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THE IMPACT OF THE INFORMATION COMMUNICATION TECHNOLOGIES (ICT's) ON LEARNING AND SERVICE DELIVERY AT KWAME NKRUMAH UNIVERSITY IN ZAMBIA

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***Abstract**: This article reports a study undertaken in January 2017 to examine the impact of Information Communication Technology (ICT's) on learning and service delivery through its usage by the respondents at Kwame Nkrumah University (KNU) in Zambia. A sample size of 210 respondents was used which consisted of 133 students and 77 members of staff at KNU. The main objective of the study was to examine and assess the impact ICT's have on service delivery at KNU.*

In terms of the methodology, the study consisted of Interviews and direct observation of the respondents as they directly and indirectly engaged themselves in activities or situations that involved use of ICT's. Relevant pieces of information were sought directly from key users of Information Communication Technologies at the university, who in this case were students and members of staff. The impact of the ICT on service delivery at Kwame Nkrumah University was confirmed by this study, where it was found that. Findings revealed that almost all departments in the university utilised ICT's in various forms and for various purposes. The study established that the mostly used form of ICT was the computer, which was highly used to browse through the library management system famously known as KOHA. Other forms of ICT's recorded by the study include the KNU Website which was mainly used for on-line registration and the E-resources in the library which was managed by the Department of ICT and mainly used by students and staff for research and study purposes. The Department of Distance Education also benefitted from the ICT especially in module production. The study further revealed that ICT's were also used in performing various computable tasks and in communication between offices at the institution, as well as in those communication systems that linked the university to the outside world via internet. Generally, the study established that ICT's were found by this study to have significantly eased the learning and service delivery at Kwame Nkrumah University, despite the few challenges experienced in the management of the technologies.

***Keywords**: ICT, Service delivery, Computer, Information, Kwame Nkrumah.*

1.0 Introduction

Kwame Nkrumah University (KNU) was opened in 1967, first as a Teachers Training College. In 1971, it was renamed Nkrumah Teachers' College in honor of the first president of Ghana, Dr. Kwame Nkrumah and later renamed Nkrumah College of Education. It was later turned into a Degree awarding institution in 2009 and renamed as Kwame Nkrumah University (KNU). Through its highly qualified, competent and dedicated staff, KNU has contributed significantly to the development of the country and the sub-region. Out of 8,450 teachers churned out by the institution between 1967 and 2004, many have risen to managerial positions not only in education but also in business and politics in various countries of the sub-region. This article, therefore, investigates the impact of the information technology on service delivery at Kwame Nkrumah University in Zambia, in a study that was carried out in January 2017.

The Information Communication Technologies (ICTs) are various technologies used in the creation, storage, retrieval, manipulation and transmission of information; these include computers, various accessories, projectors, printers and photocopiers, radios and televisions, communication devices such as mobile phones, video and audio recorders and various software among other things. Information and communication technologies (ICTs) in Zambia have offered new and exciting opportunities for growth, prosperity and creation of wealth. As a result of globalization, activities and transactions are increasingly being conducted using the internet. Information Communication Technologies have, therefore, become an essential condition for countries and regions to meaningfully integrate into the global economy and reap the benefits from it (*Zambia Daily Mail*, April 20, 2012). This has resulted in the rapid development in the use of ICTs in organizations and institutions of learning.

The incorporation of ICT's in learning and service delivery of both students and staff at Kwame Nkrumah University has made it possible for new and exciting opportunities for growth, this article argues that the potential effects of ICT's on learning and service delivery remain a topic worth of investigation.

1.1 The Impact of ICT's on Learning

Information Communication Technologies (ICT's) have an important role to play in learning. There is no single concept of learning through use of ICT's, some of the different types of learning include; computer classes, distance education, virtual learning and digital training. Learning can either be informal, for example, individual development through e-learning or formal where distance education has evolved.

A research done by Youssef and Dahmani (2008) indicate that there are two assumptions concerning the impact of ICTs on learning which include;

i. ICTs do not play a role in students' achievement, for example, when ICTs are mainly used for social interaction through social platforms like Facebook, twitter and other such social networking.
ii. ICT's play a role in students' achievement through offering computer classes, online registration, online resources, e-library and interactive platforms like Edurole. According to Adesote and Fatoki (2013),"it has been suggested that information and communication technologies (ICTs) can play a number of roles in education such as developing the kind of graduates and citizens required in an information society; improving educational outcomes and enhancing and improving the quality of teaching and learning (Wagner, 2001; McCormick and Scrimshaw, 2001; Flecknoe, 2002). Garrison and Anderson (2003) argue that the application of ICTs in the teaching-learning process can enhance the quality of education in several ways such as increasing learner motivation and engagement, facilitating the acquisition of basic skills, and enhancing teacher training".

Mtambo (2003) also states that, "apart from formal learning, the internet encourages questioning of things and seeking to get more information or acquire more knowledge on particular subjects. The presence of a wide range of information sources such as weather reports, news and diverse views on different subjects also serves as a way of learning."

The role of ICTs on education is becoming more important for teaching and learning process in this digital era. Punnie, Zinnbauer and Cabrera (2006), state that "currently, it seems that ICT's are used as tools to support and improve the existing learning process and its administration more than for their transformative potential."

1.2 The Impact of ICT's on Service Delivery

PANOS London (2010) indicates that, "Information and communication technologies (ICTs) are increasingly important in achieving development goals and promoting citizen participation. Zambia is one of a number of countries in the Southern African region that have sought to include ICTs in their national development plans." ICT's have therefore, played a crucial role in the present knowledge based economy to the effect that organizations and institutions of learning tend to rely heavily on ICT solutions in order to develop (Asgarkhani and Young, 2010), the move that has resulted in most organizations and institutions of learning incorporating ICTs in their operations. The effect this could have made on the nature of work and the impact caused on the service delivery cannot be overemphasized.

According to Murphy (2009), the widespread adoption of information and communication technologies (ICTs) brings clear benefits, such as the automation of traditional activities, resulting in time savings and better services through access to electronic information resources. At the same time, there are potential negative outcomes, both for staff and for end-users, which

need to be addressed. Bandalaria (2007) also states that, the success of distance education learners depends on the various support services available to them. Moreover, the delivery of student support services must be congruent with the mode of delivering instructional content. Support services like tutorials, library, guidance and counseling, and academic and administrative consultations, must be available in a wide variety of forms, such as online and via SMS.

2.0 Literature Review

Information Communication Technologies (ICT's) have an impact on learning and service delivery through utilization of various forms of ICT's. Literature reveals that, use of ICT's promote development and improves services in any organization. It brings changes in today's business environment. In academic environment, it speeds up information delivery, facilitates teaching, learning and research (Haliso,2011). ICT's constitute an input in the student learning process that should help produce better learning output.

The impact of technical changes in knowledge production has, therefore, received particular interest in the literature in economic growth. Many recent studies have shed light on the impact of ICT's on knowledge production, economic growth, and productivity and so on. The ICT system gives the knowledge-based economy a new and different technological base which changes the conditions for the production and distribution of knowledge; ICT's are playing a new role in knowledge production and distribution, but this is a re- organization of the technical and financial terms on which a resource is available.

Literature reveals that, ICTs have changed production of scholarly information which is being produced in digital format. There is therefore need for libraries which are the main storehouses of information to have the necessary competency and knowledge skills to be able to fully participate in the digital environment. For libraries, ICTs are changing the way the librarian acquires, processes, stores and delivers information to the users. Permanent access and storage of recorded knowledge resources has been the cornerstone of libraries for centuries. Libraries have prided themselves with having the privilege of being entrusted with the permanent storage of the results of scholarship (Chifwepa, 2006).

According to Chifwepa (2006), the postal services means of communication and interaction for learners in many countries have been found to be inefficient. He contends that ICT's can serve as an alternative means of communication in alleviating feedback inefficiencies in communication. This, he observes, is even more crucial to learners who tend to be motivated by being in close touch with their facilitators or teachers. However, literature suggests that the growth of the digital economy or information society has brought about new challenges, as can evidently be

seen in essential services such as water and electricity supply which have now resorted to using ICT's.

Literature further reveals that, today cars, traffic control, elevators, air conditioning and telephones also depend on the smooth functioning of ICT (Zambia Daily Mail, April, 2012). The benefits of ICT's in the global digital society cannot be overemphasized. Today, computer technologies have contributed in transmitting information, thereby creating favourable ICT environments that have in turn helped in fast and accurate decision-making. It is now common knowledge that the use of ICT's increase the supply of information as ICT's plays a key role in information sharing and dissemination**.** ICT's remove distance and time constraint in accessing required information flows.

However, literature reveals a number of factors challenging the provision and implementation of ICT 's in the current digital economy. some of these factors include:

- Lack of Infrastructure
- Inadequate finance to acquire the needed ICT's
- Poor data systems and lack of compatibility.

Lundu (1998), for instance, observes that whilst the e-mail services can be free-of-charge in some cases, and costs of internet services being lower than traditional postal services, some remote-rural areas do not benefit from this service due to non-availability of computers and libraries or resource centers. Therefore, people do not have access to information. Lundu, therefore, seems to suggest that *a*ccess to Information using ICTs is dependent on its availability. This also implies that the introduction of technology does not occur at one point in time. Some new ongoing dynamic must develop in order for a technology to spread, be kept up and renewed (Events, 1998). Another challenge consists in the financial factor. As much as it can be appreciated that technology plays a vital role in information processing, management and utilization, there is still other needs of the user and financial factors that come in to determine how much and what type of technology will be applied effectively to the information service operations at any given place.

Other challenges experienced are problem-oriented which includes intellectual access and physical access. Intellectual access means to learn where information exists; the value and relevance of any piece of information is ascertained by the individual concerned. Physical access on the other hand, implies being able to obtain information in a usable form and/or the delivery of the record to the inquirer.

Scholars have also highlighted some revolution in the use of ICT, a phenomenon that seems to have profound implications for economic and social development, and indeed on every aspect of human life. Shanker (2008), for instance, contends that the widespread application of ICT today

makes it an essential tool for the efficient administration of any organization and in the delivery of services to clients. Schware (2003) has also observed that ICT is being integrated into procedures, structures, and products throughout businesses, governments, and communities. The use of ICT, thereby, increasing the supply of information as ICT plays a key role in information sharing and dissemination**.** The use of ICT has therefore, become the order of the day for most organisations as it greatly helps in knowledge production. Information and communication have an increasingly pervasive influence on almost every aspect of social cohesion and human development.

Available literature reveals that, the rapid progress in ICT's and its impact on the global knowledge economy have intensified in recent years, leading to a new economic system characterized by intensive knowledge production that has affected a great deal of interest. It has also increased debate on the effects of ICT's and the economic opportunities and challenges that ICT's impose on the production and dissemination of knowledge in the global economy, particularly for the developing countries. Vipinkumar et al (2012) "It is a pertinent fact to observe that the emergence of Information and Communication Technologies (ICT) in the last decade has opened new avenues in knowledge management that could play important' roles in meeting the prevailing challenges related to sharing, exchanging and disseminating knowledge and technologies. ICT's allow capitalizing to a greater extent on the wealth of information and knowledge available".

The application of ICT could strengthen local educational capacity, support distance education, connect places of learning and research and reduce communications and administrative costs. It can also improve the accessibility of rare manuscripts and artifacts and preserve them electronically. Educational technology should influence educational outcomes and costs. If the most appropriate educational technology is selected by a teacher then student learning should be optimised, which means an increase in the value of the outcome. According to Lishan (2003), ICT's are regarded as a solution for the problem of having to do more with less, providing access to increasingly diverse demography of students and faculty and improving both the quality and quantity of educational content.

3.0 Methodology

The data were collected by using Participant Observation method and in-depth interviews from a sample of 210 informants comprising 133 students and 77 members of staff drawn from various departments at Kwame Nkrumah University. The students were chosen randomly, while the employees were selected using Purposive (judgmental) method.

Both qualitative and quantitative methods were applied. Qualitative method was used to collect information pertaining to opinions and views of the respondents and quantitative method was used to collect statistical data. Purposive sampling was applied on certain 'key' informants because of the predetermined nature of information that was required, for instance the Heads of Departments, Secretaries, Librarians and Computer Laboratory operators. Relevant secondary pieces of information were also solicited from documentary sources to supplement the primary data.

3.1 Data Recording and Analysis

Content Analysis method was used in the recording and analysis of data. By way of content analysis, the data was systematically converted to numerical variables for quantifiable analysis. Here the recording and analysis of information was preceded by the designing of a special 'path of analyses (a description). Coding was involved, where the analysed material was classified into various codes by assigning different numerical values for different types of answers from respondents. In coding, the main option to be considered was the *Inductive Approach* because of much qualitative information that was involved in the study. There was less calculation needed in this approach. The making of inferences was however vital and this was purely logical and entirely our task.

4.0 Research Findings

This section presents the findings of the research conducted in January 2017 on the Impact of the Information Communication Technology on Service Delivery at Kwame Nkrumah University

Out of two hundred and ten people approached for interviews, the majority 133 were students at Kwame Nkrumah University while the remaining 77 were employees at the institution. Within the category of Employees, the 80% majority were lecturers and 20% were the supporting staff. The entire research sample, therefore, consisted of 21% youths, 68% adults aged between 20 and 59 years while 11% were men and women who were 60 years and above. All respondents in the interviews at least confirmed that ICT's had an impact on various aspects of service delivery in their respective areas of placement and/or designation at the institution. The youth (mostly students) seemed to have integrated ICT's in a widest range of areas; such as in communication, knowledge production, research, entertainment, conveying of data from one place to another, gossip on various social media platforms, *et cetera*.

A close study, both through interviews and observation of people at KNU further revealed the influence of ICT's in service delivery at the institution. In this regard, ICT's were seen to have enhanced the flow of information through internal communication networks that linked various

departments, sections and individuals within the institution, as well as external networks that linked the institution, it's employees and students to the outside world.

The religious life of people at Kwame Nkrumah University seemed not to have been spared by what was considered an inescapable influence of ICT's, as evidenced in the twenty-three per cent (23%) of respondents who cited some church hymns, copies of Bibles and other inspirational spiritual messages at their churches having been shared electronically among believers via internet on such gadgets as smart phones and Ipads.

The table below summarises the findings of this study on the use of ICT's at Kwame Nkrumah University. According to research findings, various departments at Kwame Nkrumah University utilised ICT's for service provision. Out of the 210 total respondents, 133 were students while 77were lecturers and support staff. The most utilised form of ICT for students was the computer which was used to browse through the library management system known as KOHA. Findings further show that 60 out of 210 respondents representing a percentage of 29% utilised KOHA for borrowing and returning books while 10 (5%) support staff and 5 (2%) lecturers used KOHA. Another form of ICT available in the library was e-books which were accessed through a platform called D-space.

Only 1% students, 1% lecturers and another 1% support staff utilised e-books, an indication that the mentioned ICT was not used to the full.

KNU website is another form of ICT which is utilised by students and staff for online registration and e-resources. Forty-five (21%) students utilised online registration while 15 (7%) lecturers and 8 (4%) support staff respectively used online registration. E-resource was another form of ICT which was used by respondents. Fifteen (7%) students mostly utilized the e-resources, 10 (5%) lecturers and only 5(2%) support staff used the e-resources. Findings show the department of Distance Education having used some form of ICT, where 20 (10%) lecturers and 5 (28%) students made use of the technology in producing and reading modules. Only 2 (1%) of the support staff used modules. Five (2%) students and 2 (1%) support staff used the ICT.

Table 1: **UTILISATION OF INFORMATION COMMUNICATION TECHNOLOGY AT KWAME NKRUMAH UNIVERSITY**

Category	Variables:	Frequency	Percent (%)	Cummulative Frequency(%)
Students	a) Library- KOHA	60	29	64
	-Dspace(e-books)	03	1	
	b) Distance Education- Module	05	2	
	-learner support			
	c) KNU website- online	05	2	
	registration	45	21	
	-e-resources			
		15	7	
Lecturers	a) Library- KOHA	02	1	24
	- Dspace(e-books)	02	1	
	b) Distance Education- Module	20	10	
	-learner support			
	c) KNU website-online registration	00	00	
	-e-resources	15	7	
		10	5	
Support staff	a) Library- KOHA	10	5	12
	-Dspace(e-books)	01	1	
	b) Distance Education- Module	02	1	
	-learner support			
	c) KNU website-online	02	1	
	registration	08	4	
	-e-resources			
		05	2	
		210		100

5.0 Discussion

In this section, we base on our findings and offer a discussion on the impact of ICT on service delivery at Kwame Nkrumah University and address a few pertinent questions. At Kwame Nkrumah University, various forms of ICT were used in almost all operations, some of which include; access to library collection, KNU website, production of learning materials, knowledge production, student support services as well as in management of all programs at the University.

The effects ICT's had on service delivery at Kwame Nkrumah University was established through how various forms of ICT's were utilized. Students at KNU mostly utilized a library management system known as KOHA which was used to browse through the library database. Kwame Nkrumah University libraries have automated and a full featured Open Source Integrated (OSI) library management system known as KOHA, which is essentially used for discharging library processes so that there is effective service provision. KOHA has features which include:

- Proven, stable technologies.
- Software collaboration and resource sharing.
- Long term support.
- User driven.
- Cost effective.
- Innovation.

For effective information resource processing, easy access to library collection and efficient service provision to the users, KOHA has modules which include the following:

- OPAC/ public catalog.
- Circulation- which includes checks in and checks out.
- Patrons- upload patrons and run reports.
- Cataloging- Follow Anglo American Cataloguing Rules 2 (AACR2) and create public lists of the library collection.
- Report- run and search reports.
- Acquisitions- order and accept purchase suggestions.
- Serials- Create subscriptions see full serial history.
- Administration- full access to administration functions.
- Systems works with RFID and self-check-out products.

Kwame Nkrumah University processes its information resource using the modules mentioned above, thereby making retrieval and access to information easy. Information retrieval (IR) is finding material (usually documents) of an unstructured nature (usually text) that satisfies an information need from within large collections (usually stored on computers)." KOHA makes retrieval and access to information easy.

When it comes to the impact of ICT's on knowledge production, the computer, which is one of the ICT devices, had been used at the university as an internal data storage device as well as in providing other services. Data stored included modules, forms for admission and so on. Use of ICT's was vital in material production, especially in writing of modules for the Distance Education students, right from the initial stage of information search and /or gathering in order to

come up with the content of the modules in respective programmes and courses. The institution, therefore, produces modules for distance education students in all the courses that are on offer at the institution. These modules are given to the students during distance education residential school which usually lasts two to three weeks during the school holidays of every term. However, internal students are also able to have access to the modules through the two University libraries which have put them in circulation at the reserve or short loan section. Furthermore, the institution also produces examination past papers through the exam committee and Distance education committee; the papers are put in circulation at the short loan section of the two libraries.

Apart from availing the module in a conventional hard copy format, there has been recent move by the university to encourage students to utilise the module in soft copy form as well, which has been facilitated by the introduction of e-library. The initiative to introduce e-library has also benefited the full-time students and the general body of academics who are equally accessing some of the material on open access via KNU website for various reasons, such as research and mere reading for information.

Furthermore, students carrying out research have been able to access the available learning material on various open access depositories. In terms of the Distance Education programme management at the institution, it should be well argued that ICT has made a positive contribution in enabling the institution solve the problem of access and enrolment which, has been typical of many African Universities. For example, in 2010 the university had enrolled about 2000 students in Distance Education programmes and about 1500 in 2011, whereas only about 500 on-campuses have been enrolled every year.

Information Communication Technologies(ICT's) have also eased the communication system in the university and also conveyance of data from one place to the other. It has provided the means of linking devices through computers, such as for sending and receiving text, graphics and other data together. Such communications have been done locally, for example, through Local area network (LAN) which is the distribution of information around an office or the connection of several computers to a central printer or memory. Wide area networks (WAN) have equally been utilised, especially when data has to pass between widely spread parts of an organization, perhaps even internationally.

6.0 Conclusion

In this article, we have examined the impact of the Information Communication Technology (ICT's) through its usage at Kwame Nkrumah University in Zambia. We have noted that Information is needed for various purposes and serves as an invaluable commodity or product, just like it is an important aspect of decision making in all levels of management in an institution such as Kwame Nkrumah University. This article has, therefore, highlighted the crucial role ICT's have played at the institution in enhancing the production and flow of such information. Not only that; we also note in this article, the increasingly important role of ICT's in facilitating the introduction of new products and services, aimed at improving operational processes, and in guiding managerial decision making.

The claim that there has been challenges in the utilisation of ICT's at the institution been assessed, and the effects that arise as a result of this have been determined. In this regard, for instance, we note in dismay that some of the forms of ICT are not properly utilized and in some cases, underutilized and applied. In such cases (though rare), it was difficult to produce the information that was needed and relevant to the users.

7.0 Recommendation

In order for the technology to be applied extensively, a deliberate policy for the implementation of ICT- related issues will be required in the university.

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