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EDUCATION

INFLUENCE OF STAFF TRAINING ON IMPLEMENTATION OF DIGITAL LITERACY PROGRAMMES IN PUBLIC SECONDARY SCHOOLS INMUKAA SUB-COUNTY, MAKUENI COUNTY, KENYA

[*1]Dominic Mulwa Mulandi, [2]Prof. Pamela Ochieng & [3]Dr. Kimamo Githui

[1]Student, Mount Kenya University

[1,2]Lecturer, Mount Kenya University

[*]Email of the Corresponding Author: domulandi2020@gmail.com

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ABSTRACT

Statement of the Problem: School management plays a key role in the implementation of digital literacy programs. However, in Mukaa Sub-county, the implementation of digital literacy programs has not been smooth, with few schools having adopted DLP, few teachers using ICT, and few students enrolled in computer classes.

Purpose of the Study: To assess the influence of staff training on the implementation of digital literacy programs in public secondary schools in Mukaa Sub-county, Makueni County, Kenya.

Methodology: The study adopted a mixed methodology and thus applied a concurrent triangulation research design. The target population was 420 respondents, which comprised 40 principals and 380 teachers, from which a sample of 204 respondents was determined using Yamane's Formula. However, from each zone, 62 teachers were selected using simple random sampling. Quantitative data were analyzed descriptively using frequencies and percentages and inferentially.

Findings: The study found that the implementation of DLP still faces numerous challenges, with the number of public secondary schools that have adopted it being few. This is attributed, to some extent, to a lack of adequate staff training.

Recommendations: The study recommends that school management should continue training teachers to equip them with the prerequisite skills and wherewithal for the effective implementation of DLP in public secondary schools.

Keywords: *Staff Training, Digital Literacy Programmes, Public Secondary, Mukaa Sub-County, Makueni County*

INTRODUCTION

Globalization and the diffusion of digital literacy in all spheres of life have created a social system which is driven by knowledge and powered by technology. The prominence of digital literacy also puts the various education systems under pressure to use digital literacy in teaching and learning in secondary schools. In line with these assertions, Newton and Rogers (2011) assert that, due to the explosion of knowledge, educational institutions including schools cannot continue as venues that transmit knowledge from the teacher to the student or use the textbook as the only source of information. This implies that secondary schools are therefore expected to promote the acquisition of knowledge and skills through the use of new technologies to ensure efficient, continuous and lifelong learning. To achieve this, staff training is key. Staff training is correlated with cognitive ability, and higher levels of education are associated with an individual's ability to implement digital technology. According to Schiller (2013), teachers are implored to adopt and integrate digital technology into teaching and learning activities, but staff preparedness determines the effectiveness of the technology and not by its sheer existence in the secondary school classroom. Russell and Bradley (2014) postulate that anxiety, lack of confidence and competence, and fear often imply that digital literacy takes a back seat to conventional secondary school learning mechanisms. This indicates that an understanding of staff training that influences the implementation of digital literacy programs in secondary schools is relevant in enhancing syllabus coverage and students' academic performance.

In a study conducted in Pakistan, Kaleen and Ahmad (2015) contend that technical training is a key school management dynamic because it helps staff and other financial stakeholders understand how to best use and adopt digital literacy programs. Kaleen and Ahmad (2015) further indicated that a lack of training plays a key role as a barrier to the implementation of digital literacy programs. Consistent with these assertions, Sharma (2015), in a study conducted in India, outlines that one of the main difficulties for exploiting the potentials of digital literacy programs in secondary schools is the lack of awareness of the benefits to be derived coupled with little or no specific training on digital literacy programs, both at the application and methodological levels. These findings attest to the fact that the skills of school staff, especially teachers, may be developed by investment in education in schools and universities. On the same breath, the result of Boon, Miao, Klink, Sloep, and Koper (2015), on research on the implementation of digital literacy programs in Malaysia, indicates that 130 out of 180 high

schools never develop formal digital literacy programs training for their staff, thus resulting in a lack of trained personnel to implement digital literacy programs. In Sub-Saharan Africa, Kozma (2015) asserts that secondary schools consider training of teachers and support staff as the best management strategy for the implementation of digital literacy programs. According to Bakkabulindi, Nkata, and Amin (2016), the training process is workplace-related learning or on-the-job training, that is, learning related to school work that takes place in and at the schools as well as outside.

To corroborate these findings, Auger, BarNir, and Gallaugher (2013), in a cross-sectional study carried out in Algeria, indicate that highly trained staff are more likely to implement new technologies such as digital literacy programs. Auger et al. (2013) further posited that the adoption of continuous training solutions can play an important role in increasing the awareness of the huge potentialities of digital literacy programs for concrete situations. In these ways, teaching staff in secondary schools can acquire a learning culture, integrating the training in their pedagogical activities and understanding in depth the potentialities of digital technological tools. Similar views were expressed by Bakkabulindi et al. (2016), in a study conducted in Uganda, in which they established that, to augment the implementation of digital literacy programs and to maintain professional relevance, it is important that staff in secondary schools undergo a process of continuous learning and training.

In Kenya, Macharia (2012) asserts that the process of professional development provides a significant advantage for both the secondary school and staff since the implementation of digital literacy relies, not only on external parties, but is also brought about and carried on by those who know the history of secondary schools. To corroborate these assertions, Owino (2016) carried out a study in Nyakach Sub-county in Kisumu County, which established that an important additional determinant of teachers' engagement in the use of new media in classrooms is their confidence in using technology. Secondary school teachers with little confidence in using digital technology in their work may try to avoid them. Owino (2016) reported that many secondary school teachers who were not using computers were doing so because they lacked confidence with, or felt frightened by computers. This implies that a lack of competence is clearly a barrier to teachers' use of digital technology in classrooms. In Mukaa Sub-county, the scenario is similar where students live in a world of interactive media. The Republic of Kenya (2013) asserts that secondary school students are growing up at ease with

digital devices that are rapidly becoming the tools of the culture at home, at school, at work, and in the community. However, few secondary schools have infused technology in classroom teaching, and have manifested instances of untimely syllabus coverage. Ndunge (2016) indicates that, despite the adoption of ICT, classroom delivery is still slow, and syllabus coverage is not timely, which has occasioned low performance among students in both internal and national examinations. For example, a report by the Ministry of Education (2019) shows that 69.3% of public secondary schools are yet to fully implement digital literacy programs, with many students registering low grades.

Table 1: Levels of Implementation of Digital Literacy

Year	No. of Schools which have adopted Digital Literacy Programmes
2014	3.8
2015	9.8
2016	11.5
2017	19.2
2018	30.7

Table 1 above shows a slow uptake and implementation of digital literacy programmes. As a mitigant, Lawrence and Veena (2013) note that the key dynamic in the implementation of digital literacy programmes is a trained and capable teacher. However, Lawrence and Veena (2013) underscore the fact that implementation of digital literacy programmes has not been smooth and thus, an effective training system must combine different approaches to obtain the goal of the training strategy to enable staff to implement digital literacy programmes. However, Lawrence and Veena (2013) as did other empirical studies have not interrogated the extent to which different aspects of staff training influence implementation of digital literacy programmes in public secondary schools.

STATEMENT OF THE PROBLEM

Staff training plays a key role in implementation of digital literacy programmes in secondary schools since it equips them with pre-requisite skills. However, in Mukaa Sub-county, implementation of digital literacy programmes has not been smooth. As noted in the background, Ndunge (2016) notes that, despite the adoption of ICT, classroom delivery is still slow and syllabus coverage is not timely which has occasioned low performance among students in both internal and national examinations. As shown in Table 1, a report by MoE

(2019) shows that 69.3% of public secondary schools are yet to fully implement digital literacy programmes.

This is against the fact that public secondary schools have embraced digital literacy as the panacea to classroom pedagogy and timely syllabus coverage. Despite these statistics, many studies are yet to explore the extent to which staff training influences implementation of digital literacy programmes; hence the need for this study.

OBJECTIVES OF THE STUDY

The study was guided by the following objectives:

i. To assess the status of implementation of digital literacy programmes in public secondary schools in Mukaa Sub-county.
ii. To examine the influence of staff training on implementation of digital literacy programmes in public secondary schools in Mukaa Sub-county.

THEORETICAL FRAMEWORK

This study was guided by the Systems Theory, which was postulated by Luhmann Niklas (2004). This theory holds that a school is a managed system that transforms inputs such as raw materials, people, and other resources into outputs, which are the goods and services that comprise its products. One of its key concepts is that a school's preparedness for the implementation of digital literacy programs must interact with the environment to gather inputs and return the output of its production. In this study, the inputs of schools interact with all aspects of teaching and learning and return successful implementation of digital literacy programs as the output. Thus, the rationale for using this theory in this study is that it underscores the fact that staff training, as a management activity, is critical to the implementation of digital literacy programs in public secondary schools.

This study was also underpinned by the Network Society Theory as proposed by Castells Manuel (2000), which endorses the use of technology in educational institutions with an emphasis laid on the implementation of DLP by teachers who are faced with the task of teaching the next generation. Furthermore, the necessity of using digital technology for teacher development through a community of practice and the networks established for knowledge acquisition and sharing is key toward the implementation of DLP. Thus, the relevance of the Network Society theoretical framework in this study is based on the fact that for any society to

develop optimally, its secondary school education system must be founded on the knowledge and skills that are presently driving the network society.

RESEARCH METHODOLOGY

The study adopted a mixed methodology and thus applied a concurrent triangulation research design. The target population was 420 respondents, which comprised 40 principals and 380 teachers, from which a sample of 204 respondents was determined using Yamane's Formula. Stratified sampling was used to create three strata based on the number of zones in Mukaa Sub-county. From each zone, six principals were selected using purposive sampling. However, from each zone, 62 teachers were selected using simple random sampling. This sampling procedure realized a sample of 18 principals and 186 teachers. Qualitative data were analyzed thematically based on the study objectives and presented in narrative forms. Quantitative data were analyzed descriptively using frequencies and percentages and inferentially using Pearson's Product Moment Correlation Analysis in the Statistical Package for Social Sciences (SPSS Version 23) and presented using tables.

RESULTS AND DISCUSSIONS

In this study, 186 teacher questionnaires were administered, with 183 returned. The researcher interviewed 15 principals. Principals had an 83.3% response rate, while teachers had 98.4%. The average response rate was 97.1%, adequate per Creswell (2014) at over 75.0%, allowing generalization to the target population.

Implementation of Digital Literacy Programmes in Public Secondary Schools

The study sought to assess the status of implementation of digital literacy programmes in public secondary schools in Mukaa Sub-county. Data were collected on the number of schools which have adopted DLP, number of teachers using ICT during teaching and number of students undertaking DLP. Results are shown in Table 3;

Table 2: Status of Implementation of Digital Literacy Programmes

Indicators of Implementation of DLP	Number	
	Frequency	Percentage (%)
Schools which have adopted DLP	6	15.0
Teachers using ICT during teaching	73	12.4
Students undertaking DLP	1837	14.4

Table 2 shows that the number of public secondary schools in Mukaa Sub-county which have adopted digital literacy programmes is still low with only 6 out of 40 (15.0%) offering computer studies, only 73 out of 183 (39.9%) of the teachers use ICT during teaching whereas 1837(14.4%) of the students undertake computer lessons under digital literacy programmes. During the interviews, the principals also responded in favour of the view that implementation of digital literacy programmes has been a challenge. Principal, P1, stated;

> *In my school, we have not fully implemented digital literacy programme. In as much as we have conceptualized the idea that DLP is key to improving classroom pedagogy and administrative operations, much is yet to be done to realize its full implementation. Many teachers are yet to integrate technology in their teaching activities with only a few students undertaking computer or DLP programmes.*

These findings corroborate the assertions of Hennessy et al (2010) that implementation of ICT in schools is still a challenge with only 41% of schools having implemented digital literacy programmes in teaching and learning. These findings affirm the fact that, despite its key role in enhancing classroom pedagogy and improved learner performance, implementation of DLP in public secondary schools has been low. This brings into question the how different school management dynamics influence implementation of DLP in public secondary schools.

Staff Training and Implementation of Digital Literacy Programmes in Public Secondary Schools

The study sought to examine how staff training influences implementation of digital literacy programmes in public secondary schools. Descriptive data were collected from teachers and results are shown in Table 3;

Table 3: Teachers' Views on Training

Test Items	Ratings				
	SA %	A %	U %	D %	SD %
Teachers have been trained on how integrate digital technology while teaching as a way of implementing DLP	55.7	7.7	4.5	21.3	10.9
Teachers always use digital technology in lesson planning as a way of implementing DLP	43.7	7.1	5.5	36.1	7.6
Training on how to integrate technology in classroom has made it easy for implementation of DLP in public secondary schools	57.4	8.2	4.4	20.7	9.2
Preparation of schemes of work and lesson plans has been easy for teachers since they were trained on digital technology	39.3	6.0	5.5	40.4	8.1
Training has enabled teachers to implement DLP in public secondary schools	61.7	7.1	6.6	22.4	2.2

Table 3 shows that 102(55.7%) of teachers strongly agreed with the view that teachers have been trained on how to integrate digital technology while teaching as a way of implementing DLP, as did 14(7.7%) who agreed, 8(4.4%) were undecided, 39(21.3%) disagreed whereas 20(10.9%) strongly disagreed. The study found that 80(43.7%) of the teachers strongly agreed with the view that teachers always use digital technology in lesson planning as a way of implementing DLP, while 13(7.1%) agreed, 10(5.5%) were undecided, 66(36.1%) disagreed whereas 14(7.6%) strongly disagreed. The study revealed that 105(57.4%) of the teachers strongly agreed with the view that training on how to integrate technology in the classroom has made it easy for the implementation of DLP in public secondary schools, 15(8.2%) agreed, 8(4.4%) were undecided, 38(20.8%) disagreed whereas 17(9.2%) strongly disagreed.

The study revealed that 72(39.3%) of the teachers strongly agreed with the view that the preparation of schemes of work and lesson plans has been easy for teachers since they were trained in digital technology, whereas 11(6.0%) agreed, 10(5.5%) were undecided, 74(40.4%) disagreed, whereas 16(8.8%) strongly disagreed. These findings support the findings of a study carried out in Pakistan in which Kaleen and Ahmad (2015) established that a lack of training plays a key role as a barrier to the implementation of digital literacy programs. The majority, 113(61.7%), of the teachers strongly agreed with the view that training has enabled teachers to implement DLP in public secondary schools, whereas a paltry 13(7.1%) agreed, 12(6.6%) were undecided, 41(22.4%) disagreed, whereas 4(2.2%) strongly disagreed. This is consistent with

the findings of a study carried out in Malaysia in which Boon et al. (2015) revealed that 130 out of 180 high schools never develop formal digital literacy programs training for their staff, thus resulting in a lack of trained personnel to implement digital literacy programs. Schiller (2013) also stated that teachers are implored to adopt and integrate digital technology into teaching and learning activities, but staff preparedness determines the effectiveness of the technology and not by its sheer existence in the secondary school classroom. These findings are indicative of the fact that training is key since it equips teachers with the necessary skills to understand how to integrate technology in pedagogy. In other words, the inability of secondary schools is attributed to a lack of skills among teachers.

Inferential Analysis

To verify the influence of staff training on implementation of digital literacy programmes in public secondary schools, data were collected on the number of times teachers have undergone training on DLP, number of schools which have adopted DLP, number of teachers using ICT during teaching and the number of students undertaking computer studies from the 15 sampled public secondary schools from 2018 to 2022. Results are shown in Table 4:

Table 5: Training, DLP Adoption, ICT Usage

No. of Times Teachers have been Trained	No. of Schools which have adopted DLP (6)	No. of Teachers Using ICT (73)	No. of Computer Studies' Students (1837)
0	0	3	83
2	0	4	109
0	0	5	103
1	0	4	149
3	1	10	141
0	1	1	101
4	1	2	126
2	0	4	129
6	1	2	112
2	0	1	108
0	0	5	124
11	1	12	176
4	0	9	177
0	0	6	102
3	1	5	97

Table 4 shows that staff training contributes to implementation of digital literacy programmes. In other words, public secondary schools which have teachers who have undergone ICT

training several times have implemented DLP, have had their teachers integrate technology during classroom instruction and have enrolled more students for computer classes. The results in Table 4 were subjected to Pearson's Product Moment Correlation Analysis and the results are shown in Table 5:

Table 5: Relationship between Staff Training and Implementation of Digital Literacy Programmes in Public Secondary Schools

		X1	A	B	C
X1	Pearson Correlation	1	.559*	.518*	.621*
	Sig. (2-tailed)		.030	.048	.014
	N	15	15	15	15
A	Pearson Correlation	.559*	1	.121	.092
	Sig. (2-tailed)	.030		.666	.745
	N	15	15	15	15
B	Pearson Correlation	.518*	.121	1	.700**
	Sig. (2-tailed)	.048	.666		.004
	N	15	15	15	15
C	Pearson Correlation	.621*	.092	.700**	1
	Sig. (2-tailed)	.014	.745	.004	
	N	15	15	15	15

Table 5 shows a Pearson Product Moment Correlation Test Analysis which generated correlation coefficients of r1 = 0.559, r2 = 0.518 and r3 = 0.621, with corresponding significant levels (p-values) of 0.030, 0.048 and 0.014 which were less than the predetermined level of significance, 0.05, that is, p-value = 0.030, 0.048 and 0.014<0.05. Thus, the data shows there is significant influence of staff training on implementation of DLP in public secondary schools.

Thematic Analysis

During the interviews, the principals also responded in favour of the view that staff training that is key to effective implementation of DLP in schools, though they stated that most of their teachers have not been trained on the same. Principal, P2, noted;

> *"In my secondary school, only a few teachers have undergone training on digital literacy programmes and how integrate digital technology while teaching"*

On preparation of schemes of work and lesson plans, the principals stated that teachers who have been able to integrate technology in their learning preparation activities have found teaching activities such as scheming and lesson planning very easy and convenient. On further probing, principal, P3, stated;

> *"In my school, albeit the challenges, teachers who have been trained on how to integrate technology in planning and lesson preparation activities have found teaching easy and inspiring"*

Just like quantitative findings, these are in agreement with the viewpoints of Kaleen and Ahmad (2015) that lack of training plays a key role as a barrier to the implementation of digital literacy programmes. These findings further affirm the fact that, despite the lack of adequate training on DLP among many teachers, there is a recognition that training of teachers and other staff plays a crucial role in the implementation of DLP in secondary schools. This is attributed to the fact that training is key since it equips teachers with the necessary skills to understand how integrate technology in pedagogy.

CONCLUSIONS

The study findings reveal that the implementation of Digital Literacy Programmes (DLPs) still faces numerous challenges, with only a few public secondary schools having adopted them. The study found that in many public secondary schools, DLPs have not been fully implemented. According to the findings, many teachers have not been trained on the key aspects of digital literacy programmes and how to integrate digital technology into teaching activities. Meanwhile, teachers who have undergone training on the use of technology and have integrated it into their learning preparation activities have found teaching tasks such as scheming and lesson planning very easy and convenient.

RECOMMENDATIONS

The study recommends that school management should continue training of teachers to equip them with pre-requisite skills and wherewithal for effective implementation of DLP in public secondary schools.

REFERENCES

Auger, P., BarNir, A. & Gallaugher, M. (2013). Business process digitization, strategy, and the impact of firm age and size: The case of the magazine publishing industry. *Journal of Business Venturing*, 18 (6): 789-814. https://doi.org/10.1016/S0883-9026(03)00030-2

Bakkabulindi, F., Salami, S. & Beatrice, S. (2016). *Organizational Characteristics and Use of Knowledge Management Systems by Masters Students in School of Education in Makerere University*, Paper read at the African International Business and Management (AIBUMA) 2010 Conference on "Knowledge and Innovation Leadership for Competitiveness", Nairobi, Kenya.

Boon, J., Miao, Y., Klink, M., Sloep, P. & Koper, R. (2015). Enabling teachers to develop pedagogically sound and technically executable learning designs. *Journal on distance education*, 2(30): 259-276. https://doi.org/10.1080/01587910903023223

Castells, E. (2000). Materials for an exploratory theory of the network society. *British Journal of Sociology* 51 (1), 5-24. https://doi.org/10.1080/000713100358408

Creswell, J. (2014). *Research design: qualitative, quantitative and mixed methods approach.* Thousand Oaks, California: Sage Publications.

Hennessy, S, Harrison, D and Wamakote, L. (2010): Teacher Factors influencing Classroom use of digital literacy in Sub-Sahara Africa Itupale. *Online Journal of African Studies*, 2(2010).

Kaleen, M. & Ahmed, H. (2015). Teacher adoption of technology: a perceptual control theory perspective. *Journal of Technology and Teacher Education* 9, 5- 30.

Kozma, R. (2015). Technology and Classroom Practices: An International Study. *Journal of Research on Technology in Education*, vol. 36, No. 1. https://doi.org/10.1080/15391523.2003.10782399

Lawrence, A. & Veena, K. (2013). *Improving teacher competency through digital literacy.* Teacher competencies.

Luhmann, N. (2004). *Systems Theory.* Suhrkamp.

Macharia, J. (2012). Factors affecting the adoption and diffusion of internet in higher educational institutions in Kenya. *Journal of Language, Technology and Entrepreneurship in Africa* 1(2): 6–22. https://doi.org/10.4314/jolte.v1i2.41754

Ministry of Education (2019). *ICT capacities and capabilities in secondary schools in Kenya.* Republic of Kenya.

Ndunge, M. (2016). *Integrating Information and Communication Technology in Public Secondary School Administration in Kibwezi Sub – County, Makueni County, Kenya*. Published thesis, South Eastern Kenya University

Newton, L. & Rogers, L. (2011). *Teaching Science with digital literacy*. New York: Continuum.

Owino, J. (2016). *Integration of Information Communication Technology in Teaching of English in Secondary Schools in Nyakach Sub-county, Kisumu County, Kenya*. Published Med Thesis, Kenyatta University.

Republic of Kenya (2013). *Working Draft-Information and Communication Technology Sector Policy Guidelines*; Nairobi: Government printer.

Russell, G., & Bradley, G. (2014). Teachers' computer anxiety: Implications for professional development. *Education and Information Technologies*, vol. 2, pp.17-30.

Schiller, J. (2013). Working with digital literacy: Perceptions of Australian principals, *Journal of Educational Administration*, 41(3), 171-185. https://doi.org/10.1108/09578230310464675

Sharma, R. (2015). Barriers in using technology for education in developing countries. Information Technology: Research and Education, 2(2): 1-10.