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Accessibility and Usability of Information and Technology Communication: Application for Record- Keeping among Secondary School Administrators

Hammed Olalekan Bolaji¹, Bashirat Funmilayo Ibrahim^{2,}*

¹Science Education, Faculty of Education, Al-Hikmah University Ilorin, Nigeria

²Educational Management and Counselling, Faculty of Education, Al-Hikmah University Ilorin, Nigeria

*Correspondence: E-mail: ibrahimbashiratfunmilayo@gmail.com

ABSTRACT

This study purpose was to examined the accessibility and usability of Information and Technology Communication : Application for record -keeping among secondary school administrators in Ilorin Metropolis , Kwara State . The findings of this study revealed the information and communication technology (ICT) facilities available, accessible and usable for record -keeping among secondary school administrators in Ilorin Metropolis , Kwara, Nigeria, including general computers , laptops , CD ROMs , DVD ROMs , flash drives , and scanners . there is no significant difference between the mean score of male and female secondary school administrators in the area of accessibility and usability of Information and Technology Communication facilities for record-keeping in Ilorin Metropolis, Kwara State . Based on the findings , it was recommended that There should be adequate provision of modern ICT facilities for record-keeping among secondary school administrators in Ilorin Metropolis , Kwara State . The government should enhance the proper accessibility and usability of Information and Technology Communication facilities in record keeping and other areas of school activities by procuring funds for the purchase of these new technology devices and training staff and school administrators for effective use of these facilities.

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1. INTRODUCTION

The number of secondary schools in Nigeria has tremendously grown. Due to this development, the administration of the secondary education system seems to be becoming more and more complex by the day and this complexity makes it expedient for the administrators to find a way of ensuring an effective management system that will enhance their productivity. Today's secondary schools without any doubt require administrators or leaders who can get at, interpret appropriately and favourably disposed to the knowledge and utilization of information and communication technology to ensure their effective job performance in their various schools.

Information and communication technology (ICT) evolved from the quest for faster and easier management of enormous information available to users. Thus, information and communication technology are very essential for the generation of quality information and management of that information is required for effective decision-making. Information and communication technology components include, as identified by [Ayeni \(2004\)](#), print media, electronic media, telephone, telex, e-mail, fax and computers. The application and use of information and communication technologies (ICTs) in higher education institutions have become a global trend thereby making the traditional system of record management to become obsolete ([González-Zamar et al., 2020](#)).

ICT can be defined as an electronic-based system in which information can be transmitted, processed and retrieved. The components of ICT include computer software, network equipment, satellite lines and related systems that allow scientists to access, create, exchange, communicate and use data and information for skill/knowledge building. [Okoro and Akanaonye \(2012\)](#) stated that ICTs as computer-based resources which include hardware and software currently available for teaching and learning transactions. It also includes multimedia teaching packages and information resources such as the internet and data management.

Record keeping is the systematic way of recording, storing, documenting and retrieving information for use by organizations. ICT and record keeping are interwoven as the ICT facilities are vital tools in enhancing record-keeping in schools ([Matlala, 2019](#)). Records and record keeping constitute the life wire of an organization, it would be very difficult to plan and administer an organization such as the school effectively if records are not kept and properly managed. School records are documents, books, diskettes, etc which contain information on what is happening in the daily routine of any school organization ([Okpala & Ukandu, 2022](#)).

However, most schools are still comfortable with the traditional method of record keeping. The few records that are kept in some of their offices and departments using the traditional method cause laborious effort and difficulty in the retrieval of information. Most often, files are tucked in cabinets and rodents, insects destroy them by tearing them. The tendency of falsifying these files by some unfaithful staff of the organization is another disadvantage of the traditional method of record management.

Different types of records can be kept in any school organization for quality teaching and learning to take place. In the school system, records can be classified into management records, administrative reference records and student records. Management Records are records of meetings, procedures, decisions and resolutions kept as important reference materials through which institutions keep track of changes in their procedure and practices, as well as to know the state of transparency of their activities in the past and present. They

also stand as the basis for determining what should be done in the future. Administrative records include admission records, personnel records and physical resource records. Admission records are permanent records showing the records of students from the first day of admission.

They help to keep track of student enrolment. They serve as a source of reference point on every matter relating to when a student came into the institutions, course of study, possible day of graduation, etc. Personnel records provide information about the employment and duty records of both academic and non-academic staff members. These records contain detailed personal information of staff (in terms of age, gender, qualification, previous experience, appraisal forms, certificates), a detailed description of tasks to be performed by staff by the employment conditions of service as well as staff disciplinary committee files.

Physical resource records are records of tangible assets such as classrooms, offices, laboratories and workshops as well as the equipment and furniture in them (Ogunode *et al.*, 2022). Reference records are policy records which must be possessed by the institutions. They include government policies, decisions of governing council and procedures on funding and moral codes. Student records include the personal data of students at the time of admission, matriculation number, date/year of admission, department/course of study, a degree in view, mode of entry, letter of recommendation/attestation, name of course adviser, academic records (transcripts, examination scripts, social records, and students disciplinary committee files).

UNESCO defined ICT as any form of technology that is used to transmit, store, create, share or exchange information for academic and administrative purposes. ICT facilities include technology devices such as radio, television, video, DVD, telephone (fixed and mobile phones) satellite systems, projectors, computers and networks, hardware and software and services associated with these technologies. Stipulated that records are kept to supply authentic evidence of fact or event. He noted that record keeping is the act of documenting information in schools in such a manner that it can be retrieved whenever for administrative purposes.

Proper record keeping of all related records is very important as they readily form a data bank from which any information can easily be extracted at a short notice. Record keeping is an established methodology for ensuring the systematic management of all records and the information they contain throughout their life cycle.

Records are the major administrative tools for the success of the school system. If they are not kept and managed as required, the whole university system may be disorganized and administrative effectiveness may become a mirage. Management and Administrative records are the basic records found in any educational institution, especially at the university level.

Osakwe (2012) stressed the need for universities to utilize ICT for record-keeping which goes a long way in raising the standard of school records anywhere in the world. Educationists are fast realizing the need for using ICT facilities for record-keeping and management of school records.

The challenges of using ICT facilities in record keeping in secondary schools include:

- (i) Erratic Power Supply: Amid the great advantages of using ICT in record management, the challenge of erratic power supply has made many people depend on the traditional method of record keeping.
- (ii) Lack of Fund: Poor funding of education, at the local, state and federal levels has been a very major challenge in the use of ICT in record keeping in schools. Education is grossly underfunded; the adequate fund is needed to provide ICT facilities in these schools.

- (iii) **High Cost of ICT Facilities:** The demand for ICT facilities in Nigeria is high but only very few individuals and organizations can afford the price of these facilities. The price of computer hardware and other ICT facilities continues to drop in most developed countries and increases in developing countries.

Many challenges hinder effective record keeping using ICT facilities in schools. Despite the recognized roles of information and communication technology in improving the quality and quantity of university education, it has remained a low policy or financial priority in the Nigerian education system.

[Nkadi \(2008\)](#) added that the non-availability of these new technological devices and the lack of knowledge and skills among staff and students in using these devices are the major problems militating against the use of ICT facilities for record-keeping and management of the facilities.

The various barriers to ICT usage in Nigerian schools including poor infrastructure, epileptic power supply, lack of trained personnel, inadequate funding and limited or no access to the internet. [Aduwa-Ogiegbaen and Iyamu \(2005\)](#) added that there have been little efforts in the integration of ICT facilities into the Nigerian university system for record management. University administrators and staff have been unable to find effective ways of using technological devices in the faculty and departmental offices for proper record keeping. As the secondary educational system is expanding at an unprecedented rate so also the problems of its planning, organizing, coordinating, controlling and directing which are to be performed by the school principal.

It has been observed that the level of principals' ICT awareness in secondary school administration seems to be low, many of the principals seem not to have the basic knowledge of ICT facilities such as computers and the internet to mention just two and it also appears as if some of the secondary schools are not even well equipped with necessary ICT facilities and it seems as if school administration is effective in the secondary schools with ICT facilities than those without it, it also seems as if ICT remains a low policy of financial priorities in most secondary schools.

According to [Schiller \(2003\)](#), school leaders are key factors in ICT implementation in schools. They have to shoulder the heavy responsibility for creating changes in schools through the use of ICT and facilitating the process of making complicated decisions to integrate it into schools ([Schiller, 2003](#)). Although the role of the principal in supporting technology integration is very important and also, little is known about the use and the skill of ICT by principals and the factors that are related to their level of computer use.

The main purpose of the study was to investigate the accessibility and usability of Information and Technology Communication (ICT): Applications for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State. Specifically, the purposes were to:

- (i) investigate the types of ICT facilities available, accessible and usable for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State
- (ii) examine the different areas of record keeping where ICT is being used in record keeping among secondary school administrators in Ilorin Metropolis, Kwara State
- (iii) assess the accessibility and usability of Information and Technology Communication (ICT) facilities among secondary school administrators in Ilorin Metropolis, Kwara State
- (iv) find out the challenges inhibiting appropriate accessibility and usability of ICT facilities in record keeping among secondary school administrators in Ilorin Metropolis, Kwara State.

The following research questions were raised to guide the conduct of this study.

- (i) What are the types of ICT facilities available, accessible and usable for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State?
- (ii) In what areas of record keeping are ICT being utilized between male and female school administrators in Ilorin Metropolis, Kwara State?
- (iii) How accessible and usable of Information and Technology Communication (ICT) facilities among secondary school administrators in Ilorin Metropolis, Kwara State?
- (iv) What are the challenges inhibiting appropriate accessibility and usability of ICT facilities in record keeping among secondary school administrators in Ilorin Metropolis, Kwara State?

The research hypothesis used in this study was no significant difference between the mean score of male and female secondary school administrators in the area of accessibility and usability of Information and Technology Communication (ICT) facilities for record-keeping in Ilorin Metropolis, Kwara State.

2. METHOD

This study adopted a descriptive design with a population of twenty (20) secondary schools in Ilorin Metropolis comprising the principals, vice principals and HODs of the departments. A sample size of 100 school administrators in Ilorin Metropolis, Kwara State was drawn using a stratified random sampling technique. A sample of 5 school administrators was drawn from each school. This included 65 male and 35 female school administrators.

The instruments used for the study were an observation schedule and a questionnaire titled Accessibility and Usability of Information and Technology Communication (ICT) Application for Record Keeping Questionnaire (AUICTARKQ), which was validated and the reliability of the instrument was determined through the test-retest method, which yielded an index of 0.88. Percentages, mean scores and standard deviation were used in answering the research questions while the z-test was used to test the hypotheses at a 0.05 significant level.

3. RESULTS AND DISCUSSION

3.1. Research Question 1: What are the types of ICT facilities available, accessible and usable for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State?

Table 1 shows the mean scores of male and female school administrators on the ICT facilities available, accessible and usable for record-keeping in Ilorin Metropolis, Kwara State. Male and female school administrators responded that the available ICT facilities for record-keeping purposes include: general computers, laptops, CD ROMs, DVD ROMs, flash drives, scanners and television sets as indicated in the table.

Their mean responses are greater than the criterion mean score of 2.5. They disagreed on other items in the table with mean scores lower than the criterion means. They include; Ipad, android, blackberry, web camera, camcorder, video machine, and MP3-9. Therefore, the ICT facilities available, accessible and usable for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State include general computers, laptops, CD ROMS, DVD ROMS, flash drives, scanners, and television sets as indicated in **Table 1**.

Table 1. Mean scores of male and female school administrators on the ict facilities available, accessible and usable for record keeping in ilorin metropolis, Kwara State.

S/No	ICT Facilities	Male School Administrators		Female school Administrators	
		\bar{x}	Decision	\bar{x}	Decision
1	General computer	3.68	Available	3.42	Available
2	Laptop	3.22	Available	3.17	Available
3	Ipad	1.38	Unavailable	1.05	Unavailable
4	Android	1.86	Unavailable	1.68	Unavailable
5	Blackberry	1.77	Unavailable	1.04	Unavailable
6	CD ROMs	3.33	Available	3.52	Available
7	Internet	3.05	Available	3.10	Available
8	DVD ROMs	3.23	Available	2.87	Available
9	Flash drives	3.58	Available	3.22	Available
10	Scanners	3.03	Available	3.00	Available
11	Web camera	2.10	Unavailable	2.08	Unavailable
12	Camcorders	2.25	Unavailable	2.18	Unavailable
13	Television set	3.16	Available	3.25	Available
14	Video machine	1.08	Unavailable	1.94	Unavailable
15	MP 3-9	1.32	Unavailable	1.86	Unavailable
	Aggregate Mean	2.54	Available	2.50	Available

3.2. Research Question 2: In what areas of record keeping are ICT being utilized between male and female school administrators in Ilorin Metropolis, Kwara State?

Table 2 presents the mean and standard deviation of male and female school administrators in the area of record keeping that ICT facilities are being utilized in Ilorin Metropolis, Kwara State. Male and female school administrators accepted the items in **Table 2** with mean scores greater than the criterion means of 2.5 and high standard deviation scores.

The aggregate mean scores of 2.89 and 2.91 as shown in the table revealed that the areas of record keeping that ICT facilities are being utilized in the schools among the school administrators in Ilorin Metropolis, Kwara State include: students’ admission/graduation records, personnel management records, administrative record keeping, financial management and facility management records.

Table 2. Mean and standard deviation of male and female school administrators in the area of record keeping that ict facilities are being utilized in ilorin metropolis, Kwara State.

S/No	Areas of Record Keeping ICT Facilities being Utilized include:	Male School Administrators		Female School Administrators		Mean	Remark
		Mean	SD	Mean	SD		
1	Administrative record keeping	2.79	0.72	2.94	0.85	2.87	Agreed
2	Student admission/graduation records	3.18	0.64	3.13	0.77	3.15	Agreed
3	Personnel management records	2.98	0.712	2.85	0.906	2.91	Agreed
4	Facility management records	2.72	0.745	2.77	0.799	2.75	Agreed
5	Financial management records	2.76	0.74	2.87	0.94	2.81	Agreed
	Aggregate	2.89	0.71	2.91	0.85	2.90	Agreed

3.3. Research Question 3: How accessible and usable of Information and Technology Communication (ICT) facilities among secondary school administrators in Ilorin Metropolis, Kwara State?

Table 3 shows the mean and standard deviation of male and female secondary school administrators on the accessibility and usability of ICT facilities used for record-keeping in Ilorin Metropolis, Kwara State. Male and female secondary school administrators accepted items 2 and 5 in the table with mean scores greater than the criterion means of 2.5 and high standard deviation scores. They disagreed on items 1, 3 and 4 with mean scores less than the criterion mean of 2.5 with a lower standard deviation.

The aggregate mean scores of 2.31 and 2.29 as shown in the table revealed that the accessibility and usability of ICT facilities used for record-keeping in the secondary schools in Ilorin Metropolis, Kwara State are not adequate. Only ICT facilities for students' admission/graduation records and financial management records are adequate. ICT facilities for personnel management records, administrative record keeping, and facility management records are inadequate.

Table 3. Mean and standard deviation of male and female secondary school administrators on the accessibility and usability of ict facilities used for record keeping in ilorin metropolis, kwara state.

S/N	Accessibility and Usability of ICT Facilities used for Record Keeping include:	Male School Administrators		Female School Administrators		Mean	Decision
		Mean	SD	Mean	SD		
1	ICT facilities for administrative record keeping	1.39	0.22	1.44	0.25	1.42	Inadequate
2	For students' admission/graduation records	3.28	0.94	3.23	0.87	3.26	Adequate
3	Personnel management records	1.98	0.36	1.85	0.33	1.92	Inadequate
4	Facility management records	1.72	0.30	1.77	0.32	1.75	Inadequate
5	Financial management records	3.16	0.83	3.17	0.84	3.17	Adequate
	Aggregate	2.31	0.53	2.29	0.52	2.30	Inadequate

3.4. Research Question 4: What are the challenges inhibiting appropriate accessibility and usability of ICT facilities in record keeping among secondary school administrators in Ilorin Metropolis, Kwara State?

Table 4 shows the mean and standard deviation of male and female school administrators on the challenges inhibiting appropriate use of ICT facilities for record-keeping in Ilorin Metropolis, Kwara State. Male and female secondary school administrators accepted the items in the table with high mean scores greater than the criterion means of 2.5 and high standard deviation scores.

The aggregate mean scores of 3.03 and 3.05 for male and female secondary school administrators in the table showed that the challenges inhibiting appropriate use of ICT facilities for record keeping among the secondary school administrators in Ilorin Metropolis

include: the lack of computers in various departments/faculties, irregular power supply, lack of fund for updating and purchasing modern facilities, lack of maintenance culture, unconducive environment (i.e. poor office structures), unacceptance of the new technology by some staff and students, high cost of ICT facilities, lack of trained staff who are competent in using ICT facilities, lack of standard ICT centres in some of these public secondary schools, and inadequate provision of security for the available ICT facilities in these schools.

Table 4. Mean and standard deviation of male and female school administrators on the challenges inhibiting appropriate use of ict facilities for record keeping in ilorin metropolis, kwara state.

S/N	Challenges Inhibiting Appropriate Use of ICT Facilities for Record Keeping	Male School Administrators		Female School Administrators		Mean Set	Decision
		Mean	SD	Mean	SD		
1	Lack of computers in various departments/faculties	2.81	0.815	2.94	0.995	2.9	Agreed
2	Irregular power supply	3.57	0.664	3.51	0.776	3.5	Agreed
3	Lack of funds for updating and purchasing modern facilities	3.37	0.772	3.24	0.798	3.3	Agreed
4	Lack of maintenance culture	3.16	0.683	3.14	0.694	3.1	Agreed
5	Unconducive environment (i.e. poor office structures)	3.25	0.678	2.99	0.798	3.1	Agreed
6	Unacceptance of the new technology by some staff and students	2.69	0.815	2.66	0.758	2.7	Agreed
7	High cost of ICT facilities	2.85	0.725	3.05	0.507	2.9	Agreed
8	Lack of trained staff who are competent in using ICT facilities	2.73	0.809	2.96	0.925	2.8	Agreed
9	Lack of standard ICT centres in some of these universities	2.87	0.819	3.01	0.781	2.9	Agreed
10	Inadequate provision of security for the available ICT facilities in these schools.	2.95	0.857	2.97	0.900	2.9	Agreed
	Aggregate Mean	3.03	0.76	3.05	0.79	3.01	

3.5. Research Hypothesis Testing: There is no significant difference between the mean score of male and female secondary school administrators in the area of accessibility and usability of Information and Technology Communication (ICT) facilities for record-keeping in Ilorin Metropolis, Kwara State.

Table 5 shows the z-test analysis of the difference between the mean scores of male and female secondary school administrators in the area of accessibility and usability of Information and Technology Communication (ICT) facilities for record-keeping in Ilorin

Metropolis, Kwara State. The z-calculated value of 0.87 is less than the z-critical value of ± 1.96 . The null hypothesis is, therefore, accepted.

This means that there is no significant difference between the mean score of male and female secondary school administrators in the area of accessibility and usability of Information and Technology Communication (ICT) facilities for record-keeping in Ilorin Metropolis, Kwara State.

Table 5. Z-test analysis of difference between the mean scores of male and female secondary school administrators in the area of accessibility and usability of information and technology communication (ict) facilities for record keeping in ilorin metropolis, kwara state.

Gender	N	Mean (\bar{x})	SD	Df	Z-Cal	Critical Value	Decision
Male Secondary School Administrators	65	2.89	0.71	98	0.87	± 1.959	H_0 Accepted
Female Secondary School Administrators	35	2.91	0.85				(Not Significant)

3.6. Discussion

The findings of this study revealed the ICT facilities available, accessible and usable for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State including general computers, laptops, CD ROMs, DVD ROMs, flash drives, scanners and television sets as indicated in the table. Ipad, android, blackberry, web camera, camcorder, video machine, and MP3-9 were not available.

ICT facilities are used by school administrators in schools for academic and administrative purposes (Obielodan *et al.*, 2020). ICT facilities such as computer (general) audio cassette players, and television set CD Rom/DVD Rom is available in these tertiary institutions. ICT facilities for teaching, learning and administration include the internet for e-learning, general computer for e-registration etc (Ojo & Adu, 2018).

ICT could be seen as any form of technology that is used to transmit, store, create, share or exchange information with all the sundry. This broad definition of ICT includes such technologies as radio, television, video, DVD, telephone (fixed and mobile phones) satellite systems, projectors, computers and Networks, hardware and software, as well as the equipment and services associated with these technologies, such as video conferencing and electronic mail (Alkamel & Chouthaiwale, 2020).

The observation schedule equally showed that the ICT facilities with a percentage availability above 30% are readily available for use whereas the ICT facilities with a percentage availability below 30% are not readily available for use. Only general computers, laptops, CD ROMs, DVD ROMs, flash drives, scanners and television sets are available for record management purposes in the universities under study.

The findings of this study also showed that areas of record-keeping ICT facilities being utilized between male and female school administrators in Ilorin Metropolis, Kwara State include: students' admission/graduation records, personnel management records, administrative record keeping, financial management, and facility management records.

There is no divergent view on the opinion of the male and female staff on the use of ICT facilities in the above areas. The major ICT facilities used by male and female staff in these institutions for records management were general computers, television, radio audio cassette player, DVD Rom, DVD Rom.

The utilization of ICT facilities enhances the administrative rigours universities go through before accreditation is done. With the appropriate use of ICT facilities like laptops and internet conferencing machines, the accreditation board can view the necessary details of the various schools which will be recorded and can be re-played irrespective of the destination/distance.

The findings of the study finally revealed that the challenges inhibiting appropriate accessibility and usability of ICT facilities in record keeping among secondary school administrators in Ilorin Metropolis, Kwara State include: lack of computers in various departments/faculties, irregular power supply, lack of fund for updating and purchasing modern facilities, lack of maintenance culture, unconducive environment (poor office structures), unacceptance of the new technology by some staff and students, high cost of ICT facilities, lack of trained staff who are competent in using ICT facilities, lack of standard ICT centres in some of these schools, and inadequate provision of security for the available ICT facilities.

The challenges in the use of ICT facilities are common to universities in Nigerian higher education institutions, which include: a lack of knowledge of computer applications and shortage of ICT facilities. For effective administration and record management in schools to take place, there is a need to provide new technology devices such as computers, projectors and magnetic boards, constant provision of electricity, generators and uninterrupted power supply (UPS). This means that school administrators have to put more effort into maintaining and managing these facilities for effective service delivery in secondary schools.

The research hypothesis showed that there is no significant difference between the mean score of male and female secondary school administrators in the area of accessibility and usability of Information and Technology Communication (ICT) facilities for record-keeping in Ilorin Metropolis, Kwara State. Mike (2013) in support of ICT utilization in different areas of accessibility and usability of Information and Technology Communication (ICT) facilities emphasized that ICT facilities can be used in every area of these schools and so, the schools should seek donors for these facilities where they cannot afford it.

4. CONCLUSION

Accessibility and usability of Information and Technology Communication (ICT) for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State would help to improve the management and administrative system significantly. Availability and adequate provision of these facilities promote effective and efficient record keeping in every public secondary school or department for proper service delivery towards the attainment of educational goals. Based on the findings of the study, it was recommended that:

- (i) There should be adequate provision of modern ICT facilities for record-keeping among secondary school administrators in Ilorin Metropolis, Kwara State.
- (ii) The government should enhance the proper accessibility and usability of Information and Technology Communication (ICT) facilities in record-keeping and other areas of school activities by procuring funds for the purchase of these new technology devices and training staff and school administrators for the effective use of these facilities.

- (iii) Regular training for the usability of Information and Technology Communication (ICT) facilities should be conducted among the teaching and non-teaching staff to promote a quality delivery system.
- (iv) E-learning should be encouraged in all facets of academic and administrative activities among secondary school administrators in Ilorin Metropolis, Kwara State as well as the provision of constant power supply.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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