INFORMATION AND COMMUNICATION TECHNOLOGY AND MANAGERIAL EFFICIENCY OF UNIVERSITIES' HEADS OF DEPARTMENTS IN LAGOS STATE

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Abstract

This study examined the influence of Information and Communication Technology (ICT) on managerial efficiency of Heads of Departments in the universities in Lagos State. Two research questions and two hypotheses were answered and tested respectively. The descriptive survey research design was adopted. The population comprised 137 Heads of Departments in the two conventional public universities in Lagos State. The sample for the study consisted of 128 participants. Data were collected through the use of questionnaire.Descriptive statistics such as percentage and frequency counts were used to answer the research questions, while Pearson Product Moment Correlation and Chi-square statistical tools were used to test the hypotheses. The finding of the study showed that ICT significantly influences HODs' managerial efficiency and there existed a significant relationship between application of ICT and HODs' managerial efficiency in the universities. Based on the findings, it was recommended, among others, that HODs should be provided with ICT tools to enhance their managerial capacity in the departments.

Keywords: Information and Communication Technology, Managerial Efficiency, Heads of Departments, Universities

Introduction

A number of developments in the world of technology in the recent times are shaping the future of education. Adoption of ICTs in education is perceived as a great platform for sustainable development. However, it is no gainsaying to assert that quality of life in the world today is driven not only by technology, but also access to the right type of information and at the right time. Information is a critical input in all human activities. Without access to accurate, concise, relevant and up-to-date information at the right time, it is difficult if not impossible to take right decisions. It is however known that success in business, government and even private life is largely determined by the quality of decisions we make in our bid to choose among competing alternatives, project future outcomes, plan and organiseprogrammes of activities, coordinate and control personnel, and do other things needed to make success out of business, government and/or personal projects.

Information has always been the life wire of human activities. As such, university administrators/managers have to seek better ways to collect, store, process and communicate information. This is important for them to be at pace with the information age where we live. Kozman (2005) pointed out that ICT offers the potential to restructure organisations and promote collaboration,

increase democratic participation of citizens, improve the transparency and responsiveness of governmental agencies, make education and health more widely available, foster cultural creativity, and enhance the social integration of individuals with different abilities and groups of different cultural backgrounds. There are also widespread beliefs that ICTs can be important levers to introduce and sustain education reform efforts in Africa (Farrell &Shafika, 2007). Information and Communication Technology (ICT) plays vital role in supporting powerful and efficient administration in education sector. It is specified that technology can be used right from students' administration to various resource administration in educational institution (Maki, 2008).

The university as the highest level of education thus demands more resources and skills than other levels of education. Managerial abilities and responsibilities at the tertiary (university) level of education are more demanding and tedious. The university is the inter-phase between the needs of the society and the manpower that meets those needs, hence cannot stand in isolation from the society. It is a subsystem of the supra system- the society. University education has to be such which produces skilled manpower that would fill various positions in the national polity and private establishments, as a result, foster economic and national development.Management in the modern university system has shifted from just academic leadership role to a complex role of academic management.Therefore for heads of departments to be effective they have to recognize their role as not only "academic leaders" alone but "managers" of a complex organisation. In this information age, also considering the increasing complex nature of universities, there is the need for application and use of appropriate ICTs for education. Heads of Departments as academic and administrative leaders at the departmental level are expected to be strategic in the accomplishment of the institutional goals, and the necessity for efficiency in carrying out their tasks cannot be over-emphasized. This is particularly so because the HODs are expected to carry out diverse duties with speed, precision and timeliness in delivery.

Heads of Departments in the universitiesare planners and administrators at the micro level of the system. They play vital roles in planning, organising and coordinating various academic affairs of the university in order to achieve the primary objectives of the university. Amidst various objectives of higher institutions is the preparation of students who would be relevant to the society at large. Thus, HODs are expected to be efficient and effective as they carry out their daily routine and also adopt innovative ways of achieving the herculean academic objectives.Furthermore, managerial efficiency in higher education is reflected in the ability of the Heads of Departments to carry out their managerial roles succinctly and in record time. Efficiency is used in this study to describe HODs' task performance expectation in relation to speed, accuracy, timelines, and cost-effectiveness. The outcomesof this study would provide viable and baseline data on the impact of ICT on educational administration and management in the universities in Lagos State, Nigeria. It would therefore sensitize the Education Authorities, Ministry of Education, Government, Vice-Chancellors and Heads of Departments on roles of ICT and how it can be applied on improving the universities' administrative processes and improved research at the departmental level for sustainable development. In addition, it would enable the policy makers and stake holders in higher education in line with stated policies to recognize ICT accessibility and usage among heads of departments in the universities.

Statement of the Problem

The 1990s was the decade of computer communications and information access, particularly with the popularity and accessibility of internet-based services such as electronic mail and the World Wide Web (www). Educators have seen the need to adopt information and communication technology in education to improve students' learning as well as lecturers' performance. There is also the need to focus attention on the application of ICT in the university management especially at the micro level (department and faculty).The relationship between ICT and managerial efficiency has continued to grow and generate the environment or means for education to thrive. It has become obvious in the modern time that the

educational system is fast loosing the monopoly of education and administration, while ICT continues to endow with greater educational value as the vehicle for education. Modern technology has therefore created a relationship between persons and organisational processes.

In spite of the availability of ICT in our society today, the applicability of these ever changing and modifying technologies for managerial efficiency is still contentious especially in educational system. Also, most university administrators are not entrenched in its utilization and seldom explore the numerous opportunities it offers for school management. Furthermore, some Heads of Departments may not have the right attitude or perception towards the use of ICTs. In some instances the necessary skills for effective application of these, sometimes complex ICTs in management are grossly inadequate. In the light of these, this study examines the relationship that exists between the application of Information and Communication Technology and managerial efficiency of Heads of Department in the universities in Lagos State, Nigeria.

Purpose of the Study

This study examined the influence of ICT on managerial efficiency of Heads of Departments in universities. Specifically, the study investigate the:

i. adequacy of ICT facilities for Heads of Departments in the universities; and

ii. extent to which Heads of Departments apply ICT in their managerial roles.

Research Questions

The following research questions were used to guide the study:

i. To what extent are the ICT facilities provided for Heads of Departments in the universities adequate?

ii. To what extent do Heads of Departments apply ICT in their official duties?

Research Hypotheses

The following hypotheses were formulated to guide the study:

i. Adequacy of ICT facilities does not significantly influence HODs' managerial efficiency in the universities.

ii. There is no significant relationship between the application of ICT and HODs managerial efficiency in the universities.

Literature Review

Information and Communication Technologies (ICTs) denote a wide range of services, applications, and technologies, using various type of equipment and software, often running over telecom networks (Heathcote, 2000). ICT integration into the educational system in Nigeria has witnessed huge attention as education had shifted from informal to formal process. This has strengthened and encouraged the adoption and utilization of ICT facilities in education including school administration and management.

Omotayo (2005) noted that many electronic based communication systems can be conveniently fit into the description of ICT. Information communication technologies (ICTs) are information handling tools that are used to produce, store, and process, distribute and exchange information between two or more individuals with the purpose of bringing about a change in behavior. In this context, ICT are tools that comprise electronic devices which are utilized for information and communication needs of institution, organization, students and individuals. Such electronic devices include computer (hardware and software), computer network, telephone, video machines, multimedia projectors, digital cameras and internet (Akawu, 2010). ICT provide a variety of tools to support and facilitate HODs professional competence. It transforms their various roles and makes them more efficient and effective, thereby

increasing their job productivity. ICT facilities for administration activities according to Vajargah and Jahani (2010) include:

- Computer: computers are known to have changed how information is obtained, produced, managed and distributed
- Telecommunication (Telephones- fixed and mobile, and fax): A technology that is spreading faster than the internet is Global System for Mobile Communication.
- Integrated Computer Supported Technology (ICTS-Internet service and E-mail): These have revolutionized communications and information access in the developing world.

Academic heads of departments in the university need to be able to exploit the potential of ICT to meet their managerial roles and objectives. Universities must not only equip themselves with ICT facilities for teach-learning processes but also for managerial processes especially at the academic departmental level. The academic departments has direct relationship with both lecturers and students more than the wide gap existing between them and the faculties and vice-chancellors' office. Onyeneke (2007) posited that the current shift from the age-long conventional means of providing managerial services to technological approaches necessitated by advancements in computer technology, telecommunication system and the integration of both have given rise to a new digital paradigm known as Information and Communication Technology. Acknowledging this opinion, Devon (2004) pointed out that in respect to managerial activities, there are various types of information systems that are available for making informed decisions at all levels in order to improve efficiency of operations. It is noted that if ICT facilities like word processors, electronic databases, e-mail and management information systems are put in place, they can result in more efficient communications and reduction of workload of the academic management (Sibangani, 2006).

In addition, McGorry (2002) stated that Computer Management Instruction (CMI) is also used for record management, data generation and modification in software production and applications as database. The findings of Alabi (2010) showed that Nigerian universities lack adequate equipment for MIS operations (especially electronic equipment). The available MIS equipment was not utilized according to the prescribed roles of lecturers and senior administrative staff in the universities. According to Agyeman and Dadzie (2010), only few universities have achieved a better ratio in terms of provision of ICT facilities for their staff. He pointed out however that some universities have made giant strides in campus-wide area networking. Despite the obvious and enormous advantages that comes with using ICT in teaching and learning as well in management. Mbodila, Jones and Muhandji (2013) observed with great concern that several higher educational institutions are finding it difficult to provide the facilities.

Okon and Jacob (2002) found that ICT utilization in some selected university especially the use of computer was mostly for statistical analysis than for management of resources and records. This implies that though ICT application was found to have existed in universities, it has greater application and benefit to other areas especially research and teaching more than management. Hence the adequacy of ICT facilities for managerial purposes needs attention. Igbineweka and Ahmed (2014) examined the usability rate of the ICT for teaching and administration amongst Nigerian university lecturers. The data analysed using descriptive statistics revealed that one out of every 54 lecturers or only 1.85% of Nigerian university lecturers use the ICT for teaching and administration. The result also shows lack of significant difference in the frequency of usage amongst different categories of lecturers. In the same vein, Jegede, Dibu-Ojerinde and Ilori (2007) study investigates the relationship between ICT competence and attitude as well as attitudinal constructs of lecturers and HODs, and found out that the extent to which university administrators integrate ICT in their job depends on their knowledge and competence. Furthermore,

administrators' ability and willingness to apply ICT in their job will largely be dependent on the professional training and development which they receive (Watson, 2001).

Iperen (2006) explored the effect of HODs' beliefs and attitudes towards the use of ICT in administration. An observation method was used to collect data on HODs' beliefs and attitudes. The study revealed that there was inconsistency between HODs' beliefs and their actual use of technology in administration. Similarly, Simonson (2004) used a quantitative study to explore the beliefs of HODs in application of ICT in administrative process. The result indicated that HODs beliefs and attitudes were related to their use of technology. Also, Imalleson (2015) conducted a study about factors which influence the innovative use of ICT by academic heads of departments in Holland. A sample of 59 HODs was used for the study. Findings of the study showed that orientation, attitude towards computers, computer experience, and accessibility to ICT facilities have direct positive influence on the innovative use of ICT by heads of departments.

Buabeng-Andoh (2012) study was conducted to explore HODs' skills, perceptions, and practices about ICT in university institutions in Ghana. The correlation analysis showed positive correlation between ICT use and HODs' competences. Further, HODs' perceptions in terms of using ICT were found to be positive but not statistically significant. Finally, the study revealed inverse correlations among ICT use, age, and teaching experience. The descriptive results indicated that HODs' knowledge in basic ICT applications as well as integrating ICT into administration processes was low. Similarly, Egomo, Enyi and Tah (2012) study accessed availability and degree of utilization of ICT tools for effective instructional delivery and administration in tertiary institutions in Cross River State. The results obtained revealed that availability and utilization of ICT tools for effective instructional delivery and administration is significantly low. Cyber Cafes, internet connectivity and use of lap tops is a common phenomenon among institutions and lecturers.

Mason (2000) suggested that Heads of Departments may keep their activity information in a number of locations: On their computer; in piles on their office floor; in file cabinets, either in the office or at home; or exclusively in their head. The use of the computer however was suggested to be a safe and quick way to retrieve information. This is very essential for data management. Universities cannot respond to externally imposed mandates for accountability of such things as student learning outcomes assessment without the support and leadership of Departments Heads (Ojo, 2006). Heads of Departments are the primary interpreter of externally imposed mandates for the faculty, and the tone with which the HODs present those initiative influences faculty response. Today, the central administration needs cooperation and effective leadership at the department headship level more than ever in order to implement change and assure program quality. At the same time, HODs are the primary source of information about specific programs and daily operations.

Departments' heads, however, are more than agents of the central administration (Ojo, 2006). They are also the primary spokespersons and advocates for the academic department. In this role, chairs are the guarantors of department quality. In fact, chairs are the only delegated responsibilities that allow for a direct influence on program quality. Furthermore, HODs are the only administrators with the requisite discipline training and vantage point needed to assess program quality and identify areas of needed change. As front-line managers, HODs are both the chief advocate for the department and the primary agents of the central administration. HODs champion the resource needs of the department and ensure the effective use of current resources. According to Ojo (2006), they promote the quality of the departments' programs while they remain alert to the need for curricular revision.

Specifically, the roles of the HODs include the following

- Heads of Department are appointed by the Vice Chancellor and are responsible to the Vice Chancellor through the Dean of their School, for the management of their Department within organizational, policy and strategic framework established by the University;
- The prime role of Head of Department is to provide academic leadership and management to facilitate a collegial, productive and safe working environment in the Department, the School and the University.

Generally, the HODs are responsible for the following:

i. Guidance and facilitation of the research; undergraduate and postgraduate teaching, and, continuing education and outreach activities of the Department;
ii. Governance of the department and the establishment and development of its strategic direction;
iii. Guidance and development of staff and the management of personnel-related issues in the department;
iv. Oversee and guide the academic development of students;
v. Management of department finances and infrastructure through effective budgeting and expenditure control;
vi. Exercise duty of care for staff, students and visitors to the department;
vii. Ensure fair and equitable treatment of all staff and students;
viii. Exercise appropriate leadership and management of the department with due regard to the strategic and operational plans of the university;:
ix. Ensuring that collegiality is exercised in the management of the department and in interaction with the broader University; and
x. Ensuring that legitimate academic freedom is protected.

The potential benefit of integrating and utilizing ICT in educational management and administration in academic department in the universities can be significant, if implemented successfully. It can help to streamline operation, control the rising cost of administrative support, enhance internal and external communication, enhance research work, leverage the limited human resources, increase productivity of lecturers/Heads of Departments, reach out to students and respond to the need of the institution and individuals for lifelong development (Johnson, 2007).The role played by ICT in aiding managerial work to support decision-making particularly in the education sector cannot be ignored, considering the fact that education sector operations rely substantially on management information systems. Most universities in the past operate manual system of information processing and storage, and this is associated with problems of data inaccuracy.

In recent times, academic departments in the universities without any doubt require administrators or leaders (HODs) who can get at, interpret appropriately and favourably disposed to the knowledge of ICT so as to ensure their effective job performance. Management efficiency is the control of the output or productivity levels. Every organization desires to have optimal productivity and thus require management efficiency. The HODs as managers at the university department seek to achieve optimum result with little resources in a record time. Management Information System (MIS) is a new innovation for managers for maintaining up-to-date information (Bello, 2008).The adoption, utilization and perceived impact of ICT in education are no issue of debate as education like other sectors has benefited immensely from ICT. The growth of ICT integration in education has been considered as a springboard for sustainable development. Yusuf (2005) opined that ICT can assist in the organization and structure of administration in the universities and thereby promoting rethinking and innovative ways of achieving educational goals and objectives.

Methoology

The design used for this study was the descriptive survey research design and the population of the study comprised 137 Academic Heads of Departments in the two conventional government owned universities in Lagos State. All the 137 heads of departments in the two universities formed the participants for the study. A total of 128 participants who returned their questionnaire formed the sample for the study. The research instrument entitled:"Information and Communication Technology and Managerial Efficiency Questionnaire" (ICTMEQ) was designed by the researchers and used for data collection. The questionnaire has two sections, A and B. Section A dealt with the demographic characteristics of the respondents while Section B focused on the variables under study. The questionnaire was validated and subjected to reliability test which yielded a reliability coefficient of 0.73.

Data collected were analysed using both descriptive (frequency counts and percentage) and inferential statistics. Frequency counts and percentage were used to answer the research questions while Chi-square and Pearson Product Moment Correlation statistical tools were used to test the hypotheses at 0.05 level of significance. The four point response scale of very high extent, high extent, low extent and very low extent were collapsed into two that is, high extent and low extent for purpose of concise analysis of data.

Results

Research Question One: To what extent are the ICT facilities provided for Heads of Departments in the universities adequate?

Table 1: Adequacy of ICT Facilities Provided for Heads of Departments in Univerisities

S/N	Item	High Extent	Low Extent
1	Computers and laptops are adequately provided for administrative use in my department.	124 (96.9)	4 (3.1)
2	Computer software (Microsoft word, excel access) are adequately installed in the computers in my departments.	126 (98.4)	2 (1.6)
3	There are no reliable internet services in my department.	50 (39.1)	78 (60.9)
4	Hardware facilities (printer, scanner, and photocopier) are available in right quantity in my department.	124 (96.9)	2 (3.1)
5	Multimedia projectors are adequately provided for official presentation.	120 (98.8)	8 (6.2)

*(Figures in parentheses represent percentages)

The result on Table 1 shows the extent of adequacy of ICT facilities for HODs' use in universities. Itshows that 124 (96.9%) of the participants agreed that to a high extent that computers were adequately provided for administrative usein their departments while only 3.1% supported that computers and laptops were not adequately provided. In term of computer software (Microsoft Word, Excel Access),126 (98.4%) of the participants agreed that they were adequately installed in the departments. Also, 50 (39.1%) of the participants indicated that internet services were not reliable in the department while 78 (60.9%) agreed that there was a reliable internet facilitates in their respective offices for effective managerial functions. Furthermore, majority of the participants, that is, 96.9%agreed that hardware facilities (printer, Scanner, photocopier, laptops) were to a high extent providedfor administrative use of the HODs. Similarly, 120 (98.9%) of the participants indicatedthere were adequate number of projectors for official presentation. The summary of the findings on Table 1 shows that in the universities under study, ICT facilities were adequately provided except in the case of internet services.

Research Question Two: To what extent do Heads of Departments apply ICT in their official duties?

Table 2: Application of ICT by Heads of Departments in the Universities

S/N	Item	High Extent	Low Extent
6	I use computer software such as Microsoft excel in the compilation of students' results and staff activities.	126 (98.4)	2 (1.6)
7	I utilize Microsoft word in writing my report.	122 (95.3)	6 (4.7)
8	My presentations are prepared in Microsoft power point.	120 (83.7)	8 (6.3)
9	Emails and text messaging are often used to communicate to staff and students	114 (89)	14 (11)
10	I use the computers to keep records of students and staff in my department.	120 (83.7)	8 (6.3)
11	I save and back up my data for security purpose and retrieve to make decisions.	124 (96.9)	4 (3.1)
12	I surf the internet for important information that will enhance my role as the HOD	118 (92.2)	10 (7.8)
13	In some cases, I adopt teleconference in some of my meetings to accommodate staffs that are not available	30 (23.5)	98 (76.5)
14	I often have to convert my work to adobe pager to reduce chances of contacting virus	40 (31.3)	88 (68.7)
15	I use the multimedia projector for my presentations at meetings	122 (95.3)	6 (4.7%)

*(Figures in parentheses represent percentages)

Table 2 shows the ICT applicability of HODs in universities in Lagos State. The result from the table indicated that on all the items, majority of the participants agreed that to a high extent, HODs apply ICT facilities provided in their departments for their various managerial activities.However, items 13 and 14 recorded low extent. This implies that HODs do not use teleconferencing during meetings when necessary and high applicability of ICT like conversions from word to Adobe and desktop were not part of the activities engaged in.

Hypothesis 1: Adequacy of ICT facilities does not significantly influence HODs' managerial efficiency in the universities.

Table 3: Adequacy of ICT Facilities and Managerial Efficiency of HODs in the Universities

Variable	N	df	χ^2cal	χ^2tab	Decision
Adequacy of ICT facilities and HOD management efficiency	128	12	52.14	21.03	$H_0$1 Rejected

P< 0.05

Table 3 shows that the calculated value of 52.14 was greater than the critical value of 21.03 at 0.05 level of significance with 12 degrees of freedom. Therefore, the hypothesis was rejected. This shows that adequacy of ICT facilities significantly influences HODs' managerial efficiency in the universities.

Hypothesis 2: There is no significant relationship between application of ICT and HODs' managerial efficiency in the universities

Table 4: Relationship between Application of ICT and HODs' ManagerialEfficiency in the Universities

Variables	$\bar{X}$	SD	N	df	r-cal	r-crit	Decision
Application of ICT	19.53	3.27					$H_0$2 Rejected
HODs' management efficiency	21.18	2.49	128	126	0.67	0.195	

P<0.05

Table 4 shows that the value of r-calculated (r-cal=0.67) is significantly greater than the value of r-critical (r-crit=0.195) given 126 degrees of freedom at 0.05 level of significance. Therefore, this hypothesis was rejected. Thus, it could be deduced that there was a significant relationship between application of ICT and HODs' managerial efficiency in the universities.

Discussion of Findings

The emergence of computer system and other ICT tools has brought revolution among various aspects of human endeavor including managerial efficiency. Thus this study examined the influence of ICT on managerial efficiency of academic heads of departments in some selected public universities in Lagos State.

The result from hypothesis one showed a significant influence of adequacy of ICT facilities on HODs managerial efficiency in the universities. This result corroboratesthe findings of Imalleson (2015) which attributed the good managerial efficiency recorded in some Nigerian Universities today to the ability of the university to integrate ICT tools in its management process. The volume of the records to be kept and retrieved makes the use of ICT an obvious application to opt for. The complexity of the management process and the administration of education in particular have made the computerization of some aspects of management such as record keeping a necessity. Iperen (2006) observed that the HODs' roles have become increasingly complex. Head of departments are expected to play a large role in instructional leadership, be supportive and transformational in their leadership functions with students, staff and parents. The HODs should be able to gather data from several sources through the use of ICT, analyse them, select them and organise them in such manner that would allow the management make decisions based on the organised data. This finding is also in tandem with Okon and Jacob (2002) which reported that availability of ICT and ability to use in accessing and sharing information stimulate creation of new ideas and enhance good management

Similarly, the result of hypothesis two showed a significant relationship between application of ICT facilities and managerial efficiency. This finding agreedwith the earlier position of Bello (2008) who blamed poor managerial efficiency of some university administrators on the inability to adopt ICT tools. According to him, it was obvious that there was poor or little acquisition and use of ICT facilities at this level of our educational system. Most institutions, especially at departmental levels do not have the necessary ICT facilities for managerial functions, instructions and research which have affected the management capacity of the concerned institutions. Regardless of the level of availability, the head of departments must use ICT tools for effective delivery of all departmental activities.This finding is also buttressed by Mbodila, Jones and Muhandji (2013) who submitted that the use of Information Technology provided significant benefits in work measurement, cost reduction, productivity improvement and better services to customers and clients. Actually it is availability which makes applicability possible and which in turn makes performance attainable. So, the combined effect of availability of information and communication technologies can enhance the job performance of the academic Heads of Departments.

Recommendations

In line with the findings of the study, the following recommendations are made:
1. ICT tools should be made available by universities to academic head of departments to enhance their managerial capacity in their various departments.
2. The universities should enter into contracts with internet service providers so that they can have reliable and uninterrupted internet services in various departments.

3. The universities should upgrade their websites or launch a website which lecturers and students can use to disseminate or access information.
4. ICT Training centres should be built and adequately funded in alluniversities to help both the management staff and other members of staff meet the ICT capacity needs in order to enhance managerial efficiency and effectives among all staff of the university.
5. Academic Heads of departments should be adequately trained on the use of ICT before assuming the role of academic head of department.

Conclusion

Decision making is an integral part of the functioning of any organisation. To facilitate decision making in this ever-competitive world, it is imperative that HOD in Universities have the right information at the right time to bridge the gap between needs and expectations. To facilitate better flow of information, integration of ICT in all management process and decision making system is the need of the hour. Thus it is important for HODs to have proper understanding of the influence of information and communication technologies on managerial efficiency in order to take effective and efficient control of their departments.

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