

***The Influence of Information Communication Technologies
on Administrative Effectiveness of Secondary Schools
in Mogadishu***

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Abstract

The study proposed the influence of Information and Communication Technology for administrative purpose by secondary schools in Mogadishu. The study states the level of ICT availability, to what extent do the secondary schools use ICT for administrative purpose and hypothesis was tested the relationship between ICT usage and administrative effectiveness. A sample of fifty administrators were selected from the secondary schools in Mogadishu city.

A questionnaire was distributed to collect the needed data for the study. The findings of the study stated that there is inadequate ICT facilities and low of level ICT usage this can lead to low administrative effectiveness.

The study also found that there is no correlation between ICT and administrator purpose.

The Statistical Package for Social Science (SPSS) was used to analyze the data collected. The formulated hypothesis was analyzed

using regression analysis. The hypothesis was tested at 0.05 significance level.

Finally the study recommended that more struggles should be need towards supply adequate Information Communication Technology to the schools.

Keywords: Information Communication Technology, Administrative effectiveness, secondary school.

1.1 Introduction

Today, School managers are directing the problems concern about school data warehousing and collecting than they were even a few years ago. Since schools are utilizing information and communication technology (ICT) around the world, not only improving academic efficiency, but also for providing better stakeholder service.

Information and Communication Technology (ICT) has been defined by various scholars from different perspectives.

Mueen, Asadullah, Raed, & Jamshed, (2013) defined ICT to include electronic network-embodying complex hardware and software-linked by a vast array of technical protocol.

Ufuophu & Agobami, (2012, p. 2) observe that the ICTs include internet, satellite, cable data transmission and computer assisted equipment. ICT, however are facilities, tools or resources that could be used to process, store, preserve, access, retrieve and disseminate information with ease. It could be seen as the engine for growth and tool for empowerment, with profound implications for education, change and socio-economic development.

It is important to note that the term "ICT" in the context of this research refers to a wide range of computerized information and communication technologies. These technologies include products and services such as desktop computers, laptops, handheld devices, wired or wireless intranet, business productivity software such as text editor and spreadsheet, enterprise software, data storage and security, network security and others (Ashrafi & Murtaza, 2008, p. 2).

Institutional management information systems should be designed to achieve the following;

Provide accurate record of information, Reduce expenses manual activities, Enhance communication among employees, and support the organizations strategic goals and direction.

According to Bamidele, (2015, p. 3) various scholars identified that the Information administration is one part of overall administration of education institutions which mainly covers general and day-to-day operational activities. Hence, it could be concluded that Information administration cycle includes three major components namely:

1. Student administration,
2. Staff administration, and
3. General administration.

Student administration is an important and integral part of information administration. This involves various activities commencing from the admission process to learning activities till processing of results and performance analysis.

This includes admission enquiry by students, applying for admissions through electronic media, registration / enrolment using computers, course allotment, and availability of information like timetable / class schedule in electronic form and attendance monitoring / maintenance through e-media,

Staff administration includes recruitment and work allotment of faculty and staff in the institution, their attendance and leave management, and performance appraisal this also includes relevant communication to and from the institutions and among peers. Staff

administration done through Information and communication technology (ICT) helps in processing of voluminous records in a quick, meticulous, and impeccable manner thereby making data retrieval easier (Thomas, 2004, p. 3). A very important part of Information administration is general administration of school management system which includes the various day-to-day activities of the entire system.

In general, a good communication system should also be in place for the overall effectiveness of administration. ICT helps in providing a good communication system in higher education system (Magni, 2009, p. 4), and ICT helps in providing timely information to all concerned. In institutional setting therefore, administration has been extended as a service activity or tool through which the fundamental objectives of the institutional process may be more optimized efficiently when allocating human and material resources as well as to make the best use of existing resources (Liverpool & Jacinta, 2013, p. 2)

The various ways of introducing technology in education institution administration are the following (Salerno, 2009, p. 2)

- Sending e-mail notices and agendas to staff, rather than printing and distributing them.
- Submission of lesson plans through e-mail
- Foster technology growth by asking parents to write e-mail addresses on medical forms.
- Insist that all teachers create a class Web page
- Attend technology conferences to see what other schools are doing, what other teachers are doing to integrate technology, and what

principals are doing to encourage the use of technology in their schools and classrooms.

- Admissions through web-enabled services.
- All day-to-day activities of the institution (General Administration)
- Staff administration

A Small number of schools in Somalia have effective computer systems to efficiently their daily activities. Liverpool & Jacinta (2013) stated the role of ICT in institutional administration as follows:

- **Organization of Information:** Institution administrators need to have basic information on students and lecturer flows. For example, categories data on student/staff by sex, level, state of origin, performance in schools etc. They could use Microsoft Access or Excel to organize data into an easily accessible format and can be easily stored and retrieved from the microcomputer.
- **Computation and Processing of Paper Work:** ICT are used to map out different activities of the academic session such as number of weeks for teaching, conducting of continuous assessment tests, examination periods and when the result could be released to students. Others activities such as stipulated time for teaching practice and student industrial work experience scheme (SIWES). Institutional administrator could use Microsoft Access, Excel or other simple applications to collect and keeps records of events, enhancement of effective happening in the institution, issues out notices of meeting for staff, students and parents.
- **Enhancement of Effective Communication:** With the installation of computers and internets communication made it easier for the

institutional administrator to use telephone, fax and other communication facilities for transforming thoughts, sharing and imparting of information, growing and receiving and understanding of message within a network of independent relationship across international frontiers.

- **Enhancement of Planning:** Institutional administrator could use ICT to plan and make decisions on the basis of accurate and readily available facts. ICT could be used to plan the budgets of the college expenditure and plans for replacement of both obsolete and repairs of broken down equipment or institutional facilities.
- **Improvement of Monitoring:** Institutional administrators use microcomputers in monitoring various areas in the institutional system, such as the uses of continuous monitoring and assessment of students learning and achievement in the institution. Campbell & Sellburn (2002) pointed out that ICT can be valuable for storing and analyzing data on education indicators, students' assessments, educational, human and material resources and cost and finance.
- **Managed Instruction:** This is an approach by the institutional administrators to use computer in scheduling courses/subjects, space, installation, inventory and personnel control, recording and reporting attendance, school accounting, storage and retrieval of student information marks management. This is capable of generating the demographic data of students and institutional staff, production of results online.

(Iwu & Ike, 2009, p. 4) Categorized the use of ICT into the following for effective and efficient services:

Sensing Technologies: These equipment gather data and translate them into form that can be understood by the computer, such as scanners, sensors, keyboard, mouse, electronic pen, barcode sensors or readers, touch of digital boards, voice recognition system etc. Institutional administrators could use them for computation and processing of paper work. These sensory technologies gather data to do complex computation very rapidly and accurately. Similarly, institutional administrator could use word processing to draft, revise and produce reports of high quality for presentation without much hard labor, frustration and waste of time.

Communication Technologies: These are equipment that institutional administrators could use to transfer information from the sources to users. They are capable of overcoming natural barriers to information transfer like speed and distance. These include; facsimile machines (fax), telephone, electronic mail, telecommunication system, teleconferencing, electronic bulletin boards etc.

Display Technologies: These are output devices that form the interface between sensing, communication and analyzing technologies and human user. These include; computer screen, printers, television etc. Every computer in the institution has to be connected to the internet. The office of the institutional administrators is open to the public, to researchers, staff, students and parents wanting information about the institution. They can find all of that information on the internet. This makes the work easier by reducing the flow of people through the office and improves access to information.

Analysis Technologies: These are the technologies that help the institutional administrator to investigate of query of data, analysis and in-

depth query for answers from simple to complex phenomena in administrative procedures. ICT has changed the way in which institutional administrators collect and analyse data. For instance, the use of Access, excel and other simple applications to collect, store and analyse information. They may also need some sophisticated packages like SPSS (statistical package for the social science). This is to improve the timeliness and volume of information in implementing an institutional management information system.

Storage Technologies: These technologies facilitate the efficient and effective storage of information in a form that can be easily accessed. They include: magnetic tapes, disks, optical disks, cassettes, flash drive, memory card, zip drive etc.

Somalia has not had an effective central government since the breakout of a civil war in 1991 and that almost all government institutions were destroyed during the conflict. Yet in the last 15 years, the private sector has revolutionized the country's ICT sector. While access to ICTs is still more prevalent in urban centers than in rural areas, access is among the most affordable on the African continent (ICTs & State-building, 2014, p. 4).

The growth of the ICT sector in Somalia is demonstrated by the rising number of fixed and mobile telephone services, increasing use of desktop, laptop, and tablet computers, and the surge in the number, speed, and reach of internet service providers (ISPs).

Most ICT companies operating in Somalia are Somali-owned and operated. Revenue generated by the telecommunications sector alone outstrips all other revenue-generating sources, both public and private.

AbdikadirJahweyn, former Minister of Information, Communication, and Postal Service, estimates that telecommunication companies in Somalia earn approximately 1 billion USD in profit annually yet are not subjected to state oversight or taxes (personal communication, March 2013).

According to Hare, (2007, p. 8) the seemingly healthy ICT infrastructure is found mostly in the urban centers, especially the capital city, Mogadishu. This translates to limited use of ICT in the schools, most of which are located outside of Mogadishu. Policy efforts have been focused on reviving the education system, increasing enrolments, and reducing the school drop-out rate and not ICT. There are some private schools that use ICT but more as an administrative tool than as something integrated into teaching and learning.

1.2 Problem statements

Management information technology can solve many of the problems facing education institution. Such problems include poor estimate staff requirements, lack of accurate information on students, lack of time access information quickly, lack of confidence or skills, lack of training.

However, little or no studies have been carried out on this topic notably in Somalia. This study therefore endeavors to fill this apparent research gap by determining the effect of ICT for administrative purpose in Mogadishu – Somalia.

1.3 Research questions

This study will investigate the following two questions:

- What is the level of availability and accessibility of ICT facilities for administrative purposes?

- To what extent do secondary schools use ICT for administrative purposes?

1.4 Objectives of the study

To determine the level of availability and accessibility of ICT for administrative purposes in Mogadishu – Somalia, to identify whether the relationship exist between ICT and effective school system

1.5 Research Hypothesis

There is statistical significant correlation between ICT usage and Administrative Effectiveness of secondary schools

2.1 Literature review

In this section the researcher represents the following key literature about the influence information and communication technology for administration.

A system is a group of component that interact to achieve some purposes, an information system (IS) is a group of component that interact to produce information. A model of the components of an information system: computer hardware, software, data, procedures and people (Kroenke, 2011, p. 103).

Olayemi & Omotayo, (2012, p. 11) state that ICT will among others serve as a tool for increased productivity, act as a tool for information storage, processing and retrieval and increase decision-making.

2.2 Level of availability and accessibility of ICT

The primary purpose of Information communication technology is to help an organization achieve its goals by providing managers with insight into the regular operations of the organization so that they can control, organize, and plan more effectively (Babu & Sekhar, 2012, p. 25).

(BECTA, 2000, p. 14) Accessibility to ICT facilities ensures accuracy, timeliness and effectiveness of managing the whole process of examination, that is, it allows easy flow of information and risk monitoring systems that are appropriate

Olayemi & Omotayo,(2012, p. 15) findings that secondary school in Ekiti State are not well equipped with adequate ICT facilities.

In other words, Japan, in 2000, 75% of households possessed some ICT facility (mobile phone, word processor, fax, car navigation) and more than 50% had a PC. (ICT, 2014, p. 26).

The various research studies conducted to evaluate the extent of usage of Information and Communication technologies in multiple aspects of higher education revealed that heads of faculties utilized technology in planning, and to a large extent in the supervision and evaluation of academic affairs, student affairs, financial affairs and administrative affairs (Dr.R.Krishnaveni & J.Meenakumari, 2010, p. 102).

Turban mentions some characteristics of information quality (Turban & Volonino, 2010, p. 103)

- Accurate: correct and complete data.
- Timely: produced in time for its intended use.
- Relevant: both to context and to subject.
- Sufficient: for the purpose for which it is generated.
- Worth its cost: an appropriate relationship must exist between the cost of the information and its value.

On the other hand, Lazarus, Jackson, Elizabeth, & Jesse, (2013, p. 3) investigated whether there was a significant difference between teachers' and administrators' perceptions on the importance of Information and

Communications Technologies (ICT) in secondary school administration and evaluated the extent to which it was used by administrators. The results showed that administrators rated the importance of using ICT in supervision of instruction and in student administration more highly. Also, there was significant difference between the perceptions of teachers and administrators on the importance of ICT use in the following areas of secondary school administration: student administration, general administration and supervision of instruction.

Devon, (2004, p. 61) points out that in respect to management of students affairs; there are various types of information systems that can be available in making informed decisions at all levels and in improving efficiency of operations, such as executive decision making management information system, collaborative information systems, electronic messaging systems, group decision support system.

The use of ICTs provides quality services to users. Moreover, ICTs have revolutionized activities in all spheres of life, especially in management and information services in institutions of higher learning (Earnest, 2003, p. 17).

Software for managing examinations in School has been developed for use by administrators to play examination roles for administrators, teacher and students. However the level of accessibility to the possible platforms need to established, thus a necessity for this study.

2.3 The extension of ICT for administrative purposes

Angie & Rita, (2013, p. 5) carried out studies to identify the role of ICT in school administration and the extent of its application by secondary school Principals in the administration in southern eastern

states of Nigeria. Their findings showed that the use of ICT in school administration is a necessity and worthwhile venture especially in this era of globalization but the extent of their application in secondary schools is very slow as school administrators are incompetent in handling ICT facilities for effective administration.

Krishnaveni & Meenakumari, (2013, p. 5) carried studies to identify the various functional areas to which ICT is deployed for information administration in higher education institutions and to find the current extent of usage of ICT in all these functional areas pertaining to information administration. Their findings indicated that current level of usage indicates a clear integration of ICT for managerial or information-based administration in higher education institutions. The study also revealed that demographic factors do not have major impact on information administration in higher education institutions.

3.1 Methodology

There is lack of sufficient research of this area, particularly in Somalia. The aim of this research is to examine the use of information communication technology in school management and to find our ideas of managers about managerial information system.

The study used descriptive research design of correctional type and was considered the most suitable approach.

A questionnaire was used in the study to gather primary data. The questionnaire was made up of the main sections. Section A focused on level of availability of ICT facilities for administrative purposes in the school and contained thirteen (13) items and the response modes are “Yes” and “No”.

Section B contained thirteen (13) items on extent of using ICT for administrative purposes by the secondary schools and the response mode are “Never”, “Rarely”, and “Always”.

The data collected were analyzed using frequency counts, percentages, and linear regression test statistics. The hypothesis was tested at 0.05 level of significance.

3.2 Results

In this section the researcher represents the results of the two questions:

- **Research question 1** what is the level of availability and accessibility of ICT facilities for administrative purposes?

Table: 1

No	Response items	Scale of response	Frequency	Percentage (%)
1	Do you have computer in your office	Yes	45	90.0
		No	5	10.0
2	Do you have computer skills	Yes	9	18.0
		No	41	82.0
3	When the computer develops complication what do you do?	I call a technician	30	62.0
		I stop using it	20	38.0
4	Do you have internet access in your office?	Yes	21	42.0
		No	29	58.0
5	Do you have email address?	Yes	23	46.0
		No	27	54.0
6	Do you have electronic media to prepare electronic form of timetable/class schedule in your school?	Yes	19	38.0
		No	31	62.0

No	Response items	Scale of response	Frequency	Percentage (%)
7	Do you have electronic media to communicate academic details of students to their parents / guardians in your school	Yes	15	30.0
		No	35	70.0
8	Do you have backup equipments in your office	Yes	13	26.0
		No	37	74.0
9	Do you have an ant-virus management program to protect system from destroying the content?	Yes	25	50.0
		No	25	50.0
10	Do you have electronic media (Mobile) to communicate with staff in your office school?	Yes	50	100.0
		No	0	0.0
11	Does the school have any electronic examination management systems/database?	Yes	4	8.0
		No	46	92.0
12	Do you have facility for students to make fee payments electronically in your school?	Yes	31	62.0
		No	19	38.0
13	Do you have electronic equipment for automation of attendance and leave management of staff in your office school?	Yes	3	6.0
		No	47	94.0

Source data, 2017

Table 1 indicates that computer (90.0%) and mobile phone (100.0%) are the ICT facilities available for the secondary schools. While the majority of the ICT facilities are not available at all such as internet connectivity (42.0%), email address(46.0%),electronic media to prepare timetable/class schedule(38.0%) electronic media to communicate

academic performance of the students to their parents (30.0%), backup equipment in your office (26.0%), ant-virus management program to protect system failure(50.0%), electronic examination management systems/database(8.0%), students to make fee payments electronically in the school(62.0%) and electronic equipment for automation of attendance (0.0%). The responses also indicate their skills in a computer are very low were 82.0% mentioned have no any skills and if they met complication they always call a technician or stop using it 62.0% and 38.0% respectively.

- **Research question 2** to what extent do secondary schools use ICT for administrative purposes?

Table: 2

No	Response Items	Never	Rarely	Always
1	Using computer for student registration/enrolment and for maintenance of attendance of the students	6(12.0%)	22(44.0%)	22(44.0%)
2	Using internet for administrative purpose	28(56.0%)	16(32.0%)	6(12.0%)
3	Using electronic media to communicate academic details of students to their parents/guardians	31(62.0%)	18(36.0%)	1(2.0%)
4	Sending of SMS messages to communicate with both staff and students	1(2.0%)	1(2.0%)	48(96.0%)
5	Sending emails messages for official work	31(62.0%)	15(30.0%)	4(8.0%)

No	Response Items	Never	Rarely	Always
6	Using electronic media to prepare electronic form of timetable/class schedule	37(74.0%)	13(26.0%)	0(0.0%)
7	Using electronic equipment for automation of attendance and leave management of staff	50(100.0%)	0(0.0%)	0(0.0%)
8	Using electronic media for the processing and display of students' results	47(94.0%)	3(6.0%)	0(0.0%)
9	Using computer for staff recruitment and work allotment of staff	31(62.0%)	12(24.0%)	7(14.0%)

Source data, 2017

Table 2 shows that secondary school administrators were never used ICT facilities to perform their task, 8 items out of 9 (such as 1,2,3,4,6,7,8,9) indicates that above 65.5% were never use ICT to facilities their tasks. While 48 (96.0%) of the secondary school administrators indicate that they always used ICT facilities to send SMS messages to communicate with both staff and students.

Hypothesis: There is no statistical significant correlation between ICT usage and Administrative Effectiveness of secondary schools (at the level 0.05)

Table: 3

Correlations			
		Using ICT can increase administrators' effectiveness	ICT available
Using ICT can increase administrators' effectiveness	Pearson Correlation	1	.024
	Sig. (2-tailed)		.868
	N	50	50
Using ICT	Pearson Correlation	.024	1
	Sig. (2-tailed)	.868	
	N	50	50

Table 3 shows the relationship between ICT usage and administrative effectiveness of secondary school. The result obtained from the analysis shows that the value of sig- calculated 0.868 is greater than at 0.05 level of significance. Therefore, the alternative hypothesis is rejected. That is, there is no significant relationship between ICT usage and administrative effectiveness secondary schools in Mogadishu

4.1 Discussion

It is clear the result analyzed in table 1 indicated the level of availability and accessibility of ICT are very low except having computers and mobile phone for sending SMS for their staff and students, and the study also identifies that there is no adequate equipment in the schools. The findings in table 2 also indicated that there is low rate extent do secondary schools use ICT for administrative purposes. The reason for this result the federal government of Somalia does not provide

adequate ICT facilities to the secondary schools and the NGO's does not equipped these schools.

Finally, the findings of the study indicated that there is no relationship exists between information communication technology and administrators' effectiveness.

5.1 Conclusion

Based on the analysis of data collected, the study concludes that there is low available of information and communication technology such internet access, having email address, electronic media to prepare timetable and class schedule, electronic media to communicate academic details of students and their parents, backup equipment, anti- virus program, electronic examination management / database, fee payment system and equipment of automation attendance.

5.2 Recommendation

Based on the findings of the study, the following suggestions are recommended:

- i. The researcher highly recommends to increase the availability and accessibility of ICT
- ii. The federal government should provide ICT facilities to the schools.
- iii. The local and international NGOs' should provide support to the schools ICT equipment.
- iv. The administrator should encourage the use of information and communication technology in order to improve their productivity
- v. At the end of academic year, the administrator should create training, retraining and ICT awareness.

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