# Information and Communication Technology Use on Effective Administration of Public Secondary Schools, Lagos State, Nigeria

[1]**Akinwumi, Olajumoke O.,** [2]**Babalola, Yemisi T. &**
[3]**Alegbeleye, Gabriel O.**
[1,2&3]*Department of Information Resources Management,*
*School of Management Science Babcock University, Ilihan- Remo, Ogun State, Nigeria*

**Abstract**

This study investigated information and communication technology use on effective administration of senior secondary schools. It evaluated the extent of use of the various ICT devices and their influence on the administration of secondary schools. To guide the study, one research question and one hypothesis were tested. The design used for the study was survey design and the population comprised the school administrators involved in the running of the schools on a daily basis and these were the principals, vice- principals and heads of the various subjects' departments in the public senior schools in Lagos State, Nigeria. The instrument for data collection was a 19-item questionnaire while means and t-test statistics were used for data analysis. Findings from the study showed ICT use has a significant positive influence on the effective administrations of public senior secondary schools in Lagos state. Additionally, the study found that the level of ICT use for administrative purposes in public senior secondary schools in Lagos State was moderate. The ICT devices highly utilized were photocopiers and mobile telephones. While printer, computer systems, social media, e-mails services, internet, and scanners were moderately utilized. However, ICT devices like projectors and smart boards were rarely utilized. The study recommends the provision of the necessary ICT equipment and infrastructure in an enabling physical and psychological technological environment for effective public secondary school administration.

**Keywords:** *Effective administration, Environment, ICT, Infrastructure, Public secondary schools*

*Corresponding Author:* Akinwumi, Olajumoke O.

**Background to the Study**

Administration is the task of overseeing an organization with the optimum use of all the available resources (human and non-human) for achieving its goals and objectives. Administration involves processes such as; planning, organizing, directing, coordinating, controlling and evaluating performance against the stated objectives of the organization. Whenever these administrative duties are done in an easy, economical and socially inclusive manner, it is described as effective. Oyedemi (2015) defined effective administration as the ability of the organization's leader to effectively link the various organizational units and ensures the smooth communication and transmission of information from one part to the other. Effective administration is a multi- dimensional concept which showed the core strategies of the administrator in managing efficiently the operational functions, correspondences, and activities in achieving goals within a stipulated time according to the policies and laws of the organization.

Effective administration in the educational institution is paramount because education is considered the vehicle to develop intellect for creativity and to teach values and tolerance that promote socio-economic, cultural and political development of nations and individual (Ayushi, 2018). Secondary education specifically in Nigeria is expected to prepare the individual culturally, scientifically, technologically and commercially. It is intended to produce the school leaver that is creative, and analytical with opportunities to acquire reasonable skills and other benefits for useful living within the society and for pursuance of higher education (NPE, 2013). These educational objectives of producing citizens, who are cultured, enlightened and with enhanced career opportunities that will contribute to the economic growth of the nation can be best achieved through an effective educational administration.

Effective educational administration requires setting educational standards, developing academic programs, monitoring students' progress, training and motivating staffs, ensuring a positive school environment, record keeping, effective communication with stakeholders, as well as managing systems and processes towards improving school performance. Educational administrative effectiveness is therefore the totality of the processes engaged in achieving the efficient running of educational activities in ways that facilitate the learning, growth and effectiveness of faculty, staff and students either in a school, college or university. The achievement of an effective and efficient school administration is becoming an increasingly difficult challenge without the engagement of information and communication technology (ICT) devices in this current information age

Information Communication Technology (ICT) is all networking components, applications and systems that allow people and organizations to interact in the digital world. Duta and Martinaz-Rivera (2014) defined ICT as a set of two electronic technologies comprising computer systems which collect, store and process information, and the telecommunication system which disseminate the information. ICT devices include telephones, computers, television, radio, satellite and the internet (Ufuophu and Ayobami, 2012). Information and Communication Technology (ICT) use is the application of ICT devices in specific domains. ICT use in the 21st century school environment is part of the technological

modernization of educational administration. The multi-facetted duties of personnel administration, student administration, resource administration, financial administration and general administration could be cumbersome and slow if information and communication technology (ICT) devices are not engaged The purpose of ICT use in school administration includes the organization of information for timely and easy access for decision making on students, staff and various activities of the school (Liverpool and Jacinta,2013), effective management of school records, speedy receipt and response to mails, future planning in terms of personnel and infrastructure (Angie and Ugwu, 2013) as well as to enhance the broadcasting of the school activities (Harrigan, Schroeder, Qureshi, Fang, Ibbotson, Ramsey and Meister, 2010). The ultimate goal of engaging ICT in schools' administration is because of the capacity of the devices to automate processes and achieve efficiency and effectiveness in the tasks of instructional supervision, management of staff, students and facilities, community relations, and school business operations.

Literature revealed that ICT use increased school efficiency and reduced unnecessary bureaucracy in school administration (Angie and Ugwu, 2013), increased productivity (Olayemi and Omotayo, 2012),made communication to be cheap, fast and reliable as well as enable easier retrieval of information (Singh and Munianchi, 2012). ICT use also enhanced accountability and reduced workloads in management of school accounts (Makwara, 2014). In spite of these benefits of ICT use in school administration, one wonders if ICT devices are engaged for administrative duties in the public secondary schools in Lagos state. Hence the need for the study to investigate the influence of ICT use on effective administration of public secondary schools in Lagos State, Nigeria.

**Objective of the Study**
The objective of this research is to investigate information and communication technology use on effective administration of public senior secondary school in Lagos State, Nigeria.

**Research Question**
The research question of this study is
What is the level of ICT use for administrative duties in public senior secondary schools in Lagos State, Nigeria?

**Research Hypothesis**
The null hypothesis formulated for this study was tested at 0.05 level of significance.
ICT use has no significant influence on the effective administration of public senior secondary schools in Lagos state.

**Conceptual Review**
**Effective Administration**
Administration involves processes such as; planning, organizing, directing, coordinating, controlling and evaluating performance against the stated objectives of the organization. Planning is the task of setting organizational goals and choosing the best ways of achieving them while organizing is the process of establishing orderly uses for all the organizational resources. Directing involves providing guidelines and leading the personnel in the

organization based on their capabilities and coordinating entails harmonizing all the different activities and tasks to achieve organizational goals efficiently. Controlling and evaluating performance involves overseeing all the processes and metrics to ensure that objectives are achieved efficiently and effectively (Richard, 2005). Whenever these administrative duties are done in an easy, economical and socially inclusive manner, it is described as effective.

Effective administration is the degree to which the goals of an organization are maximally achieved through the leadership prowess of the administrator (Lin, Jema and Wang, 2011). Literature revealed the following as indicators of administrative effectiveness: workplace environment (Tanvee and Khan, 2011), physical facilities development and maintenance (Kajo, 2011), the quality of employee output (An, Yom and Ruggiero, 2011) and public responsibility (Giti and Suhaida, 2012). Administrative effectiveness is therefore the provision of adequate infrastructure in an organizational climate of trust, mutual respect, team work and good community interaction with the environment of the organization.

Effective administration is pivotal in educational schools where the primary objective is human capacity development. The objectives of secondary education include offering a wide range of curriculum to cater for the differences in talents, disposition, opportunities and future roles of students in the society, provide manpower in the applied sciences, technology and commerce at sub-professional grades among others (NPE, 2013). Secondary education in Nigeria is expected to prepare the individual culturally, scientifically, technologically and commercially and to produce the school leaver that is creative, and analytical with opportunities to acquire reasonable skills and other benefits for useful living within the society and for pursuance of higher education (NPE, 2013)..These educational objectives of producing citizens, who are cultured, enlightened and with enhanced career opportunities that will contribute to the economic growth of the nation can be best achieved through an effective educational administration.

Effective educational administration according to Odo, (2006) includes the provision of a conducive learning environment, supervision of instruction, mentoring as well as encouraging teachers' effectiveness to ensure students' educational progress, and community interaction towards the achievement of educational goals. Pandey (2017) described it as the management of resources, tasks and communications in running a school with the knowledge of its structures and processes. Eff3ctive school administration is therefore the ingenuity of school leaders' in the overall management of; teaching and learning, systems and processes in ways that improve school performance.

**Information and Communication Technology Use**
Organizations including secondary schools across the globe have found information as a very valuable resource that gives competitive edge, economic prospects, legal, fiscal and risk management opportunities. Information and communication technology (ICT) is the use of computers and other technology in the management of information and other organizational activities. ICT offers new capabilities that resulted in significant changes in organizations, enhanced new methods of information dissemination within and also outside the organization (Ugwoke, Onu, Agangan and Ugwuanyi, 2015). ICT use in the work

environment help individuals to acquire an inquiring, critical and creative mind to capitalize on the opportunities provided by the explosive growth of information, knowledge and technology. ICT use in the 21st century school environment is part of the technological modernization of educational administration. The ultimate goal of engaging ICT in schools' administration is because of the capacity of the devices to automate processes and achieve efficiency and effectiveness in the tasks of instructional supervision, management of staff, students and facilities, community relations, and school business operations Therefore, Information Communication Technology devices are the engine for growth and empowerment and their uses are indispensable for effectiveness and efficiency in modern day organizations.

Higgins (2017), listed the following as the available ICT devices for educational administration; internet, websites, software applications (Microsoft Word, Excel, Access, Education Management Information System) as well as hardware (telephones, printers, scanners, photocopying machines, multimedia projectors, overhead projectors, computers, laptops, tablets, DVD players, smart- boards). All these devices can be used for communication, word processing (Adebayo and Fagbohun, 2013), presentation, spreadsheet, database, internet and e-mail, (Kumar, Rose and D'Silva, 2008). The use of these devices in school administrative tasks however depends on the availability and functionality, purpose of use and extent of use.

Various studies reported the influence of ICT use on secondary school administrative effectiveness; Lin et al (2011) findings from their studies of public secondary schools in Malaysia revealed that ICT usage enhanced personnel and financial management of the schools as well as improved record keeping of all aspects of the schools' activities. Saiti and Prokopiadou (2009) reported that the adoption of ICT in secondary schools in Greece facilitate the general administrative transactions Literature revealed that ICT use increased school efficiency and reduced unnecessary bureaucracy in school administration (Angie and Ugwu, 2013), increased productivity (Olayemi and Omotayo, 2012), made communication to be cheap, fast and reliable as well as enabled easier retrieval of information (Singh and Munianchi, 2012), enhanced accountability and reduced workloads in management of school accounts (Makwara, 2014). Additionally, ICT use improved curriculum supervision (Astu, 2014), online printing of students' results, registration for external examinations such as Senior Secondary School Certificate and National Examinations Council (Edefiogho, 2005). As well as increased efficiency in record management, grading systems in schools and tracking students' academic progress (Okon, 2015). However studies in some public secondary schools in some states in Nigeria also found ICT use to enhance school administration but reported that the extent of use of ICT devices were low in Rivers State (Wokocha, Babalola and Appah, 2018) and similarly in Ekiti State,(Olayemi and Omotayo2012) while Ogunshola and Abiodun (2017) and Oyedemi (2015) found ICT usage to be moderate in Federal Capital Territory, Abuja, and Osun State respectively. Therefore, information communication technology use enhances the administrative functions of school leaders and crucial to achieve effective administration of secondary schools in this century.

**Methodology**

The study adopted survey research design and data was collected with a questionnaire designed by the researcher titled Information and Communication Technology Use and Administrative Effectives in Public Secondary Schools (ICTAE). The target population was three thousand, five hundred and sixty- four (3564) members of the administrative team in the three hundred and twenty- four (324) public senior secondary schools in Lagos State, Nigeria. These are the principals, vice-principals and heads of the various subject departments (Languages, Humanities, Science, Mathematics, Technology and Business studies). Each school has one (1) Principal, four (4) Vice- Principals and six (6) Heads of Department making a total number of eleven (11) in the administrative team in each public senior secondary school in Lagos State, Nigeria

**Sample Size and Sampling Technique**

The sample size for this study was calculated using Taro Yamani formula to obtain 360 as the sample size. However, the required respondent in each school is 11, thus 360/11 =32.7 schools. Therefore, the study involved 33 out of the 324 public senior secondary schools in Lagos State, Nigeria.

The multi-stage sampling technique was used to select the participants in the study At stage 1, the proportionate stratified sampling technique was used to determine the total number of schools who participated in the study. This technique is appropriate in studies where the population is composed of strata that differ in composition. Public secondary schools in Lagos state are grouped into education districts which are a form of strata with differing population. The number of schools in each educational district was calculated in relation to the total population of schools in the state. There are 324 public senior secondary schools in six Education Districts in Lagos State. The proportionate stratified sampling was used to select 33 schools from all the education districts. At stage 2, the systematic sampling technique was used to select the specific schools among the participating schools in each Education District Finally; the respondents are the administrative team of the sampled schools who are the principals, vice- principals and the heads of departments as they constitute the management level personnel who can provide the information required for this study.

**Research Question:** What is the level of ICT use for administrative purposes in public senior secondary schools in Lagos State?

**Table 1:** Level of ICT use for administrative purposes in public senior secondary schools in Lagos State

| S/N | Extent of Use of ICT | Highly Utilized | Utilized | Rarely Utilized | Not Utilized | Mean (%) |
|---|---|---|---|---|---|---|
| 1. | Mobile Telephones | 200 (62.3) | 81 (25.2) | 20 (6.2) | 11 (3.4) | 3.506 (87.7) |
| 2. | Computer systems | 179 (55.8) | 108 (33.6) | 24 (7.5) | 1 (0.3) | 3.490 (87.3) |
| 3. | E-mail services | 116 (36.1) | 128 (39.9) | 60 (18.7) | 8 (2.5) | 3.128 (78.2) |
| 4. | Internet | 109 (34.0) | 128 (39.9) | 55 (17.1) | 20 (6.2) | 3.045 (76.1) |
| 5. | Projectors | 57 (17.8) | 87 (21.7) | 119 (37.1) | 49 (15.3) | 2.487 (62.2) |
| 6. | Social media (Whatsapp, Facebook, Twitter) | 170 (53.0) | 99 (30.8) | 27 (8.4) | 16 (5.0) | 3.356 (83.9) |
| 7. | Photocopiers | 188 (58.6) | 106 (33.0) | 12 (3.7) | 6 (1.6) | 3.526 (88.2) |
| 8. | Printer | 182 (56.7) | 109 (34.0) | 15 (4.7) | 6 (1.9) | 3.497 (87.4) |
| 9. | Scanners | 111 (34.6) | 94 (29.3) | 68 (21.2) | 38 (11.8) | 2.894 (72.4) |
| 10. | Smart board | 71 (22.1) | 73 (22.7) | 92 (28.7) | 73 (23.4) | 2.450 (61.3) |
| | **Weighted Mean 3.14** | | | | | |

**Source**: Field survey, 2020
**NOTE:** Decision Rule***1.00-1.49 = Not used; 1.50-2.49 = Rarely used; 2.50-3.49= Moderately Used; 3.50-4.0 =Highly used

Table 1 showed the level of ICT use for administrative purposes in public senior secondary schools in Lagos State was moderate with the weighted mean of 3.14 on a scale of 4. ICT devices highly used by school managers were the photocopiers with mean of 3.53 (on a scale of 4), to make copies of administrative activities recorded on paper, as well as mobile telephones with a mean of 3.51 (on a scale of 4) to communicate information both within the school and with other stakeholders. Devices such as the computer systems, printers with means of 3.49 each, social media with mean of 3.37, e-mail services with mean of 3.13, internet mean of 3.05 and scanner with mean of 2.89 were found to be moderately used in school administrative duties. Other ICT devices rarely used in school administration were the projectors with mean of 2.48 and smart boards with mean of 2.45.

**Test of Hypothesis**
Hypothesis One: ICT use has no significant influence on the administrative effectiveness of public senior secondary schools in Lagos state.

**Table 2**: Multiple regression analysis of ICT use as predictor of administrative effectiveness of public senior secondary schools in Lagos state

| Model | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 59.968 | 3.225 | | 18.597 | .000 |
| ICT Usage | .521 | .101 | .280 | 5.139 | .000 |

| ANOVA [a] | | | | | |
|---|---|---|---|---|---|
| Model | Sum of Squares | Df | Mean Square | F | Sig. |
| Regression | 2233.024 | 1 | 2233.024 | 26.404 | .000[b] |
| Residual | 26216.925 | 310 | 84.571 | | |
| Total | 28449.949 | 311 | | | |

**R = .280; Multiple R = .078; Multiple $R^2$ (Adjusted) = .076; Stand error estimate = 9.196**

a. Dependent Variable: Admin. Effectiveness
b. Predictor: (Constant), ICT Usage

ICT use has a beta value of .280 and *t*-value of 5.139 significant at .000 alpha level. The calculated value of $f$ = 26.404 significant at .000 alpha level indicated that the administrative effectiveness of public senior secondary schools in Lagos state will significantly be influenced by ICT use. Also, ICT use accounted for 7.6% of the variance observed in the administrative effectiveness of public senior secondary schools ( $Adj.R^2$ = .076; $F_{(1, 311)}$ = 26.404; $p$ = .000). Therefore, the earlier set null hypothesis was rejected while the alternate one was accepted. The implication of this result is that the ICT use significantly influence the administrative effectiveness of public senior secondary schools in Lagos state based on the finding of the study.

**Discussion of Findings**
The study showed that ICT devices were moderately utilized for administrative purposes in public senior secondary schools in Lagos State, Nigeria. The most utilized ICT devises were the photocopier (which showed that most administrative duties were done with paper) and mobile telephones mean of 3.5 for communication both within the school and with other educational stakeholders to achieve the administrative tasks. This was similar to the findings of Asabiaka (2010), Ogunshola and Adeniyi (2017) and Ugwoke et al (2013) that the ICT device commonly used by school managers for administrative duties were the mobile telephones to communicate information especially to the parents/ guardian of students and security personnel. Devices such as the computer systems and printers were found to also have mean values of 3.49 &3.497 respectively, implying that they are moderately used in school administrative duties including staff and student administration, school planning and reporting, school inventories, correspondences and others. This was in tandem with Makewa et al, (2013) findings of ICT usage in student administration, Okon et al (2015) findings of ICT use in records keeping and Oyedemi (2015 findings in school planning and other administrative duties. Other ICT devices commonly used in school administration were the social media, e-mail services, the internet and scanner with means of 3.36, 3.133.05 and 28.9 respectively. ICT devices rarely utilized in school administration were the projectors (2.48)

and smart boards (2.45). The implication of these findings was that effective school administration is highly enhanced by ICT Use. Therefore, the introduction and full adoption of ICT in schools will ensure an advanced electronic administrative framework that aligned the school administration with the principles and strategies of the information society.

## Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations are hereby proffered

1. Secondary schools should be provided with all the necessary infrastructure and equipment to provide an enabling physical and psychological technology environment for effective school administration
2. . Governments to provide modern workable tools especially ICT devices for school managers to enhance school administration.
3. In-service trainings to be organized regularly for school managers to update their skills and knowledge to achieve a higher level of effectiveness.
4. Government to provide school managers more finances to run the schools
5. Government and other educational stakeholders to be involved in the monitoring of school processes and activities

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