

Utilization of ICT for Quality Assurance in Secondary

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ABSTRACT

The study reported in this paper investigated the perceived potential for utilization of Information and Communication Technology (ICT) for quality assurance practices in secondary schools in Dar es Salaam. The study used survey research design and a total of 56 quality assurers (i.e., 53 school quality assurers and 03 chief school quality assurers) drawn from Dar es Salaam, Ilala, Kinondon and Temeke participated in the study. Structured questionnaires and interview guides were used to collect quantitative and qualitative data which were then analyzed using Statistical Package for Social Sciences (SPSS) and Data Reduction Technique respectively. Findings have revealed that there is a potential for utilization of ICT for quality assurance practices in secondary schools. Findings have shown that between 57.1% to 98.2% of quality assurers have access to computer (83.9% and mobile phones (98.2%). Also, over 50% of the school quality assurers are already utilizing ICT for report writing (66.1%), storage of information (58.9%), to access stored information (53.6%) and to surf educational resources (50%). However, about 40% of the quality assurers lack ICT knowledge of basic computer applications. Appropriate recommendations are suggested based on the findings and discussion.

Keywords: *ICT, PORALG, School & Quality Assurance.*

INTRODUCTION

The utilization of ICTs in secondary education is widely reported in the literature (Ngeze, 2017, Daudi & Nzilano, 2019, Amadi, Mekuri & Aleru, 2015 and Ghavifekri, Kunjappan, Ramasamy & Anthony, 2016). Specifically, evidence indicates that ICTs are utilized in secondary education to enhance not only access to secondary education but also teaching and learning processes (Ngeze, 2017 and Samaila, Dauda, Aliyu & Aliero, 2021). They are also utilized to enhance students' participation

in the learning process, improvement of students' learning and participation in the learning process, improvement of students' learning and enhancement of overall academic outcomes (Udu, 2018).

In order to harness the potentials of ICT in education, Tanzania introduced ICT curriculum in Teachers Training Colleges (TTC) in 2007, as a means to prepare teachers for pedagogical utilization of ICT in secondary education (URT, 2014). Before that, in the year 2005, Tanzania had already introduced Computer Studies (CS) in the school curriculum as one of the subjects that promotes technological and scientific development (Mutarubukwa, 2014).

To-date, already over 1,600 teachers have been trained on the pedagogical utilization of ICT in basic education in Tanzania (URT, 2022). According to Cubrilo, Crevenkovic, Segedinac and Serbia (2016) and Udu (2018), pedagogical utilization of ICT in the classrooms improves students' participation in the learning process leading to the improvement of students' access to reading resources, students' learning and overall academic outcomes in secondary schools.

These developments have brought new challenges in the school quality assurance practices which demands for skilled quality assurers who are competent to utilize ICT effectively in school quality assurance practices (URT, 2014). In this regard, school quality assurers are expected to utilize ICT to monitor and evaluate the implementation of the education policy, assess the education standards, promote school improvement and advise all stakeholders in education accordingly (URT, 2006).

However, ICT utilization in school quality assurance practices in secondary education is an emerging field of study with limited studies in existing literature (Haris, Washizaki & Fukazawa, 2018). According to Haris *et al* (2018), although many studies have examined utilization of ICT in teaching and learning in secondary education, there are only limited studies that specifically report utilization of ICT in school quality assurance practices.

The limited available studies on ICT utilization in school quality assurance practices indicate that ICT has potential in enhancing quality assurance practices in education (Oduma, 2014, Anekwe & Izuchi, 2012), and in making quality assurance practices effective (Omeregbe &

Konyeha, 2020 and Yekini, Adigun & Rufai, 2012). Also, ICT are effective in contributing to quality teaching and learning (Omoregbe and Konyeha, 2020), quality students learning and improvement of students' academic outcomes (Similar et al, 2021, Omoregbe and Konyeha, 2020).

Moreover, studies report several critical factors that are necessary for effective utilization of ICT in school quality assurance practices in schools (Amadi *et al*, 2015; Hillmayr *et al*, 2020; Yusuph *et al*, 2013; Chutter, 2009; Jonathan *et al*, 2016 & Onyegegbu, 2008). One of the critical factors is quality assurers' access to ICTs such as computers, printers, and fax, internet, television, mobile phone, projector and computer programs. According to the Education and Training Policy (URT, 2014), school quality assurance in Tanzania has not been effective as expected due to limited access to ICT facilities by school quality assurers (URT, 2008). According to Samila *et al* (2021), reliable access to ICT is important for school quality assurers to perform their roles, effectively.

Another critical factor is quality assurers' knowledge about ICT which is important for effective utilization of ICT in school quality assurance practices. This is important because it guides quality assurers on what ICT to use, how to use, and when and for what to use (Hillmayr, Ziernwals, Feinhold, Hofer & Reiss, 2020). However, literature indicates that most school quality assurers lack appropriate knowledge of ICT that is needed for them to utilize ICT in school quality assurance (Jonathan & Mlyakado, 2016; Samila *et al*, 2021; Udu, 2018; Kola, 2013 and Hillmayr *et al*, 2020). In the context of sub-Saharan African countries, quality assurers are incompetent and are untrained and are therefore, unable to utilize ICT to monitor and evaluate teaching and learning practices effectively in schools (Haris *et al*, 2018; Amadi *et al*, 2015; Yekini *et al*, 2012; Anekwe & Izuchi, 2012).

Ease of utilization of ICT for school quality assurance is also a critical factor. According to Chuttur (2009) and URT (2011), ease of use of ICT by school quality assurer determines their actual utilization of the ICT in their day-to-day practices such as collecting, compiling, analyzing, interpreting and disseminating education data and information obtained during the quality assurance process. Literature indicates that utilization of ICT in school quality assurance contributes to the improvement of quality of school quality assurance reports and provision of feedback to

teachers, schools and community in general (URT 2006). In England and Wales, the quality assurance findings are published in the internet for the public consumption and feedback to practitioners (Ehren & Visscher, 2008).

The framework in Figure 1 summarizes the critical factors for effective utilization of ICT in school quality assurance practices in secondary schools.

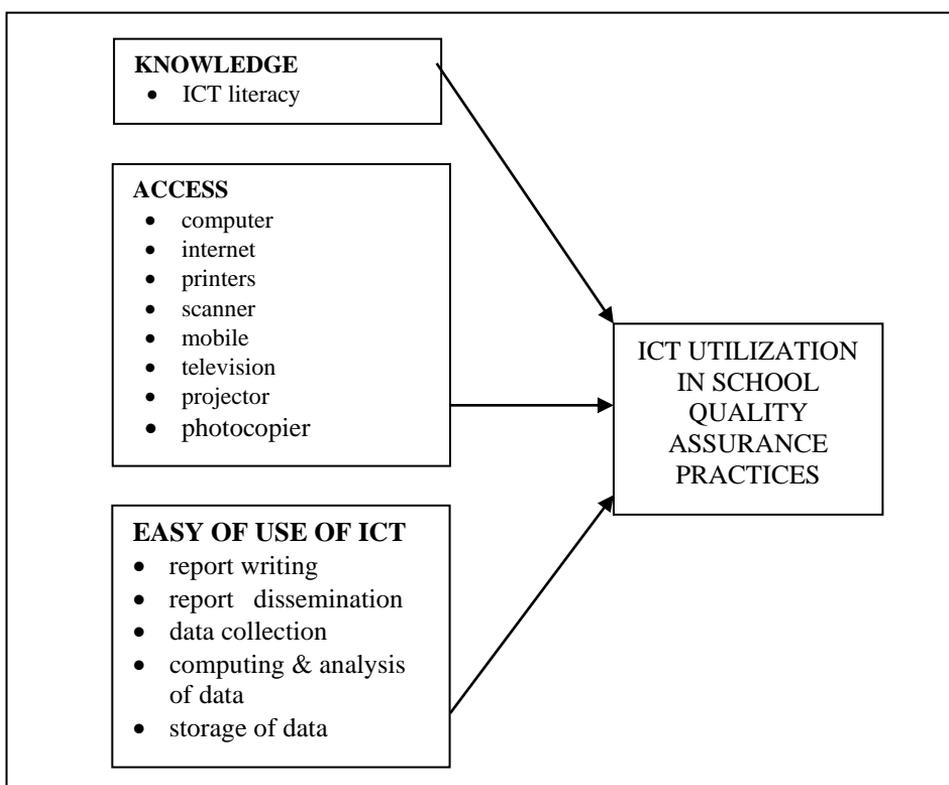


Figure 2: Conceptual framework (based on literature review)

Despite the benefits associated with the utilization of ICT in quality assurance practices in secondary schools, limited studies are reported about ICT utilization in quality assurance practices in the region and Tanzania in particular. Therefore, the current study investigated the perceived potential of utilizing ICT to enhance school quality assurance practices in secondary schools in the context of Tanzania.

The focus of the study reported in this paper was to *investigate the perceived potential for utilization of ICT to enhance school quality assurance practices in secondary schools in the context of Tanzania*. Specifically, it sought to address the following specific objectives:

1. To assess the kind of ICT facilities that school quality assurers have access to,
2. To assess the level of ICT knowledge that school quality assurers have,
3. To determine ways that ICT is currently utilized by school quality assurers, and
4. To identify strategies for effective utilization of ICT to enhance school quality assurance practices.

The following overall research question was formulated to guide the study: “*what are the perceived potential for utilization of ICT to enhance school quality assurance practices in secondary schools?*”. In order to address this overall research question, the following sub-research questions were formulated:

1. What kinds of ICT facilities do school quality assurers have access to?
2. What level of ICT knowledge do school quality assurers have?
3. In which ways are ICT currently utilized in the school quality assurance practices?
4. What strategies should be used for effective utilization of ICT to enhance school quality assurance practices?

RESEARCH METHODOLOGY

Sample and Sampling Techniques

A total of 56 quality assurers drawn from Dar es Salaam (15), Ilala (13), Kinondoni (15) and Temeke (13) participated in the study. As indicated in Table 1, sample comprised of Chief Quality Assurers of school (03) and School Quality Assurers (53).

Table 1: Sample of the study

| Zone/District | Chief Quality Assurers of Schools (CQA) | School Quality Assurers (SQA) | Total |
|---------------|---|-------------------------------|-----------|
| Dar es Salaam | 01 | 14 | 15 |
| Ilala | 01 | 12 | 13 |
| Kinondoni | - | 15 | 15 |
| Temeke | 01 | 12 | 13 |
| Total | 03 | 53 | 56 |

The study used random sampling technique to draw school quality assurers to participate in the study. Random sampling technique gives each in the population an equal probability of getting into the sample (Cohen, Manion and Keith, 2001). Purposive technique was also used to draw the sample of Chief Quality Assurers of school. According to Cohen, Manion and Keith (2001), purposive sampling technique basis on the researcher's judgment and the purpose of the study. Therefore, Chief Quality Assurers of schools were purposely included into the sample basing on the fact that they are the authority in their respective offices and are the ones to provide important and reliable information on the utilization of ICT to enhance school quality assurance.

Instruments for Data Collection and Analysis

The study used the following instruments for data collection: Structured Questionnaires for School Quality Assurers and Interview Guide for School Quality Assurers to collect quantitative and qualitative data to address the research questions. Combining both quantitative and qualitative data enabled to gain the benefits of both techniques and to reduce the drawbacks in order to obtain a comprehensive understanding of the opportunities and challenges of ICT utilization for enhancing school quality assurance.

SPSS was then used to analyze quantitative data whereby frequencies, percentages and analysis of variance (ANOVA) were computed. On the other hand, data reduction technique was used to analyse the qualitative data where main clusters were identified and reported supported by specific quotations.

FINDINGS

School Quality Assurers' Access to ICT Facilities

The status of school quality assurers' access to ICT facilities was investigated during the research. Findings in Table 2 show that majority of school quality assurers have access to most of ICT facilities (57.1%-98.2%).

Table 2: School quality assurers' access to ICT facilities

| ICT Facilities | Responses (N=56) | |
|----------------|------------------|-------|
| | Freq | % |
| Computer | 47 | 83.9% |
| Internet | 38 | 67.9% |
| Videotapes | 24 | 42.9% |
| Audiotapes | 24 | 42.9% |
| DVDs | 32 | 57.1% |
| CDs | 36 | 64.3% |
| Ipad | 13 | 23.2% |
| Radio | 53 | 94.6% |
| Mobile phones | 55 | 98.2% |
| Television | 54 | 96.4% |
| Projectors | 14 | 25.0% |

Specifically, majority of school quality assurers have access to computer (83.9%), internet (67.9%), DVDs (57.1%), video tapes (57.1), CDs (64.3%), radio (94.6%), mobile phones (98.2%) and Television (96.4%). However, quality assurers have limited access to video tapes (42.9%), audio tapes (42.9%), Ipad (23.2%) and projectors (25.0%).

Comparing quality assurers' access to ICT facilities across zones, findings in Table 3 show that quality assurers in Dar es Salaam zone have more access to ICT facilities followed by Temeke, Ilala and Kinondoni. However, analysis from ANOVA in Table 3 indicates that the difference is statistically not significant ($p>0.05$).

Table 3: Comparison of school quality assurers' access to ICT facilities

| ICT Facilities | Response (N=56) | | | | | | | | ANOVA Value |
|----------------|-----------------|-------|--------------|-------|------------------|------|---------------|-------|--------------------------|
| | D'Salaam (n=15) | | Ilala (n=13) | | Kinondoni (n=15) | | Temeke (n=13) | | |
| | Freq | % | Freq | % | Freq | % | Freq | % | |
| Computer | 14 | 93.3 | 10 | 76.9 | 12 | 80.0 | 11 | 84.6 | $F_{(55)}=0.521, P>0.05$ |
| Internet | 12 | 80.0 | 10 | 76.9 | 9 | 60.0 | 7 | 53.8 | $F_{(55)}=1.05, P>0.05$ |
| Videotapes | 6 | 40.0 | 6 | 46.2 | 8 | 53.3 | 4 | 30.8 | $F_{(55)}=0.495, P>0.05$ |
| Audiotapes | 6 | 40.0 | 6 | 46.2 | 8 | 53.3 | 4 | 30.8 | $F_{(55)}=0.495, P>0.05$ |
| DVDs | 9 | 60.0 | 9 | 69.2 | 9 | 60.0 | 5 | 38.5 | $F_{(54)}=0.969, P>0.05$ |
| CDs | 10 | 66.7 | 10 | 76.9 | 9 | 60.0 | 7 | 53.8 | $F_{(54)}=0.625, P>0.05$ |
| Ipad | 3 | 20.0 | 4 | 30.8 | 2 | 13.3 | 4 | 30.8 | $F_{(55)}=0.556, P>0.05$ |
| Radio | 14 | 93.3 | 13 | 100.0 | 14 | 93.3 | 12 | 92.3 | $F_{(55)}=0.308, P>0.05$ |
| Mobile phones | 15 | 100.0 | 13 | 100.0 | 14 | 93.3 | 13 | 100.0 | $F_{(55)}=0.906, P>0.05$ |
| Television | 14 | 93.3 | 13 | 100.0 | 14 | 93.3 | 13 | 100.0 | $F_{(52)}=0.575, P>0.05$ |
| Projectors | 7 | 46.7 | 3 | 23.1 | 2 | 13.3 | 2 | 15.4 | $F_{(55)}=1.892, P>0.05$ |

Furthermore, findings in Table 4 show that Over 60% of school quality assurers' access internet facilities in their offices (60.7%) and at home (76.8%). Only 35.7% of all the studied school quality assurers access internet at the internet cafes.

Table 4: Places were school quality assurers access ICT facilities

| Places | Responses (N=56) | | |
|---------------|------------------|-----------|------|
| | N | Frequency | % |
| Office | 55 | 34 | 60.7 |
| Home | 55 | 43 | 76.8 |
| Internet Café | 56 | 20 | 35.7 |

Findings from observation indicated that in all offices, School Quality Assurers share computer facilities at the following ratios: 1:22 (Kinondoni), 1:10 (Temeke) and 1:9 (Ilala). Moreover, the computer sharing ratio at Dar es Salaam zone office was found to be 1:5.

School Quality Assurers' ICT Knowledge

School quality assurers' ICT knowledge was also investigated during the study. Findings in Table 5 show that all school quality assurers lack ICT knowledge (1.8%-33.9%). Also, findings indicate that, majority of quality assurers cannot use word excel and PowerPoint presentation programs. Quality assurers cannot read and send emails or send documents as attachments and they cannot use internet to search educational resources.

Table 5: School quality assurers' ICT knowledge

| Knowledge Areas | Responses (N=56) | |
|--|------------------|------|
| | Freq | % |
| I can use word program | 13 | 23.2 |
| I can use excel program | 1 | 1.8 |
| I can use PowerPoint presentation | 2 | 3.6 |
| I can read and send emails | 17 | 30.4 |
| I can send document as an attachment | 9 | 16.1 |
| I can use internet to find education resources | 19 | 33.9 |

Easy of use of ICT School in Quality Assurance Practices

Furthermore, the study also explored the current uses, and easy of using the ICTs to enhance the school quality assurance practices. Findings in Table 6 indicate that generally, more than 50% of school quality assurers find it easy to utilize some ICT in different ways in their current practices particularly in relation to report writing (66.1%), storage of information

(58.9%), access to stored information (53.6%) and surfing of educational resources (50%).

Table 6: Uses of ICT to enhance current school quality assurance practices

| Uses of ICT in quality assurance practices | Responses (N=56) | |
|---|------------------|------|
| | Frequency | % |
| Data collection | 17 | 30.4 |
| Data analysis | 18 | 32.1 |
| Classroom observations | 8 | 14.3 |
| Report writing | 37 | 66.1 |
| Dissemination of report through email | 11 | 19.6 |
| Storage of information | 33 | 58.9 |
| Access of stored information. | 30 | 53.6 |
| Surf educational resources | 28 | 50.0 |
| Advising education stakeholders through website | 5 | 8.9 |
| Conducting seminars | 17 | 30.4 |

However, findings in Table 6 indicate further that more than half of school quality assurers do not utilize ICT for: data collection (69.6%), data analysis (67.9%), classroom observations (85.7%), dissemination of report (80.4%), advising education stakeholders through website (91.1%) and conducting seminars (69.6%).

Strategies for Effective Utilization of ICT to Enhance School Quality Assurance Practices

Opinions from Chief School Quality Assurers and School Quality Assurers regarding strategies to be used for effective utilization of ICT in school quality assurance were also explored. Analysis of responses from interviews determined a number of strategies, clustered in the following three major categories: (i) regular professional development programmes, (ii) improvement of school quality assurers' access to ICT, and (iii) availability of computer rooms in zones and district offices.

Regarding professional development programmes, school quality assurers were of the opinion that the MoEST and other stakeholders should provide tailor made professional development programmes for school quality assurers on how to utilize different aspects of ICT such as word, excel, and power point programmes effectively, and how to attach documents to emails. This is evident in the following utterances commonly raised by majority of the school quality assurers;

We should be assisted to have regular in-service programmes to learn computer skills and internet in order to enhance our ICT knowledge and improve our practices.

In addition, findings from interviews indicated that the school quality assurer's department (QAD) under UNICEF was at the preliminary stage of piloting the programme known as Quality Assurance Management Information System (QAMIS) in seven districts in Tanzania. It was suggested that *“the programme should be implemented and strengthened and school quality assurers be provided with adequate knowledge in order to manage the programme”*.

In terms of access to ICT facilities, most school quality assurers suggested that the government and relevant stakeholders should increase school quality assurers' access to ICT by supplying more computers, Ipads, projectors and internet connection as evidenced in the following quotation;

Every school quality assurer at all zonal and district offices should be provided with ICT facilities. Also, school quality assurers should be encouraged to procure Ipad or laptop computers for their personal use. To make school quality assurers utilize ICT effectively in their practices, they should be assisted to have fund so as to be able to buy computers and projectors.

In addition, school quality assurers suggested that there should be a separate computer room for school quality assurers in order for them to improve their practices. This is justified by the following utterances from school quality assurers;

We need to have at least a computer room which can be accessed by all all of us and to be used for activities that require computers. There is need to also establish ICT department at each school quality assurance offices in all districts and zones, also IT technicians be recruited to attend to all technical challenges.

DISCUSSION AND CONCLUSIONS

The study reported in this paper investigated the perceived potential for utilization of ICT to enhance school quality assurance practices in secondary schools in the context of Tanzania. Based on the framework of the study in Figure 1, effective utilization of ICT in school quality assurance practices is determined by quality assurers' access to ICTs and

ease of use of the ICTs and ICT knowledge (Chuttur, 2009; Jonathan & Mlyakado, 2016).

Generally, the study has established that, as perceived by school quality assurers, it is feasible to utilize ICT in school quality assurance practices in the context of Tanzania. This is because the study has established that over 80% of school quality assurers have access to ICT such as computer, radio, mobile phones and television. However, over 70% of school quality assurers have limited access to internet and ipad technologies. Also, it has been established that over 60% of the quality assurers have access to internet in their respective offices. According to Nihuka (2019) and Amadi *et al* (2015), reliable access to ICT such as computer and mobile phone is among the critical conditions for successful utilization of ICT in education.

Also, the study has established that over 50% of the quality assurers are currently utilizing some ICT in their practices. Specifically, quality assurers find it easy to use ICT in the following day-to-day practices; writing, storage of information, access to stored information and for surfing of reading resources. However, only limited quality assurers utilize ICT for data collection and analysis, classroom observation and dissemination of reports. According to Yekini *et al*, (2012) effective utilization of ICT promotes quality in quality assurance practices leading to quality teaching and learning processes in schools. Moreover, ICT utilization in quality assurance practices improves quality of quality assurance reports produced and quality of stored information (Anekwe & Izuchi, 2012).

However, the study has established that only less than 40% of the quality assurers have ICT knowledge particularly on basic computer applications such as the use of Microsoft office package which includes word, excel PowerPoint slides etc. They also lack ICT knowledge on how to use email, search for resources and uploading of documents in the email.

According to Jomathan and Petro (2016), lack of ICT knowledge is a common challenge across sub-Saharan Africa because only a few quality assurers have been fully trained to utilize ICT in school quality assurance practices. This finding corroborates to those reported in Samaila *et al* (2021), Jonathan and Mlyakado (2016) and Kihzoza, Zlotnikova, Bada & Kelegele, 2016). According to Hillmayr *et al* (2020), ICT knowledge is

important because it guides quality assurers on what ICT to use, how to use, and when and for what to use. Therefore, lack of ICT may have negative effects in school quality assurance practices, supervision and the provision of education in general.

It is concluded that for ICT to be effectively utilized to enhance school quality assurance practices, there is need for providing regular professional development programmes for quality assurers. This is because findings of the study have indicated that only 40% of the quality assurers have ICT knowledge. According to Samaila et (2021) and Udu (2018), regular professional development programmes are effective in acquainting with, and training of the quality assurers on how to effectively utilize ICT to enhance school quality assurance practices.

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