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Adoption and use of Information and Communication

Technology (ICT) on Employee Performance in Gombe State University

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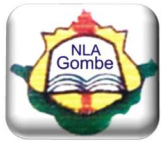
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ABSTRACT

This study aimed to investigate the adoption and use of information communication technology (ICT) on employee performance in Gombe state university. The specific objectives of the study were to: determine the type of Information Communications Technology used in Gombe State University, to determine the relationship between Information Communications Technology use and employee performance in Gombe State University and to identify the challenges of using Information Communications Technology in Gombe State University. Descriptive survey method was used for this study. Data were collected using a semi-structured (closed ended) Questionnaire. The population for this study comprised of the entire Gombe State University staff which was 2406 and a sample of 343 was chosen using purposive sampling technique and based on the Taro Yamane formula for determining sample size. 311 respondents responded to the study resulting in a response rate of 91.67 percent, which was considered as a sufficient representation of the university. The study found that Gombe State University had adopted and used ICT to a large extent and that ICT had a significant impact on employee performance. The study also confirmed that there exists a positive relationship between Information Communication Technology use and employee performance. This was evident in all the operations Information Communication Technology was used and service delivery. From the findings, the study recommends that universities should improve on the deployment and Utilization of current ICTs and automate all critical administrative and academic processes to achieve higher efficiency in the university. Universities should also build in house capacity to handle ICT systems policies and procedures that attempt to retain ICT staff and develop backup plans for the erratic electricity supply.

Keywords: Adoption, Use, ICT, Employee Performance, Gombe State University



Introduction

Since the early years of the 20th century, the world has been experiencing a revolution known as information and communication technology. It can be conveniently said that ICT is one of the most fascinating development since the industrial revolution. This ICT development is changing our daily lives at home and at work, in shops and banks, in schools, colleges and universities. Information and communications technology (ICT) has revolutionized the way people live, learn, work and interact. Tambe and Htt (2014) stated that ICT is a mechanism used by companies to look for innovative ways of operating and relay information to achieve economic gains. According to Abou-Moghli, Abdallahand Ayed (2012), information and communication technology is a multimedia technologies comprising of internet, software, hardware, computer, television, telephone, email, satellite, blogs, and internetworking projects. Kushwaha (2011) defines ICT as technologies and tools that people use to share, distribute, and gather information to communicate with one another, one on one, or in groups, through the use of computers and interconnected networks.

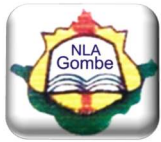
Today, the world has become a global village with the internet, mobile phones and satellite networks shrinking time and space, bringing together computers and communications; resulting in new ways of communication, processing, storing and distributing enormous amounts of information (UNDP, 2001). Advancement in chip, satellite, radio, and optical fiber technology have enabled millions of people around the world to connect electronically regardless of national national boundaries. From the foregoing, the researcher

However, the universities has long identified the impact of ICTs in achieving their missions and visions ranging from administrative to academic activities of the institutions. Despite the recognition of the influence of ICTs their efforts are being affected by dwindling funds by government who established the schools this was reinforced by Mukangu and Ndungu (2016) who assert that use of information and communication technology (ICT) has enabled organizations increase productivity, operational efficiency, reduce cost, improve inventory management. Based on the

Concept and significance of Information Communications Technology

Communities live these days in the age of information revolution, where Information and Communication Technology (ICT) plays an important role in supporting the growth and development of organizations. Information Communication Technology has become a close link in the evolution of societies which are considered as essential engine for the revolution. Adopting and using ICT can also be said to be one of the important ways to change the developing societies to more developed sophisticated societies.

There are many definitions for information technology in the theoretical literature. Laudon and Laudon (2007) defined information technology as the technical infrastructure which includes computers, operating systems and networking technology, databases, and others. Byrd et al. (2008) added so human element thus information technology concept includes both human and technical elements.



As defined by Idris (2005) as 'those tools that are used to build information systems that the cooperate management on using information to support their decisions making, and organization operational processes. ICT includes technical programs, software, databases, and networking between many computers and other related items. Oywole (2008) defined ICT as 'a form of technology used to create, store, Exchange, and use information in various forms, business data, voice conversations, animation, multimedia presentations, and other formats. Laudon and Laudon (2007) defined information technology as the technical infrastructure which includes computers, operating systems and networking technology, databases, and others.

However, Information Communication Technology is one of the most important developments over the past decades, it has become a necessity for development in various kinds of life, as an essential tool for economic, social and cognitive development and change, And has become one of the most important tools in developing services, production process, cost reduction and quality improvement, information technology is used in the organizations to improve their performance, streamline the decision making process, to achieve the employees satisfaction (Al-Hawary & Ismael, 2010), and the development of committed staff and Organization loyalty, and achieve competitive advantage. Organizations seeking to introduce modern information technology, and work to develop them, and train employees to use them (Algoere, 2004; AlHawary, 2015).

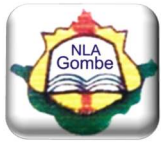
Concept of Employee's Performance

Idris and Al-Ghalibi (2009) defines performance as the 'outputs or objectives that the system seeks to achieve ~~them~~, which reflects both goals and means to achieve them ' performance as defined by Robbins and Wiersema (2005) as the use of the available human and material resources to achieve the organization's objectives, sustainability and maintain competitive advantage. Either Daft (2007) describes performance as individual's ability to achieve the organization's goals through optimal use of available resources in an efficient and effective manner.

Sultan (2004) defined performance as a net impact of individual efforts that start with abilities and recognize the role or functions, which indicates the degree of achievement and complete the task of individual job. Performance is an integrated system, represents individual performance and is a key element in IT, this is due to the fact that the human element is the active ingredient in performance because of its expertise and capacity to accomplish works (AlSaud, 2008).

The issue of employees performance has a prominent importance in the management process and their themes, It means paying managerial units to work fresh and active, making the administer attending subordinates duties and responsibilities continuously, Most notably: improve employee performance and development, adopting this calendar means to determine bonuses and increments, a tool to detect training needs, a way to judge the appropriateness of selection and recruitment policies, training, and objective basis for drawing these policies (AlHawary & Al-Menhaly, 2016), as well as organizations interested in performance because of items that assess and measure the performance of employees and their situation and problems, It is also to assess their effectiveness in implementing the Organizational goals and objectives.

Challenges Associated with the Adoption and Use of Information and Communications Technology



The major challenges militating against the adoption and use of ICTs in the University under study are : Electricity problem, Resistance to Change, Funding and Leadership challenge among others. For an organization to flourish there is need to adopt change (Gollapudi, Jangeti and Kotapati, 2012, Agboola, 2011) Gaining acceptance at the staff level can become a bottle neck especially if new technology is difficult to manage. Nandi (2012) indicated that adopting new technology can be intimidating for employees' who are satisfied with the norm as adopting new technology can mean an over haul of the responsibilities, leading to added work load, and training needs.

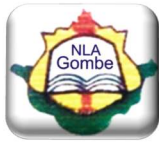
In terms of Leadership challenge, Researchers such as Ibironke, Ekundayo and Awodele, 2011)who have examined the ICT adoption barriers from state such as Nigeria, Malaysia and India are among other countries who have emphasized leadership (top management/CEOs) ineffectiveness as the major constrain to successful ICT adoption. According to Oyediran and Kalu (2009), the failures are as a result of negative managerial attitude, lack of knowledge among employees and lack of upper management support. Consequently, the decision employed by the organization to adopt advanced ICT-based applications successfully is dependent on leadership characteristics within that organization (Goedhuys and Veugelers, 2012).

Funding is any a major challenge in educational institutions and once an institution wants to embark on deploying a technology change, a great deal of thought and priority must be erected into implementation of that change. Successful implementation of technology change requires resources in order to develop a detailed plan to foster the implementation over time (Edmonds, 2011, Luo, 2006). Therefore adoption can be expected to be dependent on cost of a technology and on whether organizations have the required resources. Therefore with the downward educational budgets observed in government allocations the universities should devise other means of raising funds to bridge the gap and purchase high quality ICT facilities. Similarly, power supply in Nigeria is a problem in all states of the federation and this will affect the use of the ICTs.

Statement of the Problem

As organizations grow and change, they depend more and more on information technology for their survival. Educational institutions today implement and use information and communication technology to improve management decision-making, enhance productivity and quality, and compete with other sister institutions nationally and globally. This is also done in order to connect the various administrative and academic functions with each other and to eliminate duplication and reduce errors and effort by employees, which contributes to increased productivity and lead to better administrative decisions, and more efficient processes which improves the performance of employees.

From inception of the University to date there was tremendous growth in the number of technological devices used by employees at Gombe State University through the university's investments on ICT infrastructure and assistance received from donor agencies. Therefore, there was a need to find out if that was contributing positively to the employee performance hence the essence of the research. The justification for the embarking on the study is based on the anticipated changes in organizational performance which involve reduction in the duration taken in processing



critical administrative tasks and elimination of repetitive tasks resulting in higher productivity and efficiency as well as better and quality service delivery. The purpose of this study was to determine the types, level of ICT use at GSU as well as challenges faced in adoption and use and its relationship with employee performance. Therefore, this study tends to close the gap.

Research Objectives

The general objective of this study is to determine the the adoption and use of Information Communication Technology (ICT) on employee performance in Gombe State University. The specific objectives are as follows:

- i. To determine the type of ICTs adopted and used by employees of Gombe State University.
- ii. To determine the relationship between Information Communications Technology adoption and use on employee performance in Gombe State University.
- iii. To identify the challenges militating against the adoption and use of Information Communications Technology in Gombe State University.

Research Questions

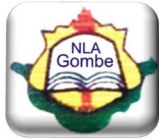
1. What are the types of Information Communications Technology adopted used in Gombe State University?
2. What is the relationship between Information Communications Technology adoption and use on employee performance in Gombe State University?
3. What are the challenges militating against the adopting and using Information Communications Technology in Gombe State University?

Significance of the Study

It is hoped that the management will use the findings as the base upon which to review employee performance and necessary improvements identified will be undertaken to enhance performance at the work place and increase operations efficiency. It is also hoped that the findings will also be used by human resource management to help in boosting employee performance.

In addition, this study will be important to universities in identifying unexploited advantages in data management and communication systems and tools, and determine areas of wastage on these resources, implement controls and thus save on costs. It is also hoped that the findings of this study will also be beneficial to organizations and institutions in developing strategies for adopting Information Communication Technology successfully and setting standards that should work towards improvement of service delivery. It will also extend the frontiers of knowledge in the field of Library and information science research especially in the aspect of ICT adoption and Use.

Methodology



This research adopted a descriptive survey design. Descriptive surveys are used to describe a behavior of a given subject. The impact of information technology on organizational performance was a cross-sectional study as ICT sought to describe data and characteristics about the population or phenomenon being studied and ICT used a quantitative research approach. The population was 2406 employees comprising of both academic and non-academic staff who work in Gombe State University, as permanent and pensionable staff. The study used purposive random sampling technique because it reduces bias and improves the representativeness of all groups. Purposive sampling was used to select the sample size of 343 staff using the Taro Yamane formula for determining sample size as shown below.

Where n = the sample size

$$n = \frac{N}{1 + N * (e)^2}$$

N = the population size

e = the sampling error at 0.05

$$n = \frac{2406}{1 + 2406 \times 0.05 \times 0.05}$$

$$n = \frac{2406}{1 + 6.015}$$

$$n = \frac{2406}{7.015}$$

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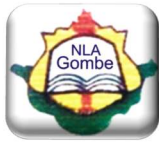
Therefore, the sample size is 343.

Distribution of sampled Respondents by Designation.

Designation	Frequency	Percentage
Heads of Departments and units/ Directors	21	6.12
Academic staff/Senior Management	28	8.16
Middle Management	70	20.41
Subordinates	224	65.31
Total	311	100

Method of Data Collection and Analysis

The study made use of questionnaire for data collection and was self-administered by the researchers because of its ease of administration and opportunity for clarifications by the researchers. The Questionnaire had two sections, the first part captured demographic information



of the respondents, while the second part entailed the use and impact of Information Communication Technology on employee performance as well as the challenges of adopting and using ICTs. Statistical package for social sciences (SPSS) version 23, was used for analysis using descriptive statistics like frequency distributions and percentages.

RESULT AND ANALYSIS

Response Rate

The study targeted the sample of 343 employees in Gombe State University respondents as stipulated by the Taro Yamane Formula for selecting sample size. Out of which 311 respondents responded to the study resulting in a response rate of 91 percent. This response rates was considered sufficient and representative and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50 percent is adequate for analysis and reporting; a rate of 60 percent is good and a response rate of 70 percent and over is excellent.

Distribution of returned Questionnaires by Designation of staff.

Designation	Frequency	Percentage
Heads of Departments and units/ Directors	12	3.85
Academic staff/Senior Management	18	5.79
Middle Management	62	19.94
Subordinates	219	70.42
Total	311	100

Background Information of the Respondents

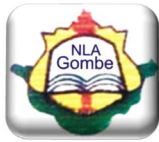
The study sought information on various aspects of respondents' background, i.e. the respondent's designation, highest level of education and the number of years they had worked in Gombe State University.

Highest Level of Qualification

The respondents based on the above rank were asked to indicate their highest level of qualification. Table 4.2 distribution of respondent's by highest level of qualification

Distribution of Respondent's by Highest Level of Qualification

Academic qualification	Frequency	Percentage
Secondary Education	12	4.02
Certificate/Diploma	57	18.3
Bachelor's Degree	173	55.36
Master's Degree	65	20.98



Doctorate	4	1.34
Total	311	100

As shown in Table 4.2, most of the respondent 76% were graduates; 55% were bachelor's degree holders and 20% were master's graduates. The rest of the respondents 18% were certificate or diploma holders. This implies that most of the respondents were educated and hence in a position to respond to the issues in the questionnaire.

Work Experience in Gombe State University

The respondents were asked to indicate the duration for which they had been working in Gombe State University. Findings are presented in Table 4.3.

Distribution of Respondent's by Work Experience in Gombe State University

Years of service	Frequency	Percentage
Less than 5 years	146	46.88
5 – 10 Years	103	33.04
11 – 15 Years	50	16.07
16 - 20 Years	12	4.02
Above 20 Years	0	0
Total	311	100

From the findings in Table 4.3, most of the respondent 46 percent had worked in Gombe State University for less than 5 years, 33 percent for 5 to 10 years, 16 percent for 11-15 years, while 4 percent had been working in Gombe State University for 16-20 years. Thus, Most of the respondents had the experience to respond to the issues in the questionnaire.

Distribution of Respondents by Gender

The respondents were asked to indicate the gender and the findings are presented in Table 4.4.

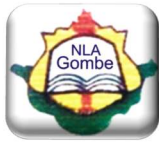
Table Distribution of Respondents by Gender

Gender	Frequency	Percentage
Male	152	48.21
Females	159	51.79
Total	311	100

From Table above ICT is evident that majority of the respondents who participated in the study were females represented at 52 percent while males were 48 percent.

Distribution of Respondents by Age

The respondents were asked to indicate their age. This was for general information and was not a direct objective of the study. Findings are presented in Table below



Distribution of Respondents by Age

Respondents Age	Frequency	Percentage
Below 20 years	3	1.34
21 – 30 Years	116	36.61
31 – 40 Years	137	44.2
41 - 50 Years	43	13.84
Above 50 Years	12	4.02
Total	311	100

From Table above majority of the respondents were aged between 31-40 years with 44 percent and 21-30 years 37 percent. The findings in Table 4.5 further revealed the rest were aged between 41-50 years 13 percent and above 50 years 4 percent.

Type of ICTs adopted and used in by employees of Gombe State University.

The study sought to find out the various ICT devices that the respondents had at their disposal to perform their tasks and also the extent to which they used the various ICT devices and systems.

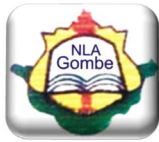
Devices	Frequency	Percentage
Mobile Phone	158	51.00
Desktop Computer	171	55.00
Laptop	202	65.00
Ipad or Tablet	77	25.00
Others	12	4.00

Table above shows the types of ICT device(s) adopted and used by the respondents. From the result 202 respondents representing 65 percent had Laptops, 55 percent had desktop computers at their disposal to enable them perform their duties. Respondents that used Mobile Phone are 158 (51 percent) and iPad or tablet (25 percent) of employees have it at their disposal to enable them to perform their duties in Gombe State University. Other ICTs not mention had 4 percents. This shows that employees sampled in GSU are using ICTs maximally.

Relationship Between ICT adoption and used on Employee Performance

Impact of ICT in Gombe State University Employees' Performance in Service Delivery

Service Delivery Aspect	Mean	SD
Use of ICT has facilitated quality service delivery to Gombe State University staff.	4.12	0.612
Use of ICT has facilitated better communication with its beneficiaries and partners in service delivery.	4.11	0.611
Use of ICT has improved planning and execution activities of projects.	4.13	0.600
Use of social media has helped Gombe State University reach its beneficiaries and also collaborate with their partners.	4.02	0.729
Average	4.09	



Results in the Table above show that the respondents agreed that the use of ICT had facilitated better service delivery with an average mean of 4.09/5. The respondents agreed that use of ICT facilitated quality service delivery; mean of 4.12/5, facilitated better communication with its beneficiaries and partners in service delivery; mean 4.11/5, improved planning and execution of project activities; mean 4.13/5, and helped Gombe State University reach its beneficiaries and improved collaboration; mean 4.02/5.

Challenges of adopting and using Information and Communications Technology in GSU

The last objective of the study was to establish challenges of adopting and using information and communications technology. The study used a five point Likert scale where; 1 = no extent, (2), little extent (3), moderate extent (4), large extent (5) to a very large extent.

Electricity problem

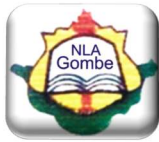
Variable	Frequency	Percentage
No extent	0	0
Little extent	25	8
Moderate extent	59	19
Large extent	68	22
Very large extent	149	48
Missing	9	3
Total	311	100

The section sought to establish if electricity problem have affected adoption and use of ICTs in the University. It was revealed that 48% of the participants stated that at a very large extent electricity problem have affected adoption of ICT in the University, 19% indicated that at a moderate extent electricity problem have affected adoption of technology in the organization, 8% indicated that at a little extent leadership characteristics have affected adoption of technology in the organization, 22% indicated that at a large extent electricity problem have affected adoption of technology in the organization, and 3% never responded. On the other hand none of the respondents indicated no extent on electricity problem

Resistance to Change

Resistance to change

Variable	Frequency	Percentage
No extent	100	32
Little extent	50	16
Moderate extent	41	13
Large extent	65	21
Very large extent	44	14
Missing	12	4
Total	311	100



The study sought to determine if resistance to Change has kept employees from adopting and using ICTs to the fullest extent. It was established that 100 respondents (32%) of the participants indicated that at no extent does resistance to Change has kept employees from using it to the fullest extent, 41 respondents (13%) indicated that at a moderate extent resistance to Change has kept employees from using it to the fullest extent, 65 respondents representing 21% indicated that at a large extent resistance to Change has kept employees from using it to the fullest extent, 14% stated that at a very large extent resistance to Change has kept employees from using it to the fullest extent, 50 (16%) indicated that at a little extent resistance to Change has kept employees from using it to the fullest extent, and 4% never responded.

Leadership Characteristics

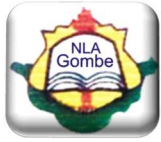
Variable	Frequency	Percentage
No extent	78	25
Little extent	22	7
Moderate extent	59	19
Large extent	50	21
Very large extent	78	25
Missing	9	3
Total	311	100

The table above sought to determine if leadership has influenced adoption and use of ICTs in GSU. Findings showed that 78 respondents (25%) of the participants indicated that at no extent does leadership influenced adoption and use of ICTs, 78 respondents (25%) also indicated that at a very large extent leadership has influenced adoption and use of ICTs, 19% indicated that at a moderate extent, while 21% indicated that at a large extent leadership influenced adoption and use of ICTs 7% stated that at a little extent and 3% never responded as shown in Table above.

Lack of Fund

Variable	Frequency	Percentage
No extent	9	3
Little extent	25	8
Moderate extent	65	21
Large extent	50	16
Very large extent	153	49
Missing	9	3
Total	311	100

The study sought to establish if lack of fund influences adoption and use of ICTs. It was established that 3% of the participants stated that at no extent does lack of fund or financial resources influences adoption and use ICTs, 16% stated that at a large extent, 8% indicated that at a little extent, 49% indicated that at a very large extent lack of financial resources influences adoption of technology, 21% indicated that it is at a moderate extent and 3% never responded.



Conclusion

The study found that, Gombe State University had adopted and used ICT to a large extent, which include but not limited to Mobile Phone; Desktop Computer, Laptop, Ipad or Tablet and Ipad or Tablet. On the second objective it is found out that ICT had a significant impact on employee performance. Some of the ways in which the adoption and use of ICT had an impact on employee performance include; improved academic activities, improved productivity of employees and increased flexibility in majority of university functions. Gombe State University was also able to achieve, monitor and evaluate its organizational targets accurately, enhanced service delivery standards. The study confirmed that there exists a positive relationship between Information Communication Technology use on employee performance. On the other hand the issue of electricity, resistance to change, funding and leadership problem are confirmed by the respondents as the major challenges militating against the adoption and use of ICTs in Gombe state University.

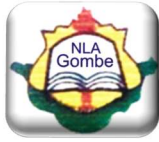
Recommendations

From the findings the study recommends the following:

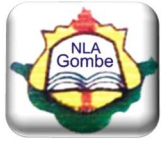
- i. That universities should continue deploying and using modern and user friendly ICT tools and services so as to have competitive edge and improve service delivery
- ii. As the success of Gombe State University will be facilitated by ICT use as it offers a suitable administrative, teaching and learning experience. The university should have more ICT enabled services by automating all critical processes to achieve higher efficiency, reliability and control in the University. Universities should also build in house capacity to handle ICT systems
- iii. Employees should be encouraged to embrace change. The university should develop mechanism that will enable them introduce and control resistance to change. In addition, the University should also ensure that it offers training that will enable employees increase their knowledge and skills, thus, knowing the importance of using the new technology. Transformational leadership should be encouraged during selection of leaders so that good policies and procedures that attempt to retrain resistant to change employees should put in place. Provision of backup plans for the erratic and insufficient power supply by purchasing standby generators. While .

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