**AN INVESTIGATION TO ESTABLISH THE ROLE OF THE TEACHER IN ICT IMPLEMENTATION FOR LEARNER PROGRESS MONITORING IN SECONDARY SCHOOLS**

**A CASE STUDY OF PUBLIC SECONDARY SCHOOLS IN MAKADARA SUB-COUNTY, NAIROBI COUNTY, KENYA**

**By**

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**Abstract**

A study was carried out on learner progress monitoring through use of ICT in Makadara Sub County, Nairobi, Kenya. The study objective was to determine the role of the teacher in ICT implementation for learner progress monitoring. The study was based on the social and cognitive constructivist theory. The target population constituted 10 teachers of public secondary schools who are charged with the responsibility of implementing ICT for learner progress monitoring in Makadara Sub County, Nairobi County. The target population was sampled and picked using purposive sampling technique. A questionnaire and a short interview were used as research instruments. The research project was guided by a descriptive survey design. The data was analyzed using descriptive statistics and presented by way of tables, pie charts and bar graphs.

 The findings were interpreted, discussed and presented on bar graphs, tables and in a form of percentages for ease of discussion, interpretation and conclusions. Quantitative data was obtained using percentages as well as weighted mean with the help of SPSS software, IBM version 20, while qualitative data was analyzed by use of descriptive statistics. Findings indicated that majority of teachers had undergone ICT training which implied that a high percentage of teachers had the required skills on instructional technological knowledge and therefore aptly took up their roles for ease of use in curriculum implementation.

**Key words**: Teacher, ICT, Role, Learner, Implementation, Curriculum

**1.0 Introduction**

This chapter covered the background of the study, statement of the problem, the study objective, the scope of the research, significance of the study, research question and the research hypothesis.

**1.1 Background of the Study**

Use of Information and Communications Technology has become inevitable in the current world which has been transformed into a global village due to the introduction of new technology in form of machines and devices that render life easy.

In Norway, a Norwegian Center for Information Communication and Technology under the auspices of the Ministry of Education and Research was established in 2010 with the purpose of promoting application of ICT to ameliorate education quality and enhance learning strategies and outcomes of learners.

In Tanzania, according to the Ministry of Education and Transport (2003), an eTHINK TANK group was formed with the aim of transiting the country into the Information Technology age. This resulted in the formation of a policy on ICT in 2003, at the national level with the aim of formulating and spreading an e-education system, linking schools and institutions of higher learning and training facilities in the nation (Tanzania Ministry of Communications and Transport, 2003).

In 1998, Uganda embarked on a policy formulation in ICT (Torach, Okello and Amuriach, 2006). This culminated in an ICT policy framework in 2002.

In 2005, the Ministry of Education together with partners crafted the Kenya Education Sector Support Programme whereby ICT was to be introduced in schools as a tool of curriculum implementation. In Kenya, several schools have embraced a bio-metric system for learners and workers to clock in and out of school in a way that parents receive a short message informing them that the learner has reported or left school. School head teachers and principals are in charge of management of these processes. NEMIS is being administered with the help of a grant from the Global Partnership for Education (GPE). The learners are issued with unique identification numbers for tracking in all aspects of learning such as performance in national examinations, admission to secondary schools, universities as well as medical records.

**1.2 Problem statement**

Secondary schools that do not appreciate and acknowledge the role of the ICT teacher in learner progress monitoring end up with a crippled technological advancements or a complete lack of them.

The teacher of ICT plays a preponderant role in imparting skills, knowledge and attitudes in the learner and directs the learner by ensuring that the learner develops autonomy in use of computers.

**1.3 Objective of the study**

* To establish the role of the teacher in ICT implementation for learner progress monitoring in public secondary schools

**1.4 Scope of the study**

The study sought to determine the role of the teacher in Information and Communication Technology implementation in monitoring the progress of the leaner in public secondary schools in Makadara sub-county. This is because public schools draw their funding from the State.

**1.5 Significance of the study**

The study is of immense importance to the Kenyan Government which aims at improving the quality of basic education by ensuring a 100% transition from primary to secondary school (Sessional paper 1 of 2019 by the Ministry of Education). This is in line with the first, fourth and ninth Sustainable Development Goals. Learning with computers will attract learners to schools because the classes are enjoyable and the learner will be rendered autonomous hence a shift towards higher transition rates. Consequently, poverty will be eradicated through a learned nation. In the same vein, quality education can be accessed by use of modern technological gadgets, which have revolutionized the world to a global village. ICT is a good pathway for innovation. Over and above, machines are innovated day by day and this ameliorates the quality of life. Learners will benefit in that they develop critical thinking skills. Other stakeholders include the teachers whose role will be of a guide to the learners. Parents have a stake because their children will be empowered economically through technological acquisition of knowledge hence they will be armed with entrepreneurial skills and creativity.

**1.6 Research Question**

The study was guided by the following question;

* What is the role of the teacher in ICT implementation for learner progress monitoring in secondary schools?

**1.7 Research Hypothesis**

The research hypothesis is based on the assumption that the teacher plays a preponderant role in ICT implementation for learner progress monitoring.

**2.0 LITERATURE REVIEW**

**2.1 Introduction**

In this chapter, literature was reviewed on the teacher’s role in ICT implementation for learner progress monitoring.

**2.2 The role of the teacher in ICT implementation for learner progress monitoring**

The role of the teacher has been redefined by the introduction of ICT in the Kenyan education sector. This implies that the teacher has been transformed from a knowledge transmitter for learners to a facilitator of the learner towards knowledge acquisition. Learning has shifted from teacher-centeredness, which was traditional in nature, to a learner-centered approach.

Bakar et al., (2008) state that a teacher plays a preponderant role in use of ICT for facilitating and monitoring students by ensuring that the lessons are ICT oriented. Bakar et al. (2008) further opined that teachers must equip themselves with the basic computer literacy ICT skills in tandem with the great steps made in innovation of ICT in education.

Bakar, Rajuddin, Ibrahim et al (2008) postulated that the teachers’ role in a school is to ensure that the teaching and learning process is carried out as per the modern development trends in education. According to Lowther et al. in Fu (2013), ICT use can lead to an enhanced teaching and learning process if the teacher possesses three main characteristics namely creativity, autonomy and capability. The teacher will be creative in researching teaching materials whereas learners will use ICT independently to complete assignments, carry out research as well. The role of the teacher here is to empower learners to complete their assignment and work well with other learners and keep in touch with their instructors. The teacher should use ICT to facilitate learning and teaching. Through ICT, the teacher engages the student in critical and creative thinking.

Teacher factors that influence the application of ICT in the classroom include the teacher’s culture and beliefs, ICT literacy, level of confidence, teacher in-service training and professional development.

**2.3 Other authors related work and findings**

Tinio (2012) suggests that effective implementation of ICTs into education systems is a complex multifaceted process that involves not just technology but also the pedagogies and teacher competencies among others.

Weinberger, Fischer and Mandy (2002) postulate that modern teachers are required to be facilitators who are capable of helping the learners to make judgments about the quality and validity of new sources and knowledge, be open-minded and critical independent professionals, be active co-operators, and mediators between learners and what they need to know, and providers to scaffold understanding.

**2.4 Research Gap**

There are no known studies in Makadara Sub County on the role of the teacher in implementation of ICT for monitoring learner progress hence the urgent need to carry out this study.

**3.0 RESEARCH DESIGN AND METHODOLOGY**

**3.1 Introduction**

This chapter is comprised of research methodology which consists of introduction, the design used for the research, target population, size of the sample and the sampling procedure, data collection instruments, instrument validity, reliability of instruments, procedures of data collection and techniques of data analysis.

**3.2 Research Design**

The researcher employed both descriptive and inferential research designs

**3.3 Target Population**

In Makadara sub-county, there are 11 public secondary schools, with a student population of 6523 (source: Makadara Sub-County Education office, June 2018)

The target population in this case will be 10 teachers working in public secondary schools in Makadara Sub County, Nairobi County. The responsibility of implementing ICT for learner progress monitoring in secondary schools is bestowed upon teachers.

**3.4 Sample size and Procedures of Sampling**

Purposive sampling was employed to sample because the study was undertaken in schools where ICT has already been embraced for the purpose of monitoring student progress. Samples taken comprised of different levels of education, different genders, and different ages for apt representation of each sub grouping in the sample. The samples were made up of secondary school teachers. All the ten secondary schools were selected and they comprised of four Extra-County and four County schools and two sub county schools. For the researcher to select 10 teachers from the 10 schools, the study employed purposive sampling. Mugenda and Mugenda (2003), opine that a 30 percent sample size is a good representative of the population targeted, for one to arrive at the overall conclusion of the study.

**3.5 Instruments of Data Collection**

The research used questionnaires and a short interview session as instruments of data collection. Content and face validity processes were employed to ensure the instruments were valid. Instruments reliability was measured by the test and re-test method.

**3.6 Procedures of Data collection**

A permit authorizing data collection from the National Council for Science, Technology and Innovation (NACOSTI) was secured by the researcher. The Deputy County Commissioner and the County Director of Education – Nairobi County were furnished with a copy of the research permit. The researcher contacted school heads and teachers for permission to collect the required data. The study administered questionnaires and short interviews to the secondary school teachers.

**3.7 Data Analysis Techniques**

The study employed qualitative and quantitative data analysis techniques. Qualitative research questions were discussed in relation to the theme. Results analysis and presentation were carried out by way of a pie chart. Data generation was by frequencies and percentages. Data generated was analyzed by descriptive statistics and inferential statistics.

**4.0 Research findings and analysis**

**4.10 Role of teachers in the use of ICT for learner progress monitoring.**

The research objective sought to investigate the role of the teacher in use of ICT for learner progress monitoring. To achieve this objective the researcher sub divided the objective into two sub-themes;

**4.1.1Teachers and ICT training.**

The study gathered information on teacher training on ICT and this aimed to investigate whether the ICT teachers had undergone training and up to which level, because this made a considerable impact on the adoption and use of ICT in instruction and monitoring students. Figure 4.8 summarizes the responses.

**Figure 4.10: Teachers and ICT training**

The majority, 6 (67%) of the respondents had trained in ICT. This implies that a high number of teachers had skills on instructional technological knowledge for ease of use in curriculum delivery and monitoring the progress of the learner.

The finding agrees with the Kenya National ICT Master Plan 2013/14-2017/18 that training teachers is critical for them to acquire 21st century skills for ease of integration in teaching and learning.

The respondents were requested to indicate the theme of ICT training and the following were their responses.

**Table 4.1.1: Themes of ICT training**

**Question f %**

Basic computer literacy 4 33

ICT Training for learning/teaching 6 67

ICT for complex analysis of student results 0 0

**Total 10 100**

The findings on the Table indicate that a large percentage of the respondents 6 (67%) had undergone ICT Training for learning and teaching while 4(33%) had basic computer literacy and none of the respondents had trained for ICT for complex analysis of student results. This confirms that the teachers were not trained for complex ICT tasks.

**5.0 Discussion, conclusion and recommendations**

**5.1 Introduction**

This chapter comprises of a summary, conclusions and recommendations of the study and suggestions for further research.

**5.2 Summary**

The study was on learner progress monitoring through use of ICT in Makadara Sub County, Nairobi, Kenya. The objective of the research was to investigate the role of the teacher in ICT implementation for learner progress monitoring learner progress. The study was based on the social and cognitive constructivist theory proposed by Piaget, Bruner and Vygostsky. The theory is comprised of a combination of research in both cognitive and social psychology. Bruner overemphasizes on the role of the teacher (adult) in the education of a child and therefore the skills develop gradually, interwoven with analytical or logical techniques. The three researchers agree on the notion of scaffolding whereby proximal development involves a learner interacting actively with the teacher and in the long run, the learner is aided to achieve his or her desired goal.

The target population constituted 10 teachers of public secondary schools who are charged with the responsibility of implementing ICT for learner progress monitoring in Makadara Sub County, Nairobi County. The target population was sampled and picked by use of purposive sampling because the study was carried out in schools which had already instituted the use of ICT in monitoring student performance. Questionnaires and a short interview session were used as research instruments, to collect data from the ICT teachers. The research project was guided by a descriptive survey design. The data was analyzed by way of descriptive statistics and presented in form of a pie chart.

 The findings were interpreted, discussed and presented on a pie chart, in percentages to ease discussions, interpretations and conclusions. Quantitative data was obtained using percentages as well as weighted mean with the help of SPSS software, IBM version 20, while qualitative data was analyzed by use of descriptive statistics. The researcher got a letter of introduction from the University of Nairobi and a permit from the National Council of Science and Technology, and then the researcher called on the Deputy County Commissioner-Nairobi County Director of Education-Nairobi County for an introductory letter to the targeted respondents.

**5.3 Role of the teacher in ICT implementation for learner progress monitoring**

On the role of the teacher in ICT implementation for learner progress monitoring, the research revealed that majority of teachers had trained in ICT which implies that a high number of teachers had skills on instructional technological knowledge for ease of use in curriculum to monitor learner progress. The research also found out that majority of the teachers had undergone ICT training for learning and teaching, a few had basic computer literacy while none had trained for ICT for complex analysis of student results.

**5.4 Conclusion**

The following conclusions were made according to the findings.

The study revealed that majority of teachers had undergone ICT training which translated to a high number of teachers’ acquisition of the required skills on instructional technological knowledge for ease of use in curriculum implementation and learner progress monitoring.

**5.4 Recommendations**

The study recommended the following measures:

1. The Teachers Service Commission and the government should in-service teachers so that they can acquire adequate skills to use in ICT implementation for learner progress monitoring and for the complex analysis of the learners’ results.

 2. All teachers should be encouraged to use ICT for monitoring learner progress in their

subjects of specialization

 3. Documented examples by researchers in the field of ICT where technological techniques

 have been successfully used in achievement of pedagogical objectives should be availed to

 teachers as a testimony that the role of the teacher remains important.

**5.5 Suggestions for Further Research**

The research sought to investigate the role of the teacher in ICT for monitoring learner progress in public secondary schools in Makadara Sub-County, Nairobi, Kenya.

Suggestions on areas of further research can be considered as follows:

1. To establish how training of teachers influence ICT integration in teaching and learning in public secondary schools.

3. To examine how teachers’ attitudes influence their role in ICT integration in teaching and learning in public secondary schools.

4. To assess the value of Information Communication and Technology in education.

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