



Information and Communication Technology Usage in Record Keeping in Public Secondary Schools in Ilemela Municipality, Tanzania

Stella Masegenya¹ and Prospery M. Mwila²

¹Educational Officer, Urban West Region, Zanzibar

²Department of Educational Foundation: St. Augustine University of Tanzania, Tanzania

Correspondence email address: bapropsk@gmail.com

Abstract

The use of Information and Communication Technology (ICT) in education supports, improves, and optimises the dissemination of knowledge. International studies have demonstrated that ICT can increase student learning and teaching techniques. This study assessed the usage of Information and Communication Technology in Record Keeping in public secondary schools in Ilemela Municipality, Tanzania. Specifically, the study sought to identify types and roles of ICT appliances in school record keeping in public secondary schools, and to describe the attitudes of members of school community towards the usage of ICT in school record keeping in public secondary schools. The study was guided by Diffusion of Innovation Theory and Adaptive Structuration Theory. It adopted a mixed research approach and a convergent parallel research design. The target population of the study was 1032 and sample size comprised 108 respondents, sampled through probability and non-probability techniques. Research instruments included questionnaires and interview guide. Descriptive statistics and thematic analysis were used to analyse quantitative data and qualitative data respectively. The synthesis of the findings indicated that there is inadequate application of ICT in record keeping in public secondary schools because of the inadequacy of ICT facilities, lack of ICT trained personnel and insufficient funds required for overall maintenance and management of ICT related software. Furthermore, it was revealed that members of the school community have positive attitudes towards the use of ICT in record keeping in public secondary schools. The study concluded that ICT usage in record keeping is vital, it plays potential role in record keeping. Therefore, the government through the ministry responsible for education should provide public secondary schools with sufficient and modern ICT facilities that support/enhances the current practices in school administration and management.

Key words: *Usage, Information and Communication Technology, Record Keeping, Public Secondary Schools*

1. Introduction

Information and Communication Technologies (ICTs) have evolved into a vital success factor for achieving established goals and tasks in every organization, as well as personal achievements (Osorio, 2012). The use of Information and Communication Technology (ICT) in education supports, improves, and optimises the dissemination of knowledge. International studies have demonstrated that ICT can increase student learning and teaching techniques. As advanced by Mwila (2018), ICT integration into classroom teaching and learning helps to achieve the goals of



educational programs for several reasons. The advantages of ICT appear to be appropriate for adapting to the issue of basic education and innovative proficiency, particularly in the poorest populace segments. Mwila (2018) contends that ICT integration into the teaching and learning process makes the educative process more proficient and additionally fascinating to students in this way enhancing the quality of education. ICT is thought to enable the implementation of computerization methods in the education sector. Computerizing activity performance is the key to increased productivity. As a result, the adoption of ICT in the education sector has a significant impact on the productivity of education.

Bajpai (2010) argues that the use of ICT in school administration helped boost the education system in developed countries such as China, India, and Thailand. ICT aids in the completion of numerous tasks such as examinations and coordination (Bajpai, 2010). The use of ICT in the classroom is critical for improving the quality of data management in education (Kaku, 2005). Because of its potential in facilitating administrative activities such as data storage and knowledge management in decision making, ICT is widely used in schools (Evoh, 2017). According to Tagalou et al. (2015), the use of ICT in education aids in the integration of administrative activities, as well as ensuring a modern way of administration and facilitating administrative transactions.

Most African countries have ICT plans or policies in place, which are driven by the need for social and economic growth (UNESCO, 2017). Kenya's primary policy documents governing the ICT and Science, Technology, and Innovation (STI) sectors, for example, focus on fulfilling the country's Vision 2030 goals (IST Africa, 2016). South Africa's 2030 National Development Plan aspires to use ICTs to create a more inclusive society, eradicating poverty and reducing inequality (Department of Telecommunications and Postal Services Republic of South Africa, 2016).

Tanzania's Development Vision 2025 states that by emphasizing the use of ICT as central to competitive social and economic transformation, Tanzania would become a hub of ICT infrastructure and ICT solutions that would enhance sustainable socio-economic development and accelerated poverty reduction across the country. The proper ingredients in educational management are ICT skills (Mwalongo, 2011). According to UNESCO (2010), secondary school teachers' perceptions about the use of ICT in retrieving and storing information aid management abilities. The use of ICT in secondary school activities such as student records and classroom assignments is stressed (URT, 2010).

Prior to the introduction of ICT, schools in Tanzania employed a variety of instruments to gather and maintain education records manually, which resulted in information duplication. The use of ICT is projected to reduce the difficulties associated with traditional school record-keeping systems (MOEVT, 2016). As such, Tanzania sees ICT as a critical component for successful and efficient data administration in schools, and it has influenced how public secondary schools are run (UNESCO, 2010). This is owing to an increase in the number of pupils enrolled in schools, as well as the changes brought on by the usage of ICT in schools.

The World Bank and the Global Partnership for Education (GPE) provided significant financial assistance to the Tanzanian government for the introduction of ICT in public secondary schools



(MOEVT, 2016). However, it is still unclear how and to what extent ICT has benefited the provision of education in public secondary schools. In the year 2014, the Ministry of Education and Vocational Training (MOEVT) produced the National ICT plan for education and training. The plan envisaged that public secondary schools are supposed to integrate ICT into teaching and learning as well as use ICT for school record keeping. To that effect, the question can be raised as to whether, despite a directive from the Ministry of Education and Science and Technology, public secondary schools in Ilemela Municipality use ICT in record keeping.

Various studies, such as Howel and Lundal (2017), Etudor et al (2017), Cheryl (2016), Telem (2015), Ruby (2014), and Grey (2010), disputed the evident benefits of ICT in school administration, the use of ICT in financial school administration, and the reasons that impede ICT applications in schools. However, further research was needed to determine whether ICT has helped to improve record keeping in public secondary schools when compared to older ways. This is because the majority of previous similar studies were conducted in different countries, at different times, and with diverse approaches and methodologies. Therefore, this study assessed Information and Communication Technology usage in record keeping in public secondary schools in Ilemela Municipality, Tanzania.

The study was guided by the following research objectives:

- i) To identify types and roles of ICT appliances in school Record Keeping in Public Secondary Schools in Ilemela Municipality.
- ii) To describe the attitudes of members of school community towards the usage of ICT in school record keeping in public secondary schools in Ilemela Municipality.

2. Literature Review

Scholarly writings reveal different types of ICT appliances used in record keeping. According to Ajayi (2018), a systematized feedback system, computer-based operation/network, video conferencing and audio conferencing, internet/global websites, and computer assisted training are among the facilities used (Ajayi (2018: 27). However, it must be stressed that the effective use of various ICT techniques in record keeping is dependent on the availability of these facilities and the user's competence to use them. The three areas of ICT include Information Technology (IT), which includes computers; communications technology, which includes radio, television, and telephones; and networking technology, which includes the internet and audio conferencing.

Kuo (2011) noted that computers are used to gather, process, store, secure, and transfer information. Further, ICT enables the communication between computers through various connectivity technologies such as Local Area Network (LAN) or internet. IT as an academic topic is concerned with concerns such as advocating for users and addressing their requirements within an organizational and societal environment by using computing technologies in the selection, creation, application, integration, and management.



Generally, the use of ICT in the education sector has lately received much emphasis than never before. Bajpai (2010) believed that proper integration of ICT in the teaching/learning environment provided greater opportunities to boost education and increased productivity. In terms of record keeping, ICT provides learners with a variety of options in which they store their education material and improves their educational achievement. ICT also enables the teacher to find better methods of keeping records such as teaching notes, class lists, student tests, performance, among others.

Mbatia (2009) also concluded that, in this technological age, ICT use should not be disregarded or undervalued; it must be directly linked to diverse functions such as examination preparation and coordination of activities in the educational planning and teaching process. In reality, the position of instructors should be closely scrutinized in terms of the abilities and expertise required to perform various administrative activities. As a result of this worry, teachers should view ICT as a continuous or lifelong learning process. Teachers should be seen as major stakeholders in the use of ICT in many administrative duties by administrators.

The school administration contains members of the school community among whom the use of ICT in record keeping is essential. The attitudes of school leaders toward ICT, according to Leask (2013), have a crucial impact in the successful deployment of ICT. A head of school's good attitude toward ICTs is positively connected with their amount of computer technology experience, according to Carducci (2009). In the survey, almost all Turkish principals expressed good opinions about ICT in education (Reeves, 2009). Thus, it remained to be seen in Ilemela municipality if members of the school community have positive or negative attitudes towards ICT usage in record keeping in public secondary schools.

At a study of 30 heads of schools in a second cycle institution in Tehran, Afshari (2012) discovered a link between school leaders' computer skills and views regarding the adoption and use of ICT in schools. However, there remains a gap, which is driven by instructors' unwillingness to adopt ICT as a way of improving educational effectiveness. It's also crucial that the government, through the Ministry of Education, works on creating positive attitudes in teachers so that they can implement change in their classrooms. Heads of schools, as reported by Grono (2010), feel that the availability and access to current ICT resources will challenge and motivate record keeping and management to develop knowledge and skills in ICT. Schools have embraced a practice of offering ICT materials before educating instructors, according to Grono (2010). Unfortunately, very few instructors have a computer in their office, and the majority of them cannot afford one due to a lack of classrooms and other basic equipment.

According to Leask and Pachler (2013), school leaders need to promote learning and ICT skills. Leask and Pachler (2013) suggest that Information and Communication Technology (ICT) should now be considered an educational, learning, and management tool. Kukali (2013) holds that school principals should attach great importance to the use and integration of ICT. This ensures that the principal is always aware of new problem-solving and decision-making tactics based on management best practices. Kukali (2013) further holds that school principals should attach great importance to the use and integration of ICT. This ensures that the principal is



always aware of new problem-solving and decision-making tactics based on management best practices.

Accordingly, Amarinze (2010) argues that ICT allows for the monitoring and evaluation of the learning process. It also helps educational management to do a variety of tasks, such as exam administration, cooperation between possible institutes, and alumni networking. As such, it is imperative that school administrators encourage the usage of ICT for effective storage of information for effective delivery of education management. Not only the principals, but also the rest of the faculty, should encourage flexibility and desire to learn how to use ICT. The principals are able to provide up-to-date ICT infrastructure in order to facilitate faster and more effective communication. They should cultivate ties with stakeholders, alumni, and well-wishers who are eager to help their schools use ICT.

Teachers are also essential members of the school community and their effective use of ICT has potential to improve on their quality of education delivery by the way they keep their records. Pre-service student teachers' perspectives, attitudes, and knowledge concerning the use of ICT technology for instructional purposes in their future classrooms were explored by Mlambo et al. (2018). A quantitative technique was utilized to administer a questionnaire containing Likert scale type statements concerning ICT knowledge, attitudes toward, and perceptions of ICTs for instructional purposes to a sample of 136 pre-service teachers in South Africa at the end of a university semester. The findings revealed that participants strongly disagreed that they would use computer resources less in the classroom for educational purposes than other resources such as textbooks. The findings also reveal the potential pre-service teachers have in terms of anticipated prospective capabilities afforded by ICTs for instructional reasons, as well as their knowledge and positive attitudes regarding the use of ICTs in their future classrooms.

Another study on the use of ICT was conducted by Egbedokun and Oyewusi (2014) who looked at the potentials of ICT in three areas that are relevant to student learning (possession, perception and problems). The study looked into Obafemi Awolowo University, Ile-Ife teachers' knowledge, perceptions, and problems (as envisioned or experienced) with ICT facilities. A survey method was used in the research. A total of 50 lecturers from Obafemi Awolowo University in Ile-Ife were selected at random for this study. A 45-item Likert-style questionnaire was employed in this investigation. The study had four goals, and data analysis was done with simple percentages. Teachers thought that ICT facilities were beneficial for teaching. They did, however, identify issues such as a lack of power, access issues, financial limits, and phones without MMS capabilities as obstacles to using ICT in education.

According to Boakye and Banini (2008), the current use of computers for instructors and students for learning is heavily based on the lesson plan and material search to collect and save information for teaching professional needs and demand. It is at the point of information saving that the issue of record keeping comes in. Students are better prepared to be active citizens as a result of their usage of computers in school as a learning tool, such as sharing skills and knowledge in real-world productivity.

The European Commission (2005), as stated in Ngugi (2012), sees the main motivations for the use of ICT in education as management, education, and learning institutions. According to Ismail

(2010), external pressure to include ICT in schools' management courses has led schools to invest in resources for installation and training. In addition, according to Ismail (2010), teachers have learned that technology can be used in the classroom, but lack the pedagogical knowledge to do so effectively.

Teachers' preparation for the use of ICT in Ghanaian classrooms was examined by Boakye and Banini (2018). The findings derive from a case study technique in which both quantitative and qualitative data was gathered to understand the usage of ICT in the selected schools, using schools and classrooms as cases. Despite instructors' limited usage of computers in their classrooms, many people agree that computers have transformed the way kids learn, according to the teacher. Only 24% of instructors have had some type of computer training, with very little training in the pedagogical integration of ICT. Finally, most teachers do not appear to be ready to incorporate ICT into their teaching techniques. Ongoing research and reflection on teachers' use of ICT to support learning is warranted.

According to Placido and Lachica, the use of information and communication technology (ICT) in the classroom is inescapable (2015). All 60 instructors from five public high schools in Capiz, Philippines, took part in this descriptive qualitative study. Semistructured interviews, informal interviews, and observations were employed to gather data. The data was evaluated using the General Inductive Approach and thematic analysis to detect and choose emerging concepts and themes. Participants perceived classroom communication as a process, tool, context, interaction, and strategy. ICT was a catalyst for change for them, as well as a vehicle for learning, cutting-edge technology, and a tool for effective teaching and learning. Integration of ICTs in classroom communication is viewed as a teaching aid, a new medium of education, and a marriage or partnership between classroom communication and ICTs. According to the authors, best practices for utilizing ICTs in classroom communication should be studied and recorded.

Teachers' attitudes on the use of ICTs for teaching, administration, professional development, and personal usage were examined in Alcuin's (2011) study. A total of 74 teachers were included in the research. While qualitative data from the blog and Survey Monkey was downloaded, read word for word, and analyzed using Wft QDA to identify themes related to the research questions, quantitative data from Survey Monkey was evaluated online in the form of percentages. The data demonstrate that while having access to ICTs increased frequency of use, having training in ICT usage affected competency; instructors utilized ICTs for a variety of objectives, including teaching, administration, professional development, and personal use. Future research might concentrate on classroom observations to assess actual ICT use, as this study relied solely on self-reports; and the role of school leadership in ICT integration in the teaching-learning process.

Simonson (2008) also reported that there is a relationship between teacher competency, perceptions, and attitudes and ICT adoption. The more knowledgeable instructors were about ICT, the more likely they were to employ it in the classroom. As a consequence, establishing a positive mindset, as well as relevant and timely training, will aid in the establishment of a good ICT integration culture. Teachers' skills, attitudes, and beliefs impact their adoption and acceptance of the effectiveness of ICT in achieving targeted learning outcomes, according to Huang and Liaw (2008).

3. Research Method

This study adopted a mixed research approach and a convergent parallel research design. The target population of the study was 1032 that constituted the Regional Education Officer (REO), the District Educational Officer (DEO), two Statistics and Logistics Officers (SLOs), two Information and Communication Technology Officers (ICTOs), three Quality Assurance Officers (QAOs), eight school heads, and 1016 teachers from public secondary schools in Ilemela Municipality. The sample size comprised of 108 respondents including the REO, DEO, two SLOs, two QAOs, two ICT managers, eight heads of schools and ninety-one teachers- all sampled through probability and non-probability techniques. Research instruments included questionnaires and interview guide. Validity of research instruments were done through content validation while reliability was measured using the 'split-half' method using the Spearman - Brown formula. Descriptive statistics and thematic analysis were used to analyse quantitative data and qualitative data respectively. Quantitative data was presented in tables while qualitative data was presented in narrative forms and direct quotations.

4. Results And Discussion

The findings of the study are presented thematically and in line with the to the research objectives guiding this study.

The Types and roles of ICT in school Record Keeping in Public Secondary Schools

The Types of ICT appliances used in Record Keeping in Secondary Schools

In order to know the types of ICT appliances used in record keeping in public secondary schools in Ilemela Municipality, the researcher considered various variables including availability of ICT resources, types of ICT facilities and usability of facilities.

Availability of ICT resources in schools

The researcher sought information from teachers on whether there is availability of ICT resources in their schools. The results showed that 91(100 percent) of respondents agreed that ICT resources were available in their schools. It entails that most secondary schools respondents had positive response on the government policy in education that by 2010 schools should integrate ICT in the school management (URT, 2010). Basing on the results, it was observed that that the majority of public secondary schools have ICT resources available in their schools implying that. Further, with majority of teachers using ICTs in schools, it would be able for the members of the school community to carry out their main role of proper record keeping efficiently.

Types of ICT facilities

The respondents were also asked to indicate types of facilities available in their school and used if the school use appliance in record keeping. The results are presented in Table 1.

Table 1: Types of ICT facilities

Types of facilities	Frequency (N)	Percent of Cases (%)
Computer	91	100.0
Internet	45	49.5
Tablet	11	12.1
Photocopier	82	90.1
School tabulate	33	36.3
Printers	68	74.7
Projectors	11	12.1
Scanner	46	50.5

Sources: Field data (2021)

Table 1 shows that the dominating type of ICT facilities found in public secondary schools according to the order of high presence are computers evidenced by 91 (100.00 percent), photocopy machines supported by 82 (90.1 percent), printers and laptop evidenced by 68 (74.7 percent) per each, scanner supported by 46 (50.5 percent) and data internet scored 45 (49.5 percent). The other facilities which are not commonly found in many schools as indicated in Table 1. The results imply that most of ICT facilities available in the study area were computers as the main ICT facilities. However, the research found out that many secondary schools had no computer laboratories, which means that, many of these schools had few and sometimes even very few numbers of computers. The study further found that public secondary schools that had computer laboratories were few and most of the laboratories were funded by education development partners, such as Japanese International Cooperation Agency (JICA) and mobile network companies such as TIGO.

The response from heads of schools, ICT manager and SLO during interviews indicated that, some secondary schools had been found with photocopying machines, laptops, printers and scanner. However, there were some schools which didn't have any of the aforementioned ICT facilities.

In supporting the results, one of the heads of secondary schools interviewed had the following comments:

Some of the schools have computer laboratory funded by education development partner. The available computers help both teachers and students in administration of students' records and searching for academic materials. But they are still facing challenges that include few numbers of computers, lack of computer technician for repairing defective computers (Interview date, 21/09/2021).

The results concur with the study of Austine (2015) who found out that among the ICT facilities which were available in secondary schools surveyed included desk top computers and laptops. Kamau (2018) also revealed that computers were not enough in their secondary schools while for the teachers' computers were not enough as well. This is based on utilization of the diffusion of innovation theory the implementation considered by basically focusing on education

information. Therefore, in adherence to Information and Communication Technology policy for basic education of 2007, which gave secondary education a priority by investing in ICT facilities to speed up information sharing and decision making in the management, it was effectively implemented. Hence, ICT facilities used included computer, internet, projector, radio (tape record), electronic notes board, and video also providing training to ICT experts. Since the implementation is true that most of information needed in decision making are kept appropriately and they are easily accessed.

Uses of Computers in Record Keeping

In the same objective, the study further found out that computers were the main ICT facilities used for record keeping in the secondary schools. Based on respondents' information, the study depicted that, computers were scored highly as the major ICT facility used for record keeping as it shown in Table 2.

Table 2: Uses of Computers in Record Keeping

Uses of computers in record keeping	Responses	Per cent of Cases%
Prepare and keep students' Particular	48	52.7
Set and keep examination	43	47.3
Prepare and keep examination reports	48	52.7
Prepare and keep lesson plan	43	47.3
Track and keep student's performance	48	52.7
Prepare and keep financial record	43	47.3
Prepare and keep development plan record	43	47.3

Sources: Field data (2021)

The results in Table 2 shows that computers are the main facilities used in various ways such as for preparing and keeping students' IDs 48(52.7 percent), preparing and keeping examination reports 48 (52.7 percent), and tracking and keeping student's performance evidenced by 48 (52.7 percent). It was further observed that teachers used computers (laptop and desk tops) not directly for teaching purposes, but for searching materials on the internet. Data collected further revealed that very few secondary schools in the study area used computers for record keeping.

Response from heads of schools during interviews showed that the computers were the main ICT facilities and they are used for educational management (students' records). ICT manager and SLO also indicated that only computers were used for education management in keeping students' records. The study unveiled that a good number of secondary schools in the study area had desk top computers for administration and education management. These computers were mainly used for typing school examinations, keeping students' records such as examination results, schools' expenditures and keeping records for administration. One headmistress had this to comment on that respect:

In many schools, computers help in keeping students' records and for preparing financial reports. At large, computers simplify in preparing

reports and makes the records available at any time; once needed it is simple to obtain (Interview date: 23/09/2021).

The results are in accordance with the study of Mandoga et al. (2013), who revealed that, the use of computers was crucial for the running of the school management and administration. Mangoga et al (2013) findings cited various areas for which computers were being used in the administration of their schools including, keeping financial records and typing administration materials like students and staff records, typing administrative documents like minutes and circulars, typing examinations, making examination schedules and the school timetable, keeping enrolment figures, typing and performing other administrative functions and typing the timetable, and keeping school records. Additionally, Alabi (2016) agreed with the findings by advancing that computers in secondary schools are used for keeping records that can be stored and manipulated by microcomputers including students' records, personnel records, financial records, inventories of school equipment, and special management records such as transportation, food service, energy management and sports programme management.

In the same vein, Adaptive Structuration Theory (AST) of DeSanctis and Poole (1994) is based on Anthony Giddens' (1984) structuration theory. AST viewed appropriate for this study because it examines the change process through types of facilities that are provided by advanced technologies, that is, management information systems, internet and electronic databases. Proponents of AST contend that developers and users of these systems hold high hopes for their potential to change organizations for the better. Likewise, secondary schools have invested greatly in ICT to ensure widespread access to their applications and productivity for examination and record management systems but the actual contribution of ICT in record management systems has less been realized because of inadequate ICT facilities.

In a nutshell, the results for this study implicate that both teachers and administrators saw the ICT facilities in secondary school administration as important in record keeping. Teachers reflected the use of ICT facilities in student administration as equally important while heads of school accounted the importance of using ICT in supervision of instruction and in student administration higher. This is encouraging for the implementation of ICT in secondary schools through the usage of these facilities by the school community since they have a higher perception of using ICT facilities despite the fact that there were few ICT facilities which used in record keeping.

a) Roles of ICT in Record Keeping Secondary Schools

Teacher respondents were asked to indicate the roles of ICT in school record keeping in public secondary school. Table 3 below presents the findings. The table shows that three roles were identified. ICT use in curriculum and instruction record scored 69 (75.8 percent), ICT is used in school financial control record evidenced by 68 (74.7 percent) and ICT use in supervision of school personnel record, what aspects are involved such a use 80 (87.9 percent)



Table 3: Roles of ICT in school Record Keeping

Roles	Responses	Per cent of Cases
ICT use in curriculum and instruction record	69	75.8%
ICT is used in school financial control record	68	74.7%
ICT use in supervision of school personnel record, what aspects are involved such a use	80	87.9%

Source: Field data (2021)

ICT use in curriculum and instruction record

To further assess the extent to which ICT is used in curriculum and instruction in management of public secondary schools. A multiple response approach was used to get views of teachers on ICT utilization in preparation and delivery of lessons, ICT utilization in formulating and updating schemes of work, lesson plans, records of work and progressive records, recording and retrieving data on students' academic performance, ICT utilization in library services and in school timetabling. This approach further assessed if teachers felt prepared to use ICT after ICT in-service course training, whether they have enough computers in schools and whether they are able to access computers at any time in their schools. The researcher also sought information from principals on the extent to which ICT is used in curriculum and instruction.

Table 4: The use of ICT in curriculum and instruction record

Use	Responses	Per cent of Cases
Teachers use ICT in preparation and delivery of record lessons	22	32.4
If teachers feel prepared to use ICT after ICT in-service course training	45	66.2
Teacher use ICT in recording and retrieving data on students' academic performance	57	83.8
Teacher use ICT to construct and update schemes of work, lesson plans, records of work and progressive records	68	100.0
School uses ICT to make the school timetable	68	100.0

Source: Field data (2021)

Results on the use of ICT to formulate and update professional documents as presented indicate that, 68 (100.00 percent) of teachers strongly agreed that they use ICT to construct and update schemes of work, lesson plans, records of work and progressive records. In this case, more than half of the teachers revealed that they use ICT to construct and update schemes of work, lesson plans, records of work and progressive records.

Results on the use of ICT to record and retrieve data on students' academic performance revealed that, 57 (83.8 percent) of the teachers strongly viewed that they use ICT to record and retrieve data on students' academic performance.

Teacher respondents' feedback on whether schools use ICT to make the school timetable and library services reveal that 68 (100.00 percent) of them agreed that their schools use ICT for school timetable and record library services. Majority of the teachers indicated that they do not use ICT for library services. ICT is also used to keep records of borrowing and returning textbooks by students and teachers.

Findings on teachers' response on curriculum and instruction presented in Table 4 on ICT use in preparation and delivery of lessons revealed that, only 22 (32.4 percent) use ICT in preparation and delivery of their lessons.

ICT use in supervision of school personnel record

The study also sought to establish ICT use in supervision of school personnel. Information was sought from the teachers on whether their schools use Primary Record Manager (PREM) to register and track students, use of ICT in capturing personal data of both teachers and support staff, use of time attendance software to supervise staff, use of biometric system to monitor students, use of ICT to supervise teachers class attendance, use of ICT to monitor staff in-service training and whether school managers use ICT in communication.

Table 5: ICT use in supervision of school personnel record

Use	Responses	Per cent of Cases (%)
School uses PREM system to register and track students in school	68	85.0
School uses ICT in capturing personal data of both teachers and support staff like age, gender and year of recruitment into the school	58	72.5
School uses ICT to supervise teachers' class attendance	11	13.8
Head of school uses ICT (emails) to communicate to teachers	33	41.2

Source: *Field data (2021)*

Findings on the use of PREM to register and track students, indicate that 68 (85.0 percent) of the teacher respondents agreed that they use PREM to register and track students. The findings from the heads of schools agreed with that of the teachers in that all schools noted that they use PREM to register and track students in their schools. Use of PREM can help to register and track students from one level of education to another.

Results on the use of ICT in capturing personal data on both teachers and support staff indicated that 58 (72.5 percent) of teachers agreed on the use of ICT in capturing their personal data. Heads of schools' findings indicated that capturing personal data for teachers is a function of the Teachers Service Commission (T.S.C) but were in agreement of capturing data using ICT for support staff.

Results on whether schools use ICT to communicate to teachers showed that 33 (41.2 percent) indicated that they used ICT especially WhatsApp for communication. In line with the heads of schools' findings, majority of teacher respondents indicated that they use WhatsApp for communication. With the emergence of new trends in communication especially by use of ICT, schools should be able to use ICT for communication purposes which may lead to proper planning and decision making.

ICT used in school financial control record

The third role sought to indicate ways in which ICT is used in the management of secondary school financial control. Information was sought from teachers on whether schools use ICT to prepare school budget, to keep and retrieve students' data on school's fee payment, how ICT is used to prepare profit and loss account, balance sheets, ledger accounts and income and loss account, use of ICT to process and pay non-teaching staff, other ways ICT is used to control finances in school.

Table 6: ICT is used in school financial control record

Use	Responses	Percent of Cases
School uses ICT to prepare school budget	34	43.0%
School uses ICT to keep and retrieve student's data on school fees payment	68	86.1%
School uses ICT to prepare profit and loss account, balance sheets, ledger accounts and income and loss account	46	58.2%
School uses ICT to process and pay non-teaching staff	45	57.0%

Source: Field data (2021)

The results show that 34 (43.0 percent) of the teachers indicated that they are aware of the school utilizing ICT to prepare school budget, more than 57 percent of respondents were not aware on whether ICT was utilized in preparation of the school budget. Contrary to the teachers' findings, all of the heads of schools indicated that they use ICT to prepare school budget. This study, perceived contribution of ICT on record keeping in public secondary in education, would lead utilization of ICT in supervision of school personnel and the utilization of ICT in controlling school finances.

Findings on whether schools use ICT to keep and retrieve students' data on school fees payment revealed that, 68 (86.1 percent) of the teachers indicated that they were not aware whether the schools use ICT to keep and retrieve students' data. Contrary to the teachers' findings, all heads

of schools opined that ICT is used to keep and retrieve students' records on school fees payment. In addition, heads of schools stated that they use bulk text messages to remind government of school fees balances. Supposed helpfulness influence of ICT on record keeping in public secondary education detailed on keeping and retrieving students' data on school fees payment.

The findings indicate that 46 (58.2 percent) of the teachers were not aware whether the schools use ICT to prepare profit and loss account, balance sheets, and ledger accounts. Heads of schools noted that they use ICT in preparing balance sheets and ledger accounts. Majority of the teachers who were not aware how ICT is used in financial control noted that, use of ICT in school financial control is not part of their job description. For schools to monitor school expenditure, appropriate keeping of school records, accounting and auditing procedures should be followed.

The attitudes of teachers, heads of schools and administration officers towards the contribution of ICT in improving record keeping.

This study described the attitudes of teachers, heads of schools and administration officers towards the use of ICT in record keeping in public secondary schools. In order to meet this objective, evaluation on seven issues was carried out as presented and discussed based on teachers, heads of schools and administration officers' perceptions. Friedman test was used to compares the mean ranks between the related groups and indicates how the groups differed and it included in rating the issues.

Table 7: Friedman Test Rank

Statements	Mean	Rank
Prepare and keep students' identity	4.27	7
Set and keep exams	4.59	4
Prepare and keep exams reports	6.36	2
Prepare and keep lesson notes	4.53	5
Track and keep student's performance	4.35	6
Prepare and keep financial record	7.18	1
Prepare and keep development plan record	5.30	3
Prepare and keep management documents	4.03	8

Sources: Field data (2021)

The results in Table 7 show that teachers perceived high use of ICT specifically to prepare and keep financial records, followed by preparing and keeping examination reports, preparing and keeping development plan records, setting and keeping examinations and preparing and keeping lesson plans. The results further show that respondents whispered that use of ICT in secondary school enhances efficiency. School administrators noted that the use of ICT in management enhances efficiency in school students' management records. It also enhances efficiency in data analysis and tracking of financial records. This means that the teachers and heads of schools supported full use of ICT in keeping record and management of record, because they recognize that it enhances efficiency in information or data keeping record.



The results agree with the findings of Miima, (2013) as cited in Mwila, (2018) who reported that members of school community, for example teachers have positive attitudes toward IT, their IT use in teaching, and the availability of IT. The use of ICT in Record Keeping in secondary schools largely depended on the attitude and perception of teachers concerning ICT integration; positive ICT attitudes are expected to foster ICT integration in the teaching process. Theoretically, the use of ICT in Record Keeping is expected to grow slowly and gradually in the beginning and then have a period of rapid growth that will narrow and become stable and eventually decline (Rogers, 2003). Thus, attitude of members of school community towards the use of ICT impacts the choice of whether to adopt or reject the use of ICT in record keeping.

5. Conclusions

Based on the findings, it may be concluded that ICT plays potential roles in record keeping for the public secondary schools. The study revealed that the government benefits through effectiveness of knowledge and skills acquired teachers in public secondary schools. The effectiveness of the implementation of ICT in secondary schools for education management on record keeping require policy makers, all stakeholders and authorities to be aware of the importance of implementation of ICT in education, and understand benefits of ICT in developing accessible record keeping. Furthermore, establishment of ICT policy plan for sustainable ICT application in secondary school should be reviewed. The results of the study expand understanding on the contributions of ICT in improving educational management and administration specifically in record keeping in public secondary schools. Furthermore, the results afford more information about the application of ICT for education record keeping, teachers' perception of ICT claim. Concerning the results provide a good stability for studies to be conducted in future in this fertile area.

On the basis of the findings and conclusions of this study, the following recommendations are made:

- i. The government through the President's Office, Regional Administration and Local Government Tanzania (PO-RALG) needs to increase its commitment into effectiveness of application of ICT in education management and administration which meets the needs of ICT for management of students' records, management purposes, soliciting teaching materials, and communication purposes at schools. But also, the government should provide public secondary schools with sufficient and appropriate ICT facilities that support up to date technology.
- ii. The government through the Ministry of Education, Science and Technology needs propose to school management committee in using a portion of own sources revenue to purchase some necessary ICT equipment like computers, printers, projectors, photocopy machines and others for strengthening infrastructure for education management and administration
- iii. The government, through the Ministry of Education, Science and Technology should avail more funds to buy and maintain ICT in schools as a vote head in disbursement of funds for free secondary education. This is because from the research the funds allocated currently are not enough



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