.0
Grade 1 Pupils	1550	155	10.00

The sample size was 392 respondents. Participants were selected using simple random sampling. Nine teachers were selected in each school while headteachers from the sampled institutions took

part in the study. Seven Grade 1 pupils was randomly selected from each school to participate in the focus group discussion.

3.5 Research Instruments

The research instruments used in this research were Structured questionnaires and Focus Discussion Groups. The questionnaires were administered to teachers to acquire data on all issues pertaining digital literacy programme. The teachers' questionnaires consisted of information regarding all the items under study; Number of lessons taught, activities involved in outside the classroom and rating of the workload. They were divided into five sub-sections. The first contained demographic data while the other sections had information influencing teachers' ability to execute the digital literacy programme

There researcher developed interview guides containing open-ended questions for headteachers. The interview guides gathered information on number of laptops, projectors and tablets received per school as well as how teacher workload influenced implementation of the digital literacy programme. The researcher developed Focus Discussion Groups Guide (FGD) items under the guidance of supervisors on significant subjects associated with the study. The FGD gathered opinions from the learners. The grade one learners responded to matters regarding the use of Digital literacy devices in classroom.

3.6 Validity of the Instruments

Leung (2015) defines validity as the significance and correctness of inferences in relation with the results obtained in research. The researcher conducted content validity using expert opinion. The experts are the project supervisors in this case.

Reliability of Research Instruments

Hughes and Sharrock (2016) observe that reliability as the degree of relevance of the measurement items used in research. Cronbach alpha is mostly used when the research contains multiple-item measures of concept (Tavakol and Dennick 2011). The Cronbach value for this study was 0.82 hence acceptable since according to Dikko (2016) Cronbach values which surpass 0.7 are recommended in evaluating the reliability of research instruments.

Instruments Return Rate

The researcher targeted 213 teachers, where 200 questionnaires were returned, representing a return rate of (93.9%). The researcher also targeted 24 headteachers where 20 headteachers responded to interview guides which represented 83.3% return rate. Out of the targeted 155 pupils, the researcher was able to reach out to 138 pupils which represented 89.03% return rate. Creswell and Clark (2017) consider a value of (80-95 percent) as a good rate of response. A response of (65%) is suitable for social related studies (Awino, 2011). Thus, the response rate was considered reliable for data analysis.

Results

Implementation of Digital Literacy Programme

This section presents the features of the dependent variable that is implementation of the Digital Literacy Programme that was measured using one indicator: frequency of use of ICT devices. The teachers were requested to indicate the extent to which they agreed or disagreed with the statements given using a 5-point Likert scale where; 1= Strongly Agree, 2= Agree, 3= Unsure, 4= Disagree, 5= Strongly Disagree). The responses together with their corresponding percentages were presented in Table 2 After which all the items were analysed using percentages.

Table 2

Frequency of Use of ICT Devices

STATEMENT	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
I regularly use my laptop in preparing lesson notes	15	7.5	20	10.0	--	--	165	82.5	--	--
I often use the laptop to analyse learners' results	12	6.0	14	7.0	--	--	174	87.0	-	-
I regularly use a projector in presenting content in classroom	20	10.0	18	9.0	--	--	162	81.0	--	--

From Table 2 it can be observed that, (82.5 %) disagreed that they regularly use laptops in preparing lesson notes. Similarly, (87%) disagreed that they often use the laptop to analyse learners' results. It was also observed that (81%) disagreed that they regularly use a projector in presenting content in classrooms. These results imply that to some extent the teachers were not active in n implementing the digital literacy programme in public primary schools leading to poor implementation. Teachers highlighted some reasons for not using the devices they included; lack of adequate time and heavy workload.

Teacher Workload and Implementation of Digital Literacy Programme

This was to establish the influence of teacher workload on implementation of digital literacy programme in public primary schools in Kitui West Sub County. The teachers were requested to indicate the extent to which they agreed or disagreed with the statements given in Table 3 using a 5-point Likert scale where; 1= Strongly Agree, 2= Agree, 3= Unsure, 4= Disagree, 5= Strongly Disagree.)

Table 3: Teacher workload among teachers

STATEMENT	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
Preparation for an ICT class is very demanding	60	30.0	79	39.5	3	1.5	58	29.0	-	-
Huge subject allocation reduces ability to use ICT in class	73	36.5	58	29.0	4	2.0	65	32.5	-	-
Co- curricular activities reduce time to prepare for ICT class	88	44.0	72	36.0	5	2.5	35	17.5	--	--
Engaging in guidance and counselling reduces time for ICT class	56	28.0	65	32.5	3	1.5	76	38.0	--	--

Table 3 revealed that 39.5% of the teachers agreed with the statement that preparation for an ICT class is very demanding. Other 36.5% teachers agreed that huge subject allocation reduces ability to use ICT in class. Other 44% of teachers who strongly agreed that Co- curricular activities reduce time to prepare for ICT class. However, 32.5% disagreed that engaging in guidance and counselling reduces time for ICT class. *“The teacher workload in this school is quite demanding but I do not think it influences how teachers incorporate technology in learning, in my view, the teachers should plan ahead to ensure the gadgets are ready before using them in teaching”*, stated one of the headteachers. These results agree with Strange (2018) who noted that teachers are unlikely to integrate technology in education regularly if they lack adequate time to prepare. American Federation of Teachers’ 2017 Educator Quality of Work Life Survey (2017 revealed that high workload was not associated to teaching only but the introduction of new technological demands in the curriculum without removing the previous tasks to balance their workload.

The respondents were further requested to indicate their workload per week. The responses were presented in Table 3

Table 3: Workload per week

Number of lessons	Frequency	Percentage
Below 30	54	27.0
30-35	127	63.5
More than 35	19	9.5
Total	200	100.0

The researcher went further to seek the average number of lessons taught by teachers. The findings revealed that 9.5 percent of the teachers had workload range of above thirty-five, 63.5 percent had workload ranging from 30-35 and 27 percent had workload of below that 30 lessons

To compare the level of significance between the teacher's workload and frequency of using ICT devices, two sample t-test was used. The results were presented in Table 2.3

Table 4: Influence of Teachers' Workload on implementation of digital literacy

Two sample t-test with equal variances

Group	Obs	Mean	Std. Err.	Std.Dev.	95% Conf	Interval
0	54	3.7741	.1553	.90552	9.139	4.80
1	146	1.6075	.36515	.89443	9.341	5.008
Combined	200	0.8551	.4871	1.2845	10.8467	5.3342
Diff		2.1666	.32221		0.42334	0.8566

t= .669.

pr(T<t)=0.0000

Degrees of freedom =198

Table 4 shows that there was a mean of teacher's workload of 3.7741 for teachers who had less workload and thus not implementing digital literacy programme successfully whereas a mean of 1.6075 was observed from teachers who had high workload was 1.6075. This shows a mean difference of 2.1666 with a t-value of .669 and the associated p-value of 0.001. Since the p-value is less than $\alpha=0.05$, it indicates that the computed difference is numerically different from zero, hence we reject the null hypotheses at 5% significant level. This implies that the teachers' workload was on average significantly less in institutions where teachers were frequently using ICT devices to complement other learning materials. Thus, teacher's workload has great influence on implementation of the digital literacy programme. The study findings concur with Strange (2018),

Smadi & Raman (2020) and Sutter & Kihara (2019) that workload influences ICT integration. High workload may hinder teachers from integrating ICT in teaching as it requires prior preparation such as charging the gadgets and connecting them well.

Conclusion of the Study

The study concluded that:

- i. Teachers did not regularly use the laptops and projectors and rated their skills in undertaking digital tasks as below average. This is because of heavy workload and inaccessibility of ICT resources.
- ii. Teacher workload has positive influence on implementation of digital literacy programme. Teachers with high workload had less time to incorporate technology in learning.

Recommendations of the study

The study recommends the following:

- i) The Teachers Service Commission should recruit additional teachers to reduce the workload and create more time for digital utilization in classroom teaching.

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