



Role of ICT in Dissemination of Information in Secondary Schools in Kenya: A Literature Based Review

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Abstract

Information and Communication Technology (ICT) is an electronic means of capturing processing, storing and disseminating information. In education, information and communication technology is seen to encompass the use of a wide range of technologies including computers, the internet and interactive video. Information Communication Technology (ICT) plays a critical role in the dissemination of information around the world. Information and Communication Technologies (ICTs) are defined as a diverse set of technological tools and resources used to communicate and to create, disseminate, store, and manage information. The purpose of the study was to establish the role of ICT in Dissemination of Information in Secondary Schools in Kenya: A Literature Based Review. The paper used a desk study review methodology where relevant empirical literature was reviewed to identify main themes. A critical review of empirical literature was conducted to establish the role of ICT in information dissemination in schools. It was established that Information Communication Technology (ICT) plays a critical role in the dissemination of information in schools. Result findings from literature based review indicated that ICT facilitated efficient and economic storage, retrieval and dissemination of accurate information which improved the administration processes in schools. It was also established that through the integration of ICT for example instance internet, emails, video conferencing new venture of communication dissemination in schools has been established. Due to the recent development in ICT, school administrators use ICT for improved communication as a process of transforming thoughts, sharing and imparting of information among different schools, and knowledge experts locally and all over the world which in return enhances the administration of their schools. It was found that ICT is relevant in facilitating effective and quick decision

making, aiding analyzing data quickly and accurately, facilitating information gathering & dissemination, enhancing monitoring of educational facilities & resources, facilitating adequate data storage, improving coordination of tasks and activities, making administrators more productive, enhancing effective communication and knowledge sharing, facilitating fast educational planning process, improving skill acquisition & development and enhancing data processing. The study concluded that ICT has a significant role in the dissemination of information in schools. It is also concluded that that ICT has played a big role in the communication and dissemination of information in schools. The study recommended that the government through the ministry of education should lay out ICT infrastructure in schools to facilitate the use of ICT in the managements of schools. Through the laying down of ICT infrastructure such as the internet, secondary schools in Kenya will be able to receive, retrieve and disseminate information effectively.

Key words: *Information Communication Technology, Secondary Schools, Kenya*

1.0 Introduction

Information and Communication Technology (ICT) has been defined by various scholars from different perspectives. Mueen, Asadullah, Raed and Jamshed (2013) defined ICT to include electronic network-embodying complex hardware and software-linked by a vast array of technical protocol. Ufuophu and Ayobami (2012) 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 (Ziraba, 2012). It could be seen as the engine for growth and tool for empowerment, with profound implications in educational management. Information and Communication Technology fosters the dissemination of information and knowledge by separating content from its physical location (Oboegbulem & Ugwu, 2013). Globally, ICT has become an essential means for disseminating information. Information and communication technologies (ICTs) have the potential to make vast amounts of information available to users located in various parts of the world and to facilitate rapid communication between them.

Bayode (1996) described ICT as the acquisition, processing, storage and dissemination of information by means of computers and other telecommunication equipment. Bayode noted that the processing, storage and retrieval facilities are provided by computers, while telecommunications provide the facilities for the transfer or communication of data or information. ICTs consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. Although ICT has several definitions depending on the nature of its use, for this review ICT (information and communication technology) is used as an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems, as well as the various services and applications associated with them, such as videoconferencing and distance learning (Hennessy, Onguko, Harrison, Ang'ondi, Namalefe, Naseem & Wamakote, 2010).

Information Communication Technology (ICT) plays a critical role in the dissemination of information around the world. Information and Communication Technologies (ICTs) are defined as a diverse set of technological tools and resources used to communicate and to create, disseminate, store, and manage information (Makewa, Meremo, Role & Role, 2013). These technologies include computers, the Internet, broadcasting technologies (radio and television) and telephony (UNESCO, 2015).

In education, a good communication system should also be in place for effective management of a school. ICT helps in providing a good communication system in educational institutions (Saud, Shuaibu, Mohrsquo, Buntat & Yarsquo, 2011). Information and Communication Technology helps in providing timely information to all concerned. Communication could be for internal and external information acquisition and dissemination (Kokt & Koelane, 2013). It includes communication between the important school entities such as sending circulars to students, school and staff. The dissemination of information regarding the school programmes is also important.

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 (Ayoade, 2015). Mingaine (2013) indicated that ICT can help in providing a good communication system in providing timely information internal and external users acquisition and dissemination in schools. According to Carnoy and Susanna (2002), ICT collects information from and distributes information to the different departments in schools and uses the information to extract greater effort from the different parts of the system.

Through ICT, teachers in schools are able to communicate with parents, used Net Schools' databases to improve teaching, and used the teacher-student connection through the laptops to improve teacher-student communication (Mavellas, Wellington & Samuel, 2015). ICTs are vital in accessing, using and disseminating information hence the relationship between ICT and literacy and the need to review ICT literacy among students in the whole equation of ICT use in schools. ICT infrastructure in schools allows fast pace communication and information sharing (Hennessy et al., 2010). Intranets are being used by schools, primary and secondary, to support a range of administrative activities including attendance monitoring, assessment records, reporting to parents, financial management and the sharing of information amongst staff (Rouse, 2015).

In Uganda, Information and Communication Technologies (ICT) application in education has gained popularity over the past 20 years and this has led to changes in the way educational institutions carry out activities and processes (Juma, Raihan & Clement, 2016). In schools, ICT is implemented for the development of electronic applications for the management of administrative transactions and records, as well as for the rendering of well-organized and prompt information services (Ziraba, 2012). ICT also helps in managing student admission, student records and examination records, the monitoring and evaluation of staff, planning for school activities, curriculum development and information dissemination, promotes

communication between school units, parents, and principal administration (Oboegbulem & Ugwu, 2013). However, the country faces the challenge of insufficient resources to expand ICT programmes in schools (Kokt & Koelane, 2013).

In Tanzania, Education Management Information System (EMIS) is mandated in to collect, process, utilize and disseminate education data as well as related information to educational stakeholders on a timely basis. It is further noted that ICT is a very important tool for information dissemination (Ndibalema, 2014). This is because it helps in the dissemination of information within the school. However, ICT development in Tanzania is still very poor as a result of massive resources needed to establish ICT in schools.

In Kenya, the Ministry of Education developed a Kenya Education Sector Support Program (KESSP) in 2005 that featured ICT as one of the priority areas with the aim of mainstreaming ICTs into the teaching and learning process. The National ICT Policy embedded this intent as a national priority and provided the impetus for the ministry to develop its sector policy on ICT in Education. The Kenya National ICT policy was adopted in 2006 with the aim of expanding ICT sector in Kenya. The Kenya Education Network (KENET) establishes sustainable communication and networking among education institutions in Kenya that facilitate the use of internet technology in teaching, research and sharing of information resources at an affordable cost. The Ministry of Education (MoE) in Kenya recognize the importance of Educational Management Information System (EMIS) infrastructure in supporting processing, use, sharing and dissemination of available data and information at all levels. However, ICT integration in schools is limited by inadequate ICT infrastructure for schools.

1.2 Statement of the Problem

Effective communication in dissemination of information in secondary schools requires ICT platform. Majority of schools in Kenya lack proper channels to disseminate and share information students, parents, teachers and educational stakeholders. Further, the ICT network is also poorly developed to facilitate information dissemination in schools. For, those schools with established ICT platform, there are many benefits resulting from the same including data storage, information retrieval and information sharing.

Information and Communication Technology (ICT) in schools are concerned with the creation, acquisition, sharing and dissemination, of information. ICTs are the means for providing an access to and engaging in the continuous learning that becomes necessary for successful participation in the society development of all social groups of population. ICT also helps in managing student admission, student records and examination records, the monitoring and evaluation of staff, planning for school activities, curriculum development, financial management and information dissemination, promotes communication between school units, parents, and principal administration (Oboegbulem & Ugwu, 2013). With developed ICT, schools are able to communicate with parents and education stakeholders quickly and effectively. The study highlights the roles played by ICT in the dissemination of information in secondary schools in Kenya.

1.3 Objective of the Study

To establish the role of ICT in Dissemination of Information in Secondary Schools in Kenya: A Literature Based Review.

2.0 Literature Review

2.1 Theoretical Background

The paper is guided by Technology Acceptance Theory. The theory was developed by Davis (1989) and it is an adaptation of the Theory of Reasoned Action by Ajzen and Fishbein (1980) developed to describe the use of technology. The Technology Acceptance Theory posits that technology users' attitude is determined by their behavioural beliefs about the consequences of the behaviour on the part of the individuals.

In Technology Acceptance Theory, there are two factors perceived usefulness and perceived ease of use is relevant in computer use behaviors. Davis defines perceived usefulness as the prospective user's subjective probability that using a specific application system will enhance his or her job or life performance (Venkatesh, Thong & Xu, 2012). Perceive ease of use (EOU) can be defined as the degree to which the prospective user expects the target system to be free of effort.

According to TAM, ease of use and perceived usefulness are the most important determinants of actual system use. The Technology Acceptance Theory determines the user acceptance of any technology perceived usefulness (PU) and perceived ease of use (PEOU) factors (Surendran, 2012). PU defines as the degree to which an individual believes that using a particular system will enhance the task performance. PEOU defines as the degree to which an individual believes that using a particular system is free of physical and mental effort (Davis, 1989; Davis et al., 1989; Davis, 1993). The Technology Acceptance Theory suggests that intention to accept technology is determined directly by attitude, perceived usefulness and perceived ease of use. Theo theory is relevant the study by advocating the adoption and application of Information Communication Technology.

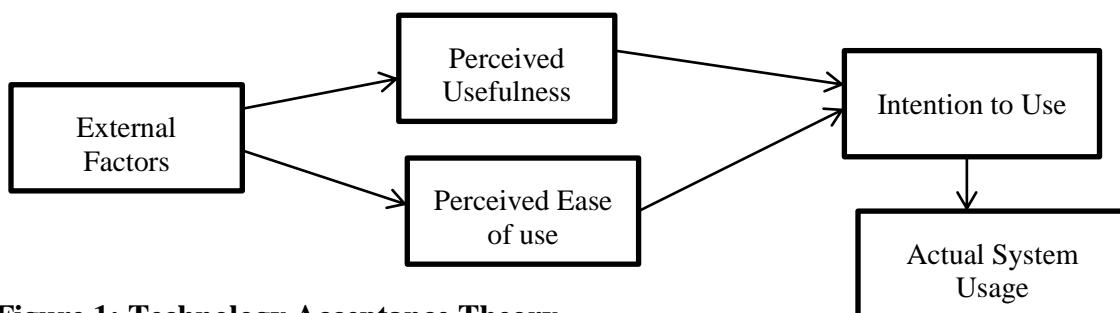


Figure 1: Technology Acceptance Theory

2.2 Conceptual Framework

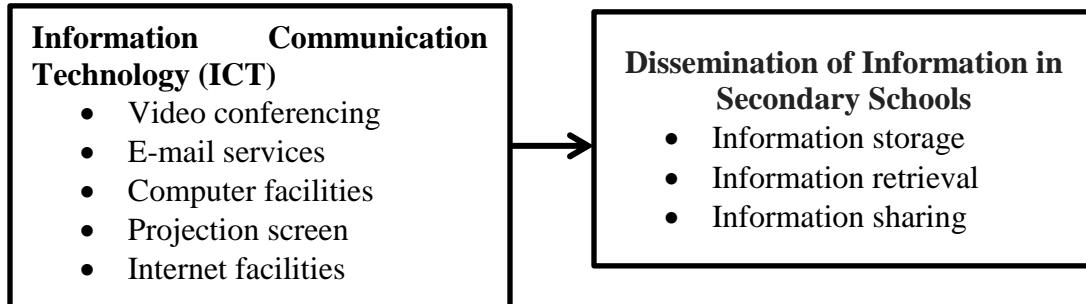


Figure 2: Conceptual Framework

2.3 Empirical Literature

Wanjala (2015) conducted a study on teachers' perceptions on the use of information communication technology in the administration of public secondary schools in Kimilili SubCounty, Bungoma County, Kenya. The study sought to answer research questions on the perceptions of teachers regarding the level of availability of ICT facilities, the extent of use of ICT, effects of using ICT in administration and strategies that could be used to improve the use of ICT in the administration of public secondary schools. The findings of the study revealed that basic ICT hardware and software are available in most schools but they are entirely not adequate for use in performing administrative tasks. They could use the computer to store and retrieve past examination papers, print results, merit list and make copies of official documents. Most teachers in the study indicated that use of ICT had influenced their performance of administrative tasks since they were able to cut down on costs.

Ngugi (2012) conducted a study on to investigate the extent of the use of ICT in education management in public secondary schools in Naivasha District. Descriptive survey design was used for the study. The study found that 72% of the respondents indicated that they used computers to carry out administrative duties including information dissemination. The study concluded that even though some of the secondary schools in Naivasha district were prepared, others were not prepared as they did not have ICT resources required for the management of the schools. The study recommended that the government through the ministry of education should layout ICT infrastructure in schools to facilitate the use of ICT in the managements of schools and that head teachers should be trained on the use of ICT in the management of schools. The study recommended that another study be done on the challenges facing the use of ICT in teaching and learning in secondary schools in other districts.

Mutisya and Mwania (2017) conducted a study to determine the extent to which Information and Communication Technology has been integrated in the management of public secondary schools in Kitui County, Kenya. A descriptive survey research design and mixed method approach were used in this study. The County Director and the Sub-County Directors of Education in their

interviews reported that most of the principals relied on their secretaries for computer related communication and some were reported not to have active emails. However the interviews indicated that some principals were indeed using ICT in management of schools and especially in communication with teachers, parents and suppliers. The study recommended expansion of ICT in public secondary school.

Etudor-Eyo, Ante and Emah (2011) carried out a study on the use of ICT and communication effectiveness among Secondary School Administrators. The study obtained data from secondary school administrators through the administrators' use of ICT questionnaire and administrators' communication questionnaire to investigate how the use of ICT predicts communication effectiveness among secondary school administrators in AkwaIbom State, Nigeria. Two hypotheses were formulated to guide the study. Ex-post facto research design was adopted for the research. The results of the study reveal that the extent of administrators' use of ICT and the extent of administrators' effectiveness in communication are high. It notes that there is a significant positive relationship between administrators' use of ICT and administrators' effectiveness in communication; the effectiveness of secondary school administrators in communication is significantly predicted by the use of ICT. Based on the findings, the researcher concludes and recommends that government should make ICT tools available in all secondary schools for the administrators; workshops on the use of ICT should be organized from time to time by the governments and NGOs for school administrators who are not yet ICT literate; a constant power supply should be made available to schools so that administrators would be able to make use of ICT for communication.

Juma, Raihan and Clement (2016) conducted a study on the role of Information and Communication Technology (ICT) in higher educational administration in Uganda. The study was descriptive in nature and the survey method was used. The findings of this study revealed that ICT greatly enhanced educational administrator's performance through improving cross communication at the managerial level, quick access to needed information, provides media and enhances information accuracy, analyzing data fast and effectively, their knowledge and skills a networked platform for collaborative work, motivates administrators through access to new information, for research purposes and enhances research skills of administrators, evaluation of staff and students is made easier, helps administrators in result processing, analyzes data quickly and accurately, reduces on workload, good and secure storage of information, improves coordination of tasks and activities. Therefore, the findings reveal that the proprietors of universities should procure more ICT facilities and equipment in order to ensure maximum efficiency and effectiveness in all dimensions of educational administration.

3.0 Research Methodology

The study established the role of ICT in Dissemination of Information in Secondary Schools in Kenya: A Literature Based Review. The paper used a desk study review methodology where relevant empirical literature was reviewed to identify main themes. A critical review of empirical literature was conducted to establish the role of ICT in information dissemination in schools.

4.0 Results and Discussion of Findings

Information Communication Technology (ICT) plays a critical role in the dissemination of information in schools. Result findings from literature based review indicated that facilitated efficient and economic storage, retrieval and dissemination of accurate information which improved the administration processes in schools. The use of ICT has influences the performance of administrative tasks in secondary schools.

It was also established that through the integration of ICT for example instance internet, emails, video conferencing new venture of communication dissemination in schools has been established. Due to the recent development in ICT, school administrators use ICT for improved communication as a process of transforming thoughts, sharing and imparting of information among different schools, and knowledge experts locally and all over the world which in return enhances the administration of their schools.

Information Communication and Technology (ICT) is relevant in facilitating information gathering & dissemination, Almost all the administrators agreed to using ICT in helping them gather information and distribute it to the concerned parties for example online gathering of student information and online dissemination of examination results.

It was statistically significant to agree that ICT facilitates adequate data storage for example storing data on file servers and accessed through ftp (file transfer protocol) and also data about students, teachers, administrators stored in management systems.

On the use of ICT in the management of schools, the empirical literature established that ICT was used in the management of different task areas in the school. It was found that ICT was used in curriculum instructional management and dissemination of students' examination results.

In some schools the students could find PowerPoint presentations and presentations made on Smart Boards in archives which were available through websites and/or platforms.

5.0 Conclusions

Considering the findings of the study, it was concluded that ICT has a significant role in the dissemination of information in schools. It was found that ICT is relevant in facilitating effective and quick decision making, aiding analyzing data quickly and accurately, facilitating information gathering & dissemination, enhancing monitoring of educational facilities & resources, facilitating adequate data storage, improving coordination of tasks and activities, making administrators more productive, enhancing effective communication and knowledge sharing, facilitating fast educational planning process, improving skill acquisition & development and enhancing data processing. It is concluded that that ICT has played a big role in the communication and dissemination of information in schools.

About the level of availability of ICT facilities, it was concluded that desktop computers were the most common hardware in schools. However the available hardware was generally not

adequate to facilitate the use of ICT in the administration of schools. Also, most schools were not fully utilizing the available facilities due to absence of appropriate software.

Regarding the effects of using ICT for administration in secondary schools, it was concluded that effective use of ICT can be used to address administrative issues if it is well planned and supported since it has positive effects mainly in the form of efficiency, quality work, reduced time wastage, and convenience in storage, retrieval and dissemination of accurate information which improves administration.

6.0 Recommendations

The study recommended that the government through the ministry of education should lay out ICT infrastructure in schools to facilitate the use of ICT in the managements of schools. Through the laying down of ICT infrastructure such as the internet, secondary schools in Kenya will be able to receive, retrieve and disseminate information effectively.

Through the Ministry of Education, ICT facilities should be availed to all secondary schools to help in the administration, learning, teaching and communication within schools. The main stakeholders are namely: school administrators, the Ministry of Education and teachers. Government should put in place both material and human resources to enhance application of ICT in the administrative process in schools. This can be done by allocating resources for ICT integration and employing qualified teachers and other personnel in ICT to manage them. This can be done through formulation of sound ICT policies aimed at creating conducive environment for the implementation ICT use in schools.

There is need for the government through the MEO to provide internet services to schools to facilitate information flow from the school administration to the teachers and the parents. Most of the parents do not have computers in their homes and therefore should use mobile phones instead of computers to communicate with the school administration. The departments in the school should be connected to the internet to enable information flow and communication from one department to another. There should be an all-round communication between the educational stakeholders and the school administration.

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