UNIVERSITY OF CAPE COAST

STAFFS' UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY FACILITIES IN THE UNIVERSITY OF CAPE COAST

DAVID LARBI

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UNIVERSITY OF CAPE COAST

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TECHNOLOGY (ICT) FACILITIES IN THE UNIVERSITY OF CAPE COAST
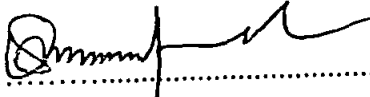
By

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Education

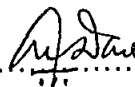APRIL 2008

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work, except for references, and quotations which have been duly acknowledged and that no part of it has been presented for another degree in this University or elsewhere.

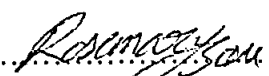Candidate's Signature.. Date.7.-04-.2008

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Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature................................... Date.11-06-08

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ABSTRACT

The study investigated the types of application programs, other ICT facilities and their accessories used by the staff in their work. The study also covered location of ICT facilities; the capacity of the staff to use ICT facilities; their level of knowledge in relation to the use of the ICT facilities; frequency of staff use of computers and other ICT facilities in their work; staff awareness of committees, sections and units that cater for ICT needs of the University; and finally the challenges or constraints faced by the staff in using the ICT facilities available to them. Data were collected, using a questionnaire, from 365 respondents, made up of 180 academic senior members and, 22 non-academic senior members and 163 non-technical senior staff.

The main findings from the study were that; the staff of the University of Cape Coast had accepted to use the ICT facilities for their activities but computer use was on the low side. The staff had access to the available facilities either in their offices or other points in the University. The most commonly used computer brand was DELL with the most frequently used software being MS Word. The E-mail was the most popularly used facility on the internet. The ages of the respondents had no association with their level of ICT use.

The study recommends that the University should ensure that; all departments, sections and units are provided with computers and their accessories and an alternative source of power when the national grid fails; the internet and intranet connections should be made more reliable and stable at an appreciable speed to eliminate the frustrations that staff face in using the facility, and academic senior members should be encouraged to deliver lectures using PowerPoint.

ACKNOWLEDGEMENTS

DEDICATION

This work is dedicated to my mother, Miss Christiana Perpetual Fianko.

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CHAPTER ONE

INTRODUCTION

Background to the Study

In the early days of computers, visionaries foresaw offices and factories humming with self-propelled robots. But today, a more likely vision has firms humming with communicating employees. Many large organisations have installed a complex network of computer-based telephone, facsimile, printing, voicemail, email and even video conferencing technologies. These technologies increase the potential of communicating in the organisation. The technologies reduce the cost and unreliability of relaying orders and management also uses them to tighten controls (Casson, 1994; Sproull & Kiesler, 1991). In this view, communication technology is used to foster collaboration and information sharing in the organisation which means that, the employees communicate in order to solve problems and exchange know-how. All these are occurring because of the increasing rapidity in communication and technological developments which make information readily available regardless of the geographical location. There is every indication that the introduction of information and communication technology (ICT) has changed the way people conduct and do business and even how to live. ICT has been described as the most powerful and most flexible technology ever developed. It is a critical tool that enhances communication and work processes in today's world. The world of information technology (IT) has changed very fast over the years, especially

in the area of Internet that is the vehicle for conveying messages across borders. Information from the Internet can take on a dynamic quality as it is created, consumed, shared and changed depending on the individual accessing the information. The internet which is the platform on which most information is accessed was evolved from a research conducted by the US Defence Department.

ICT refers to technologies that merge computers with high-speed communication links carrying data, sound and video (Williams, Sawyer & Hutchinson, 1999). This includes telephone, cellular technologies, computers, telefax, electronic-mail (E-mail) and the internet. There is no universally accepted definition of ICT. A good way to think about ICT is to consider all the uses of digital technology that already exist to help individuals, businesses and organizations to use information. ICT covers any products that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, for example, personal computers, digital television, email, robots, scanners, digital cameras, overhead projectors and telejectors. So ICT is basically concerned with the **storage, retrieval, manipulation, transmission or receipt** of digital data. More importantly, it is also concerned with the way these different uses can work with each other.

The internet is the most accessed facility when it comes to ICT use in organisations. Its use dates back to the cold war days by the United States of America Defence Department. This was done to network computers to facilitate the flow and store of information needed for its operations. The Defence

Department undertook this research projects agency network (ARPANET) whereby four mainframe computers were connected to enable people send pockets of information across the United States travelling along several of routes to reach their intended destinations. The system grew to cover University researchers, research organizations and students who use these networks to share information in many forms (Universal Almanac, 1996). The use of the internet did spread widely in 1990s when the US National Science Foundation created an equipment that caused all other computer networks to be connected to the government network and this made it impossible to estimate number of people who use the system worldwide. This is what has become the electronic superhighway way, by which information can be carried or conveyed from one place to another just as goods are transported on road and highways. The electronic superhighway facilitates all kinds of data transfers, nationally or informational at a high speed and at a relatively low cost. It is common knowledge that most people depended on the internet, for instance, such things as shopping, communication between relatives, friends and business associates, research, entertainment, payment of bills, checking bank account balances, distance learning and news. The business world has relied heavily on the internet for most of their activities; this is shown in their communication with their suppliers, customers, service providers, employees and the general public. The ICT has transformed the way things are done in the world of business.

ICT has also transformed the society in a great way. This is seen in the area of communication; that is, electronic transfer of data. This transformation

has occurred in three ways namely; better communication channels; the use of networks; and the new sending and receiving devices such as cellular phones and fax machines. Computers have gone through great transformation from big, slow, and very expensive to small, fast and less expensive computers. ICT therefore covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. ICT has to do with the storage, retrieval, manipulation, transmission or receipt of digital data and how different users can work with each other using the data. This allows people and organisations to communicate and share information digitally instantly.

The trends in ICT involve connectivity and interactivity. The connectivity provides the benefits of voice mail, e-mail, telecommunicating, video conferencing, internet, tele-shopping, databases, online services and networks. The interactivity provides multimedia computers and personal digital assistants (PDAs).

The Internet, electronic commerce and web applications are interacted concepts in ICT. The Internet is the networking of computers to each other. Based on this, the user can access information and other services with their Internet address and connection. According to Liu and Arnett (2000), electronic commerce is a way of conducting business by companies and customers performing electronic transactions through computer networks.

The Internet is gradually becoming more accessible and less expensive than it used to be. The use of the facility is increasing every week. As at September 2000, only 605.60 million people were connected to the Internet

worldwide. Taking the world human population of six billion into consideration, 90% of the population is not connected to the Internet. Most of these wired areas are found in the developed world. Nua Internet Survey (2000) indicated that only 6.3 million are online in Africa, representing approximately 1% of the world's population. (Table 1)

Table 1

Number of people Online by Regions

Regions	Number Online
Africa	6.31million
Asia/Pacific	187.24 million
Europe	190.91 million
Middle East	5.12 million
Canada/USA	182.67 million
Latin America	33.35 million
World Total	605.60 million

Source: Nua Internet Survey (2002)

Thus, the impact of non-use of the Internet may well dominate in developing countries and in Africa in particular. There are great benefits from the Internet to the developing countries if these countries make it the centre stage in their socio-economic development. ICT infrastructure development is making a headway. The Government of Ghana and other interested agencies have made several initiatives over the years to develop ICT infrastructure in order to bridge the gap between Ghana and the developed world. In terms of the

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digital divide, the most significant infrastructure is the development of the National Fibre Optics (VoltaCom) by the Volta River Authority (VRA). The other massive investments in ICT infrastructure are provided by the country's Internet Services Providers (ISPs) and the telecommunication companies. It was only Ghana that could boast of full Internet connectivity in the Sub-Sahara Africa in 1995 (Sulberger, 2001). For some time now, the number of Internet users have increased in spite of the high cost of usage.

Businesses use the Internet not only as a valuable marketing tool in providing a lower cost medium for advertising and promotion but also as a channel of communication to generate sales. Education being the sector that takes the biggest share of the nation's annual budget cannot be left out in the use the ICT facilities and its subsequent development to ensure effectiveness and efficiency. When it comes to the ICT, most issues are conducted or treated in real time that is online. Instant information is requested and in the next moment, the feedback is received. This provides the platform for organizations to bring their products and services directly to their customers.

ICT development in Ghana is still low despite the recent progress in wireless telecommunication. It is against this background that Ghana in her quest to bridge the gap as far as ICT is concerned, developed a national policy on ICT and christened it "Ghana ICT for Accelerated Development (**ICT4AD**). This policy represents Ghana's vision on information age. The policy provides the basis for facilitating the socio-economic development of Ghana in an emerging information and technology age to be dominated by information and

knowledge-based economies. The priority areas of the policy that have direct link to the educational sector are "promoting ICTs in education, i.e, the deployment and exploitation of ICTs in education facilitating government administration and service delivery by promoting electronic government and governance" and "rapid ICT and enabling physical infrastructure development". Ghana as a nation sensing the enormous benefits of the information technology took a bold step in 1995 to get full internet connectivity, and as already said, was the first in the sub-Sahara Africa to be internet ready. The Government has made a lot of investments in this area to vigorously promote access to the information superhighway through the use of internet in all segments of society particularly in the educational system, to help close the knowledge gap. This was affirmed by the Minister of Finance in his budget statement to the parliament in 1997, when he stated:

> in view of the positive effects of the application of information technology on development, Government will ensure that key institutions of state's machinery are linked to the internet. All the science resource centres at the senior secondary schools will be connected to the internet as and when they are commissioned. The programme to link Universities to together and to the internet will also be pursued.

The development of ICT has set the stage for the integration of the ICT into every activity of education in Ghana. Such integration is envisaged to include the use of high speed computers, fax machines, printers and scanning

machines to be used by the staff of educational institutions. The integration of ICT into education is being introduced at all levels of educational ladder, including the primary, secondary and tertiary. Many of these integrations have been seen at the tertiary level as a result of heavy investments made by the Government and the institutions themselves. In recent years, unprecedented Government investment in ICT in schools has been directed at implementing infrastructure and connectivity. The University of Cape Coast has not been left out in the development and integration of ICT into its daily operations. The operations of the University are teaching, learning, research and management. It is therefore necessary to assess the availability and the utilization of ICT facilities in the activities of University of Cape Coast. When ICT is incorporated into the school at its optimal level, there would be great effectiveness and efficiency; the delays in responding to issues will be reduced to its barest minimum; and tasks or duties will be discharged with speed to save time. When it comes to passing on information to staff, a large portion of them will be reached almost at the same time. Research and teaching, which constitute the core business of the University will be greatly enhanced.

The University of Cape Coast in its quest to accomplish its vision of becoming a **Centre of Excellence and University of Choice** has formulated a strategic plan. One of the thrusts of this plan is "the intention of the University to provide integrated and modern information and communication technology facilities". Thus, the University expects to improve upon what is already in the system.

The University of Cape Coast started the ICT facilities improvement through the establishment of the Computer Centre whose mandate is to teach computer related courses in the University, maintain hardware and software, design software, provide training on demand in network design, system and network administration. The Centre has advised the central administration to provide Internet connectivity in all the faculties and the departments; and almost all the faculties have already been connected.

As the need for computer education keeps rising, the African Virtual University (AVU) was launched with the state of the art ICT facilities to make education more accessible to many people who need it.

In the area of management of students' results, the University of Cape Coast introduced the information technology system (ITS) to manage students' results alone but the improvement in technology has made this facility obsolete. The University has now introduced the online student information system (OSIS), which has more features than the ITS in managing students' records. The new system has facilities for admitting prospective students, registering of students, issuing out visa and introductory letters, providing examination sitting plans and attendance lists.

The faculties, schools, departments, units and sections in the University of Cape Coast now have some ICT facilities in their outfits. The departments and faculties and schools use these facilities for the teaching; and for producing reports, schedules of work, results analysis, worksheets and routine administrative tasks. The University of Cape Coast has also established an

ICT Centre at the University's Main Library to support teaching, learning and research in the University. The centre has a seating capacity of 120 for students and staff.

Benefits of ICT to the University of Cape Coast

The ICT usage will bring the following benefits to the institution when it is properly integrated into the school system and will be manifested in the following categories:

Students: ICT usage would enable learners of the University to take greater control of their learning through the application of ICT in and out of school. Students will develop the skills in ICT, and have the ability to use it effectively when needed. They will have access to high quality digital learning resources whenever and wherever they are needed and have links to their classmates and teachers while studying out of school.

Parents: The University is hooked to the worldwide web and parents are encouraged to access it more often. It gives parents information on careers enhanced opportunities and also to participate in their children's education and school affairs through the use of ICT. They will have access to relevant information on their children and current programmes of study and resources to support learning out of school. There will be opportunities to discuss issues online with school staff, other parents and managers of the University.

Members of Council: The use of ICT will provide support and opportunities for active participation in school affairs, including improved information flow and opportunities to discuss and respond to issues online. The

members will plan and provide leadership to achieve the vision of the University when they in the constant touch with the school through the ICT facilities.

Management: This would reduce the burden of administration through the effective use of ICT including general administration communications and transfer of information between sections of the University and the outside world. The effective use of ICT facilities by University management will promote the effectiveness of management in terms of information gathering, analysis, decision-making, communication, information transfer and sharing.

Statement of the Problem

From the foregoing, it can be seen that University of Cape Coast has embraced the ICT revolution because of its importance to management, teaching, learning and research. Though many people celebrate any new communication technology that is invented, the fact still remains that, new technology comes with a kind of debate over its merits and demerits for different groups or classes of people. The ICT divide is considered to be more advantageous to the developed world than the developing world. Scholars have raised some arguments about Africa in relation to the Information Age and the use of the new communication technologies. For example, Okigbo (1995) asserted that, the concept of a superhighway can hardly be understood in Africa because the highway is yet to be travelled by enough Africans and/or African based users. To him, Africa finds itself left behind, being more of an observer than an active participant in the Information Age. Also, according to Karembu

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(1996), the diffusion of environmental information and communication technology implies critical adaptation such as ability to deal with computers. She also noted that illiteracy levels in Africa are high, aggravating the problem of training as the majority of the population generally lacks the basic skills to exploit new innovations.

The University of Cape Coast, having realised the need to be in tune with current developments in ICT, has put in place ICT facilities for the University staff to use in their work. However, the level of usage of these facilities by the staff of the University is not known. This study sought to find out whether the staff of the University of Cape Coast were actually making use of the ICT facilities to promote their work. If they were using the facilities, what were the problems that they were encountering? This study therefore has a direct bearing on the fourth and seventh corporate strategic thrusts of the University of Cape Coast which are; "to provide integrated and modern information and communication technologies facilities" and "to create an organisational culture that enhances efficiency, discipline and commitment". The results of the study were therefore expected to assist the University assess the extent to which it had progressed in the pursuit of the fourth and seven thrusts of its Strategic Plan.

Research Questions

The following research questions guided the study

1. What are the types of the application programs, other ICT facilities and their accessories do the staff of University of Cape Coast use in their daily activities?

2. Where are the ICT facilities and application programs available located?

3. Does the staff have the capacity to use these ICT facilities?

4. What is the level of knowledge of the staff in the use of the ICT facilities?

5. How often do the staff use the computer and other ICT facilities in their work?

6. What are the challenges or constraints faced by the staff in using the ICT facilities available to them and are they aware of Committees, Units or Sections which are in charge of ICT in their attempt to use the ICT facilities and application programmes provided by the University?

Objectives of the Study

The main purpose of the study was to examine the utilisation of ICT facilities in the University of Cape Coast by its staff in relation to teaching, learning and research as well as management. Specifically, the objectives of the study were to:

1. Identify the various applications of ICT in the set up of the University of Cape Coast.

2. Ascertain the level of ICT usage in the teaching, learning and research as well as management of the University of Cape Coast.

3. Examine the difficulties involved in the use of ICT facilities.

4. Evaluate how ICT facilities are helping in the work of the University.

5. Identify factors influencing the use of ICT in the University.

6. Examine the academic and administrative staffs' awareness of ICT resources and the extent of their utilisation of these resources.

Significance of the Study

Every organisation requires information and resources to function effectively and efficiently. The findings of study may help the University Cape Coast management to know the true state of the ICT facilities and how the facilities are used by members of the University system. The results of the study may inform the University authorities on the problems related to ICT facilities and their utilization so that appropriate measures can be taken to resolve the problems. The results of the study may also provide some basis for organizing in-service training for staff to enhance their capacity in the use of ICT since the technology changes by the day. Moreover, the results of the study may inform decision-making in relation to the acquisition of ICT equipment.

Delimitation

The study was delimited to the application of ICT by senior members (teaching), senior members (non-teaching) and non-technical senior staff of the

University of Cape Coast. Areas of interest were teaching, research and administration. Also of interest were attitudes towards the use of computers, level of training, proficiency, constraints to access and extent of computer utilization.

Limitations

Changes in the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis. It is therefore difficult to keep up with the changes and pace since they happen so fast in the ICT field. By the time study was completed, a lot of changes had probably occurred. Modernity in ICT facilities requires constant training to enable an individual to use the gadgets. By the time the study was completed, there would be the need for the staff to go through a new training sessions to enable them use the new gadgets that had been introduced into the system effectively and efficiently. Some of the findings of this study might therefore not hold now because of the fast pace of changes in the field of Information Technology. Also, study was conducted at the time that Ghana was experiencing energy crisis and therefore affected how the respondents reacted to the items in questionnaires. Finally, the study was unable to investigate the search engines that the staff patronized most on the internet and the reasons for using those search engines.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In the last ten years, states and governments have invested millions of dollars to facilitate the integration of Information and Communications Technologies (ICT) in all their socio-economic activities. A large proportion of this money has been spent on hardware, software and other infrastructure. The first major use of Information Technology (IT) could be said to have started with the introduction of early mainframe computers to respond to the needs of scientific research and government statistical data gathering and processing, where the technology helped to speed up results and forecasting. These techniques were later applied to the business environment where mainframe computers and robotics were used to automate business processes and number-crunching functions. From automation of business processes, IT was then applied to higher value-adding functions such as design, resource planning, sophisticated manufacturing and mission critical functions. Developments and applications of IT have stretched beyond imagination. Together with the rapid development and innovation in telecommunication technology and the Internet, this evolution has ushered in many new business models and applications.

The developments in the Information and Communication Technology (ICT) sector have made it easier and cheaper to store, reuse and share valuable information than to have it reinvent as it is needed (Greengard, 1998). More organisations have begun to take advantage of the new computing and

telecommunication technologies and have developed a technical infrastructure to facilitate knowledge sharing (Rumizen, 1998). Elliott and O'Dell (1999) argued that an effect of this is that people's ability to share and transfer information has improved. A developed ICT infrastructure provides two important strategic capabilities. First, such infrastructures enable data sharing across functions and divisions, which support cross-functional decision making, and second, these infrastructures allow organisations to act more globally (Brown & Ross, 1996). Brown and Ross explained that ICT is robust, that it can be harnessed in many ways, and that its true potential is limited only to the human mind. In their view, with ICT physical borders dissipate as information move freely through the digital medium that is less controlled as compared to other existing mass media. Globalisation is said to accelerate and enabled by ICT, making markets bigger and more accessible by business with strong capital, management and technology. Businesses or e-commerce has started to be done virtually and transaction occurs at a click of a mouse anywhere and anytime. Scientific findings churn faster and newer discoveries and inventions as journals and reports are made available through ICT. The technology that began life as a faster way to process data and compute statistics has today become pervasive in almost all parts of our life.

ICT refers to technologies that merge computers with high-speed communication links carrying data, sound and video (Williams et al, 1999).This includes telephone, cellular technologies, computers, telefax, electronic-mail (E-mail) and the internet. There is no universally accepted definition of ICT. A

good way to think about ICT is to consider all the uses of digital technology that already exist to help individuals, businesses and organizations to use information. ICT covers any products that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, digital television, email, robots, scanners, digital cameras, overhead projectors and telejectors. ICT concerned with the storage, retrieval, manipulation, transmission or receipt (emphasis provided) of digital data. More importantly, it is also concerned with the way these different uses can work with each other.

ICT Applications

There are several software applications in relation to ICT usage in whatever organizational setup one finds oneself. These applications which are commonly used are; the electronic mail (E-mail), the world wide web (www), internet chat, file transfer protocol, search engines, gophers, surfing the net, domain and sub domains and microsoft office.

Electronic Mail (E-Mail)

The Electronic mail is the most used application on the internet. This refers to the composing, sending and receiving information via the internet. The E-mail remains the fastest mode of sending and receiving information. This accounts for the countless number of users of the internet.

Internet Chat Rooms

The chat room on the internet provides an avenue for people with common interests and persuasions to communicate on the internet live. The chat room activity is an interactive dialogue between its users. Some of the chat on the internet are Yahoo chat, BBC chat, About.com, Ghanachat, CNNchat, and Excitechat just to intention a few. Issues or topics discussed in these chat rooms are on education, business, politics, finance, sports, entertainment, religion and government. These issues or topics that users engage themselves in the chat rooms are not exhaustive

File Transfer Protocol (FTP)

The file transfer protocol (FTP) enable users of the computer to transport files being it data or programme files from one computer to another. This facility gives users of computers connected to the internet access to millions of public and private files.

Gopher

Gopher is a play on words. The Gopher enables users of ICT to find information on the internet by navigating through a menu of menus to locate what they want. The users search by navigating the internet through a hierarchy of menu to locate and download texts, pictures, audio and video chips.

World Wide Web (WWW)

The World Wide Web is a software browser that enables users of the system to explore the internet very easily. The web is a collection of computer files called web pages that are linked to one another. The web is a subset of the

internet. The users use web browsers like Mozila, Explorer and Netscape to display the web pages and files on a computer monitor. The web pages are found on computers all over the world and contain hyper links which has a word or group of words, picture or part of a picture which helps to search for the location of web pages. Web pages were initially text based but have been improved upon over the years to contain text, pictures, audio and video files. This has made it the most used facility on the internet.

Surfing the Net

Surfing the internet means using a programme called a browser to move from one site to another in search of information of which is of interest to the user. This is the same as a viewer of a television changing the channel of the television to watch a programme of interest. Once a computer is hooked onto the internet, the user irrespective of where he/she is on the planet can surf the net.

Search Engines

The search engines facilities on the system help users to look for something specific on the internet. The search engines rely on computer programmes called spiders and Robots to crawl the search engines, the user has to type the key words of topic into the search "box" or "window". The search engine scans the data-bases and returns a file that contains the information needed or similar information. There are large databases on the web so the search engines returns thousands of results. The searches can be subject oriented or topic oriented, the search is done and results releases lists of items

related to the topic or the subject entered. The most popular search engines include Yahoo, Google, Excite, Infoseek and Alta Vista. ICT applications and search engines are not exhaustive. There are applications or facilities like usenet, telnet and listserv but are not widely used in Ghana.

Domains and Sub-Domains

Every computer hooked onto the ICT system has an internet protocol (IP) address. An IP address consists of four numbers separated by periods. The ranges of numbers are from zero to 255 with the 0.0.0.0. being the smallest and 255. 255.255.255 being the largest. The numbers were difficult to remember so to it make easy a Domain Name system (DNS) was invented to permit the use of numbers. Domain names have the following format: hostname. sub domain. top-level-domains. Examples of top-level domain are:

.educ for educational

.com for commercial

.gov. for government

.mil for military

.net for network support centres

.org for organizations

The top-level domains could be country coded such as *gh* for Ghana. The sub-domain refers to the network to which a computer is connected and the host name refers to the computer itself. An example is www .IEPA.gh where top level domain gh indicates that the server is located in Ghana; the sub-domain IEPA shows that the server is on Institute of Educational Planning and

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Administration (IEPA) network and the host name www identifies as the IEPA world wide web server. If the IEPA has really mounted a website, anybody in any part of the world can access only information on the institute.

Knowledge Management

Neef (1999) stated that information overload and information handling tend to overwhelm organisations, and as organisations demand more knowledge, knowledge management within organisations is becoming more and more important. In addition, Neef (1999) argued that knowledge management is critical to many organisations because of the fact that they strive to become learning organisations.

Some authors (Davenport & Prusak, 1998; Husemann & Goodman, 1999) have emphasised the importance of differentiating between data, information, knowledge and expertise. However, the differences between these concepts are not always clear (Bhatt, 2000). Data, information, knowledge and expertise can be seen to constitute a hierarchy, where data is the lowest, and expertise the highest (Bender & Fish, 2000). Bender and Fish also explained that the transformation of data into information adds meaning, understanding, relevance and purpose. The change from information to knowledge can occur through the mediation of personal application, values and beliefs. Knowledge is enriched and becomes expertise through experience, training and education. As every individual builds his or her knowledge by transforming and enriching information an individual cannot immediately transfer knowledge to another person (Fahey & Prusak, 1998). Knowledgeable employees teach or train other

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employees in a certain field by passing on their knowledge in lectures, forum, seminars, conferences and meetings but, for successful training to take place, the recipient has be to actively involved in the process, that is, what is being delivered. In this sense, knowledge is created or at least "filled out" in the head of the individual.

Knowledge management involves more than the movement of data or the transfer of information; it also involves integrating, sharing, accessing, accumulating, and reusing knowledge. Ultimately, knowledge management is about the retention and development of expertise throughout the organisation (Pelton, 1999). Martinez (1998) argued that knowledge management demands a new way of working that needs to be embedded into a culture of organisation through its overall strategy and design of operations. These ideas are in line with the view of organisational decision making process where the alternatives often are constructed through communication, often in the form of selling-in processes.

Information Technology Based Perspectives

Being a channel for conveying all other media for transmission, ICT usage has attracted various discussions from different scholars. While the lowering of trade barriers made globalisation of markets and production a theoretical possibility, technological change has made it a tangible reality. Since the end of the Second World War, there have been major advances in communication, information processing and transportation technology, including the emergence of the Internet (Hill, 2001). A number of

contemporary measures have been proposed to describe successful IT and Internet implementation though. Some of the classic theories of communication are also applicable to studies into information and communication technologies. In addition to studies aimed at "valuing" IT benefits, IT use has gained interest as a phenomenon in its own right (Matheison, 1991). Internet-based studies, according to scholars, have an intuitive appeal, system features makes little difference if the Internet is not used. At some level, the use of the target technology reflects some level of user satisfaction, and patterns of use may also affect the impact that ICT usage has on individuals. The following theories are classic and contemporary and would form the basis of the study and explain why people may or may not use ICT facilities. The theories are Acceptability Paradigm, Technology Acceptance Model (TAM) and Self-efficacy Theory.

The Acceptability Paradigm

Within contemporary human-computer interaction literature, according to Shackel's (1991), the acceptability paradigm has been one of the most influential paradigms for conceptualizing the acceptability of any given system to its intended users. Shackel suggests that a system's acceptability can be defined as a function of three orthogonal dimensions as follows:

Utility   +   Usability   +   Likeability

Utility ensures that the system does what is needed functionally; Usability examines whether the users can actually work with the system successfully and Likeability determines whether the users feel that the system is suitable. All these three dimensions are balanced against cost, which includes capital and

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operating expenses as well as the social consequences of system use. In other words, users engage in a cost and benefit evaluation of the system in order to determine whether it is worth continuing or stop using it.

Given this framework, the notion of quality could easily be applied to various factors across all three dimensions, but this research was most interested in those factors or circumstances which influence the user's perceived utility of the system; that is, those aspects of IT or Internet interaction which directly influence the user's success in accomplishing his or her goals.

From a behavioural perspective, it is reasonable to assume, regardless of any system specific features, that the nature or quality of the usage experience can mitigate the degree to which users accept (or use) a particular form of IT. This notion is consistent with the Fishbein and Ajzen's (1975) theoretical model for predicting behaviour in which intervening events alter behavioural intentions for a specific course of action. Those behavioural interventions are viewed as immediate antecedents to their corresponding overt behaviours, that is ICT use, in the context of this study (Fishbein & Ajzen). Bandura's (1982) self-efficacy theory also suggests that the quality of experience a user enjoys (or endures) during interactions with IT could influence beliefs about his or her ability to successfully interact with IT in the future. It follows then that any factor which influences self-efficacy should also affect observed usage behaviours (both in decision to use the IT and intensity of use). Thus, if the characteristics of quality of experience can be identified and measured, they

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may reflect the net effects of events or circumstances, which transpired during previous IT interactions up to the actual level of acceptance.

Consequently, the present investigation sought to explore the events between occasions of ICT use, establish any differences and commonalities between users and assess the extent to which staff on the University of Cape Coast can use the technology. The key to achieve these goals include the discovery of any possible problems encountered during staffs' use of the ICT facilities and the provision of recommendations to the University authorities on assisting staff to get acquainted with information and communication technology.

The Technology Acceptance Model (TAM)

Although a host of factors contribute to the success or failure of any new technology, recently attention has been focused on the role individual user acceptance of any technology. The technology acceptance model (TAM) developed from the Ajzen and Fishbein social psychology theory of reasoned action (TRA) explains an individual's acceptance of any technology in regards to their attitudes. Davis' (1989) Technology Acceptance Model (TAM) has two specific behavioural beliefs and these are; perceived ease of use and perceived usefulness which determines the individual's behavioural intention to use a particular technology. The model has been validated across a wide range of users and technologies since its origination. It has been cited by many researchers in IT as a viable means of explaining user acceptance (Gefen & Straub, 1997; Lederer, Maupin & Zhuang, 2000 Szajna, 1996; Taylor & Todd,

1995; Vankatesh, 1999; Vankatesh & Davis, 1996;). These studies have all shown that behaviour and belief in use of new technologies has a strong relationship to their perceived usefulness. The Technology Acceptance Model specifically refers to how the interrelationships between usefulness and ease of use (IT) as well as the extent to which attitudes, intentions and IT user behaviours vary as a function of time or experience.

The model pointed out that there is a relationship between the ease of use of the technology (process expectancy) and its perceived usefulness (outcome expectancy). The desire by the individual to use the technology leads to actual use of the facility

Figure 1 shows the variables that influence actual use of a system as proposed by Davis (1989)
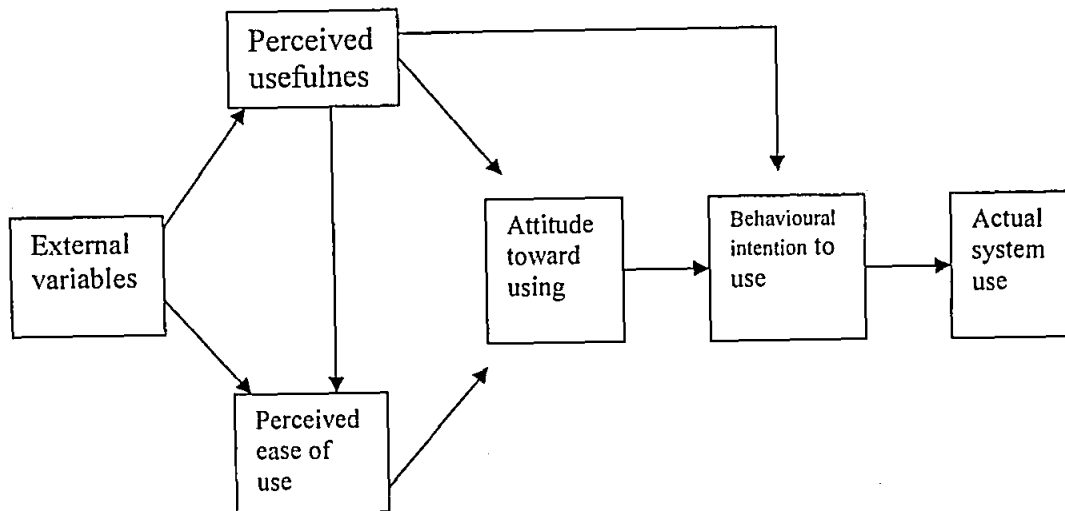
Fig.1: The Technology Acceptance Model (Davis, 1989)

In figure 1, the "External variables" in the model refer to the passage of time, the kind of technology in vogue and user experience. In this model, "Perceived usefulness" is defined as the degree to which a person believes that

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using a particular system would enhance his or her job performance. "Perceived ease of use" refers to the degree to which a user believes that using a particular system would be free of effort. Davis' investigation indicated that perceived usefulness and ease of use were significantly related to usage behaviour or attitude. That is, a user's perceived usefulness and ease of use are likely to influence his or her eagerness to use the technology.

Perceived usefulness and ease of use are also interrelated to "behaviour intension to use" and "actual system use". Users' perceived usefulness and ease of use strongly affect their intentions to use the technology. In the same way, the more useful and easy a user finds a technology, the more frequently he or she is likely to use it. Davis further opined that the relative influence of TAM variables in determining patterns of user behaviours tend to vary as subjects gain more experience with IT systems. These temporary changes make it difficult to discuss IT in terms of a single stable characterization which holds true across a variety of user populations.

Motivation has been a major factor in determining human behaviour in so many instances. Davis, Bagozzi and Warshaw, (1992) found that intrinsic and extrinsic motivations are key drivers of behavioural intention to use computers. Intrinsic motivation emphasises the pleasure and inherent satisfaction derived from a specific activity (Vallerand, 1997) whereas extrinsic motivation highlights on performing a behaviour to achieve a specific goal. What it means is that the intrinsic motivation is always related to a performance of an activity purely for enjoyment of that activity and on the other hand

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extrinsic motivation relates to performance of an activity which leads to the expected outcomes. Studies by Atkinson and Kydd (1997) and Vankatesh (1999) have established that intrinsic motivation has a positive effect on the individual's intention to use information technology. Extrinsic motivation has also been confirmed to have a positive effect on the intention to use computers (Igbaria, 1993). Davis et al, went on to say that extrinsic motivation reflects beliefs (or intentions) about outcomes.

TAM has much significance to this study in the sense that the ICT is one of the technologies in vogue at the present age and the model suggests that users will use the computer technology if they believe it will result in positive outcomes. The present study sought to determine the extent to which respondents find the ICT facilities useful and easy to use, as well as the frequency with which they used it. TAM was expected to facilitate the explanation of why a respondent might or might not use ICT facilities.

The Social Cognitive and Self-Efficacy Theory

The second theoretical paradigm that influenced this study was the self-efficacy and social cognitive theories. Social Cognitive Theory is based on the premise that the environment in which one lives does influences his or her social pressures or unique situational characteristics, cognitive and other factors like personality, as well as demographic characteristics and behaviour, are reciprocally determined (Bandura, 1986; Compeau & Higgins, 1995a). Thus, the environment in which the individual chooses to live has the tendency to influence him or her. The behaviour of an individual in a given situation is

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affected by the environmental and situational characteristics. The social cognitive theory explicitly acknowledged the existence of a continuous reciprocal interaction between the environment in which an individual operates his or her cognitive perceptions (such as self-efficacy and outcome expectation) and his or her behaviour (Bandura, 1977; 1986; Compeau & Higgins, 1995a). The social cognitive theory incorporates two specific expectations namely; outcome expectations and expectations related self-efficacy (Igbaria & Iivari, 1995). The outcome expectations are similar to the perceived usefulness in the Technology Acceptance Model (TAM), where users only engaged themselves in behaviours that they think will help them to perform their jobs better. The social cognitive theory claims that if the individual doubts his/her capability to successfully undertake a behaviour his/her beliefs about outcomes are insufficient.

Self-efficacy refers to beliefs in one's capabilities to mobilise the motivation, cognitive resources and courses of action needed to meet a given situational demands (Wood & Bandura, 1989). Social cognitive theory states that outcome expectations and expectations related self-efficacy always produce the user behaviour in all activities.

According to Bandura (1982), self-efficacy is defined as people's judgment of their capabilities to organise and execute the course of actions required to attain designated types of performances. Bandura (1986) again defined self-efficacy as generative capability in which cognitive, social and behavioural sub skills must be organised into integrated courses of action to

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serve innumerable purposes. In lay terms, self-efficacy is commonly understood as a person's beliefs about his or her abilities to accomplish a particular task or attain some desired level of performance. This shows that if serious uncertainties exist in efficacy expectations in relation to performance of an activity, efficacy expectations would not impact behaviour. Thus, the more a person has a high level of perceived efficacy for an activity, the more active and longer he or she persists in his her effort. This is supported by the definition of self-efficacy given by Kinzie, Delcourt and Powers (1994) that "self-efficacy is an individual's confidence in his or her ability that may impact the performance of tasks". They explained that if an individual finds that he or she has a confidence in his or her ability to perform a behaviour that would produce the expected outcome for him or her, the effort would be expanded and persistence would be shown to produce the outcomes. Murphy, Coover and Owen (1989), viewed computer self-efficacy as in individual's perception of their capabilities regarding specific computer knowledge and skills.

What is important about self-efficacy and social cognitive theories and the technology acceptance model to the discussion of ICT use is its influence on behaviour. Perceptions of self-efficacy have been to influence thought patterns, actions and emotional arousal (Bandura, 1986). More specifically, these theories indicate that people tend to avoid tasks and situations that they believe exceed their capabilities, but undertake activities, which they believe they are (or have the potential to be) good at.

By applying this theory to the study on ICT use, it follows that any aspect of ICT usage experience that raises or lowers self-efficacy beliefs has the potential to influence subsequent usage behaviours. Thus, subjects who believe they are capable of using the ICT to accomplish their tasks are more likely to use it than those who do not share similar self-efficacy beliefs.

Age and ICT

Age and gender are important issues in research on ICT. Age and gender are important variables in this study. This is because the age groups are affected by an innovation. Also, gender roles are affected by an innovation.

Age is said to be a major factor in deciding to change or adopt a new technology or even a new way of doing things in the society. George and Jones (1996) talked about how older workers will tend to resist changes because of the difficulty of breaking old habits and adopting new styles of behaviour. This is manifested in the sense that the old jobs and habits have been learnt well over the years and does not need any more attention but in the case of a new job or use of a new approach, new skills and knowledge have to be learnt again and enough time and efforts are needed to master the task or duty. With the elderly in the society, they tend to fall asleep when watching television programmes alone or with the members of the family. This clearly implies that these aged members in the society would reject any innovation, which involves the use of machines in their workplace being aware of their weakness in interactions with machines. Haq and Kirder (1988) opined that there are profound distortions and imbalances between generations. But this is not the case when it comes to

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multimedia interface. Multimedia interfaces are user friendly and reduce the effort that one would have to use in achieving previous targets. Studies have shown that, elderly people do have negative attitudes towards the use of the Internet and rather depend on family, friends and an established source like teachers for information. The older persons prefer interpersonal interactions when teaching, accessing information or being given information about products, services or personal information.

Melenhourst (2002) stated that this may be a result of aging which introduces the old into field of tension between their wishes, desire or ambition to achieve something and the assessment of their own future capabilities. Even though the older are classified as "Technophobes", they are now steadily growing age group when it comes to the use of online technology. This trend is emerging simply because the aged has recognized the computers can help improve upon their social well-being and also give them greater autonomy. Australia's Council on the Aging (COTA) cited in Baltes (1987), suggested that the aged are particularly attracted to technology products that enhance their capacity for independent life.

In recent times, ICT developments are changing the way people go about most of their daily activities these days (Melenhorst, 2002). Online technologies are improving upon the quality of life of older people. This has become relatively important for the aged to have skills that are required to make effective the use of the technologies and adequate access to these new technologies. Authorities on gerontology say that people become more present

oriented in the course of aging. Older persons are taking the opportunity as it presents itself to adapt to ICT and as such there is a strong demand among them for training in how to use computers and the Internet at basic and advanced levels so as to gain from it (Baltes, 1987; Baltes & Baltes, 1990). According to Baltes and Lang (1997), an individual grows older, his or her body loses strength and energy and has low mental stimulations and as a result, older persons aspire to use their mental and physical resources more economically than younger people. This is why the aged would prefer to use the computer in order to economise in the use of their mental and physical resources. Their thinking in terms of calculating drawing tables, designing and drawing objects and even drawing engineering products will reduce by simply clicking a button on the computer keyboard. The aged is motivated to go online by friends and family, their own fears of being left behind and the challenge they face by the potential of a new technology. The aged has recognized the Internet and computer technologies as an avenue for empowering them and offering them greater autonomy.

User Perception and Attitude

Perceptions are said to be developed over a period of time and this helps the individual to react to different influences. Lefrancois (1988) contented that perception could be defined as "the translation of physical energies (stimuli-sensation) into neurological impulses that can be interpreted by the individual" (p. 359). Hayes and Orrell (1992) simply defined perception as "the interpretation of information when we receive through our senses" (p. 41).

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When information is received, we are able to make meaning out of it either consciously or unconsciously and react to them as such. Perception shapes a person's character through the social organizations and the social process. Sociologist and psychologists share a deep interest in certain familiar mental and behavioural attitudes displayed by human beings such as memory, emotion, attitudes and the like. Hayes and Orrell further explained that what an individual perceived and what he or she paid attention to, will be heavily influenced by the social organizations. The day to day activities that one does help him or her to perceive and interpret things around him or her. This makes people to give different interpretations to different issues. The social organization of the lecturer is with his students in the classroom. His duty there is to teach, the methodologies are heavily influenced by the subject area, which is governed by basic teaching principles that he has mastered for a very long time. While he may notice changes in assimilation in the students due to the changes in the temperature of the room, an ordinary person will not. The classroom activities and its environs affect the lecturers as asserted by the sociologists. The lecturer is influenced by the social interaction with teaching and learning materials, classroom thermal conditions and psychological disposition of students may have impact on their views and on their perceptions. Information technology is the key to the success and survival of organizations in a highly competitive environment, the benefits of the Internet as aid to learning, teaching and training may not be fully realized due to poor acceptance by users. This is why many people jump rightly onto the

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information superhighway while others step back or remain non-participants of the revolution. Many authors have studied different aspects of the phenomenon from a variety of theoretical perspectives. This helps to understand how individuals' perceptions affect the use of ICT and provides a stronger causal arguments regarding the observed relationships.

Gibson, Ivancevich and Donnelly (1991) defined attitude as "a positive or negative feeling or mental state of readiness, learned and organized through experiences, that exerts specific influence on a person's response to people, objects and situations". Thus, attitude is the way in which a person feels about and is disposed towards certain objects. Triandis (1971) suggested that attitudes consist of affective, cognitive and behavioural component. Affective attitudes include emotions or feelings; that is, likes and dislikes about certain objects. Cognitive attitudes are the beliefs an individual holds about objects which have the tendency to increase significantly the quality of one's output. Behavioural attitude is the individual's experience; that is, what an individual intends to do (Al-Khaldi & Al-Jabri, 1998). Culpan (1995) opined that no matter how sophisticated and how capable a technology maybe the effective implementation of that technology depends on users having a positive attitude towards it. Even though, the concept "attitudes towards computers" has gained great recognition among researchers on the subject as a critical determinant in the use of and acceptance of information technology, the concept still defies universal definition. Brock and Sulsky (1994) indicated that attitudes towards

computers are composed of two distinct factors: the belief that computers are a beneficial tool and the belief that computers are autonomous entities.

The Computer Attitude Scale [CAS] developed by Loyd and Loyd (1985), consisted of computer anxiety, computer confidence, computer liking and computer usefulness. Studies have suggested that computer anxiety and computer self-efficacy are a part of the same continuum. Nash and Moroz (1997) suggested that the attitudes towards academic endeavours are associated with computer training and should be incorporated into the CAS. This refers to the learning and training of skills in computer courses. Thus, the constructs of ICT attitudes can be revised as self-efficacy, enjoyment, usefulness, behavioural intention and acceptance.

ICT Usage in Some Western Countries

There was the need to review literature on the use of ICT facilities to support the study undertaken but a careful studying of the available literature did indicate that there wasn't any specific study that looked at ICT as a whole. All the available studies concentrated specifically on the internet which is an ICT facility used in different areas and scenarios. These studies in a way had a direct significance on the present study because the methodology and study areas used in some case are the same or similar.

The Internet is the major component in the ICT facilities, which is the most used facility in the ICT family. Morris and Turner (2001) in a study assessed users' subjective experience with the World Wide Web. The main objective of the study was to identify factors capable of accounting for IT user

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behaviour from time to time. Morris and Turner both used quantitative and qualitative methods. The present study, however , is a quantitative one. Nevertheless, it is informed by the study of Morris and Turner

For the quantitative approach, Morris and Turner randomly selected 1600 subjects from the US Department of Defence. Only 148 (9.25%) of the questionnaires administered were answered and returned. Forty additional surveys were rejected for lack of any Internet experience. Out of the 148 respondents (who answered the questionnaires), more than half (52%) had had one to twelve (1-12) months Internet experience and were classified as the inexperienced group. The remaining 48% of the subjects had had three or more years of Internet experience and therefore formed the high experienced group.

For the qualitative aspect of the study, Morris and Tuner sampled 23 subjects from the same organisation and conducted interviews for them using open-ended questions to elicit information. They found out that, generally, the interviewees considered the World Wide Web as a necessary tool for information processing and distribution. The respondents based their perceptions about ease of use and usefulness of the technology, on almost the same factors as the subjects in the survey. These included search engine options, availability of information at remote sites and relevance of the information to the task. The findings of both methods of analysis yielded similar results, probably because the subjects sampled for both research approaches worked in the same organisation and were entitled to similar or related tasks.

Using statistical methods for the analysis, Morris and Turner noted that the two groups exhibited significant mean difference in relation to "high quality of experience" and "low quality of experience" (two of the variables examined by the researchers). Meanwhile, there was no significant difference between the groups in terms of the following: search engine options; amount of information available; organization of information at websites; clarity of directions for navigation at websites; availability of information at remote servers; ease of use of browser; reliability of connection; up-to-date links; and security and privacy. Thus, within the sampled population, all these factors were considered relatively important to both experienced and inexperienced users of the World Wide Web. It is possible that all these items provide evidence upon which internet users base their perceptions of ease of use and usefulness of the technology.

A study conducted by US based research centre Accenture (2003), revealed Canada as the leading country (among others) in terms of overall e-government maturity. This study is of special interest to the present study because it made use of the survey method, a research approach used in the present study. The survey revealed that, Canada's e-government initiated was differentiated by its customer service vision, methods for measuring success of service, broad integrated approach to offering government services through multiple service delivery channels, and a cross-agency approach to online services. In addition, government had placed its citizens and business at the core of its e-government initiative. Accenture also found that customer

satisfaction was the key factor driving the development of online government services around the world. Approximately 93% of the government executives surveyed by the company said the improving satisfaction was a key factor to influencing the adoption of online government services. Eighty-three per cent said that customers' demand for new and better services was also a factor affecting the adoption of online services, while77% cited the need to meet preference targets as the driving factor. Only 51% of the executives surveyed asserted that the pressure to reduce cost was a driving factor influencing the adoption of online government services. Thus, the majority of the executives polled affirmed that customer care was the most driving factor that could influence the adoption of online government service.

In a survey conducted by Pew Internet and American Life (2003), Americans' use of the Internet for news on the war in Iraq was explored. The relevance of this study is that it investigated the extent to which various Internet applications were used and the reasons for the use of the Internet, some variables explored in the current research. Seventy-two per cent (72%) of the people polled had used the net for information on the war in Iraq.

Pew Internet and American Life (2003) in another study investigated the use of the Internet for political communication in America. In this research, Pew's main conclusion was that the email an ICT facility had become an increasingly popular and potent tool for political communication in America. According to the research, seventy-two per cent72% of the people polled had

used the net for information on the war in Iraq. Other findings made by the research company included the following:

(a)   fifty-five per cent (55%) of the nation's adult internet users had sent or received emails related to the war, while 56% had used the web to get news, general information and commentary from internet sites that had war-related material and argument.

(b)   About 44% of online Americans were found to have looked for news related to the war via various media online, while 15% used the online media to get information about the country and people of Iraq.

(c)   Approximately 66% of the internet users said that their ability to get news from a verity of sources was their primary reason for using the net to find information on the war. This compares with 63% of respondents who used the internet because it offered up-to-the-minute news on the war and 52% who went online to get points of view different from those found in traditional news media (TV, radio, newspapers).

Internet users were more likely than non-users to support the war and the way President Bush was conducting it. About a fifth of online Americans said the internet had helped them to make their views about the war known to others. The importance of this study lies in Pew's focus on the use of email an internet application, the use of the internet was a variable considered under the present

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study that is the use of the ICT facilities with the generic name internet was investigated in the current research.

Anderson (2003) undertook a study on students' use of the Internet which aimed at identifying how their Internet usage would affect their social and academic lives. Using the triangulation research approach, Anderson combined the case study and survey methods for the purpose of comparison. In the case study, one male student was chosen for study and the following findings were made:

(1) The internet was the students' source of interpersonal communication.

(2) His pattern of internet use revealed the tendency to stay logged-on for increasing amounts of time.

(3) Internet use had resulted in his frequent absence from lectures, and poor academic performance.

(4) He had withdrawn from his hobbies as a result of internet usage.

(5) He had made unsuccessful attempts to reduce the periods of his internet usage.

The researcher described this case as an "internet dependent" based on the foregoing symptoms.

In the survey, Anderson administered questionnaires to students at seven different colleges in the US and one college in Europe. Respondents were grouped under three main categories: Hard Sciences, Arts and Liberal Arts. Anderson found out that students' Internet use ranged between fifteen (15) to 1,200 minutes per day, and this averaged one hundred (100) minutes per

day online. The Hard Science group spent significantly more time online than the Arts or Liberal Arts groups. About a tenth of the internet users exhibited characteristics similar to the respondent in the case study and were therefore described as internet dependents. Those dependents were victims to three or more of the following criteria:

(a) Using greater amounts of time or longer periods on the internet than was intended

(b) Social, occupational or recreational activities being reduced because of internet use

(c) The desire or unsuccessful efforts to cut down or control internet use

(d) A great deal of time spent in recovering from internet use

(e) Continuous use of internet, in spite of negative effects

As the case might be, the dependents reported using the internet significantly more than the non- dependent. The former averaged 229 minutes per day and the latter, 73 minutes per day. The most common reasons for internet use by the dependents included keeping up with new developments in areas of interest and communicating with friends via the email. They also indicated that their online communication negatively affected their academic performance, meeting new people and their sleep patterns.

Likert type scales were used to assess how Internet use impacted on the various aspects of respondents' lifestyle: academic performance, meeting new people, participating in extracurricular activities, real life relationships and sleep patterns. Only one area – sleep patterns – distinguished the high-use

group (students who used the Internet for longer periods) from the low-use group (those who do not spend much time on the Internet). The study further showed that a small group of students, primarily males in the Hard Sciences, used the Internet to the degree that it impacted negatively on their academic and social lives. Anderson concluded that one solution to the problem of Internet addiction would be to monitor and/or restrict Internet use. He suggested that in monitoring the direction and purpose of an individual's Internet use, it might be effective to develop a countdown timer that tracks the amount of time spent online. This would serve as an evaluation or inspection of those who use the Internet for excessive amounts of time. This research was relevant to the current study in the following ways: First, its target population is similar to the population studied in the current research the study was undertaken in an academic environment likewise this study, and secondly, it used the survey method for data collection and the method used in analysis was similar to the method was used in this present study.

Internet Usage in Africa

Jagboro (2003) undertook a study with the primary objective of evaluating the extent of internet usage for academic research in the Obafemi Awolowo University, lle-Ife. She used the survey method for data collection and analysis. One hundred questionnaires were randomly administered on a sample of postgraduate students in the University.

The main library in the University – the Hezekiah Oluasanmi (H. O) Library- was ranked first as a source of research materials, followed by research institutes, CD-ROM database, the internet and other libraries. Thus, the postgraduate students were found to put the internet (17.26%) to minimal use, regarding their sources of research materials.

Almost half of the sample ranked Cyber Cafes as their access location to the internet. The departmental offices, Computer Building, H.O library and personal offices recorded minimal percentages due to their low connectivity. The email was rated the highest (69%) when respondents were asked to indicate their specific uses of the internet. This was followed, sequentially, by research materials, course materials, news update and online courses. Email was therefore shown to be the main reason why students used the internet.

The study concluded that there was a low level of utilization of the internet as a source of academic materials by the postgraduate students at the Obafemi Awolowo University this was attributed to the low level of connectivity and the high cost of Cyber Café facilities. The researcher suggested that the use of the internet for academic work would significantly improve through the provision of more access point at the departmental and faculty levels in the University.

This study was of particular interest to the present research because its methodology and the population studied are similar to those used in the current research. In addition, the variables explored are almost the same as some of the variables investigated in the current research.

In a study conducted in 2001, Ojedokun sought to find out internet access and usage by students of the University of Botswana. The researcher investigated the adequacy of the provision of access to the internet, and the usage (in terms of use and misuse) of the internet by the students. In addition, the problems the students faced in the use of the internet were investigated. Almost all the variables explored in this study were investigated in the current research, and this makes the research study relevant to the present study. Using the quantitative method for the analysis, the study revealed that computers with internet facilities in the University, at the time of the study, were inadequate. Thus, many of the students did not have access to the internet. Findings also showed that quite a number of the students were aware of the immense benefits of the internet to academic studies but they lacked the necessary searching skills to make effective use of the internet for this purpose. As a result of the lack of effective searching skills, those who had access to the internet used it essentially for information on entertainment, sports and news around the world. Such students faced a lot of problems, trying to locate websites that could furnish them with academic information.

The study further noted that for the few respondents who were adequately skilful, the internet greatly influenced their access to information of their academic work. It follows then that not only do students need enough internet facilities, they also need the necessary training that will equip them with the skills to use the technology. This will enable all interested students to put the internet to effective use.

Olatokun and Tiamiyu (2001) conducted a survey to investigate the prevalence and correlation of computer-related behavioural variables among students and staff of the University of Ibadan. The behaviours investigated by the study were; computing experience, information anxiety, computer phobia, obsessive computing, and work stress.

Validated scales were designed to measure these behaviours and descriptive and correlation analyses were done. The study revealed that information anxiety and obsessive computing were highly prevalent among the respondents.

Furthermore, computing experience and work stress correlated directly with both obsessive computing and information anxiety. On the other hand, computer phobia correlated inversely with computing experience, obsessive computing and computer work stress. A little more than half of the subjects (54%) were experienced in computing and were therefore obsessive with the internet technology. The other respondents (46%) who were computer phobia were anxious for information, since they lacked the skills and guts to access information from the computer. The relevance of this study to this present study lies in its use of the survey method which is also used in the present research.

Davis (2000) administered surveys to test internet use in Dakar. She sought to answer the following questions with her research:

1   Have respondents ever sent messages on the internet for somebody else?

2   How often do the respondents use the internet?

3   How important is the internet in the daily activities of respondents?

Davis intended to know more about who has access to the information that is flowing rapidly and evolving global networks, and how that flow of facts and ideas shapes communities like Senegal. Davis found out with her research that the respondents accessed the internet from cyber cafes, community centres, non-governmental organizations and companies around Dakar. More than three-quarters (85%) of the respondents said they used the internet very often, especially for sending messages to people. The respondents (the users) considered the internet as a very important tool in their daily activities. Another remarkable finding Davis made was that the internet served as a socialisation tool for its user. Using the results of her study, Davis draws a comparison between the Senegal and U.S Situation: "There's idea that the internet is the U.S is eroding the social fabric, because everybody's closed into their own small world. In the Senegal model, it's actually strengthening community, because you have to use it in a community centre, you have to use it with other people, and it is a very much more public kind of activity." She recommended that "if shared usage is the key; then maybe keyboards should be able to be plugged into each other and to be plugged into one system, may be computer screens need to be larger if people are always sharing them." Davis' research is significant in the sense that its method and the variables investigated are similar to those in the present research.

Internet Usage in Ghana

A research conducted by Quaynor, Tevie and Bulley (2000) of the Network Computer System (NCS) showed that corporations and companies

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formed the largest block among Internet subscribers in Ghana. Media organizations were among the least users of the information technology. The study, outlining Internet subscribers by regions revealed that the principal subscribers were based in Accra, with the Ashanti region having the next significant number of users. Another finding of the study was that the average peak times of connectivity to the network was between 16:00 and 18:00 Greenwich Meridian Time (GMT), though there was an average number of users on the net at various times in the day. In addition to their findings, about 38% of the subscribers cited communication as the main reason for using the Internet. This was followed by the ability to access databases (33%) and research (16.6%). Thus more than 85% of the users gave these three functions as the key reasons for accessing the Internet. Internet access was considered expensive and therefore more suited for "serious" purposes by subscribers. This study was important because the variables it explored are similar to those studied in this current research. In addition, it describes the extent of Internet use in the country and thus provides a wider room for comparison in the current study.

Doku (2001) conducted a study on the patronage of six Internet cafes in Accra. Her research focus and methodology have relevance to the present study which has a similar focus and methodology. Sixty nine percent of the respondents in the survey were males and 31% were females, suggesting a lower rate of female patronage in Internet usage in the area under study. Majority of the subjects fell within the 21-25 age cohorts, indicating that

Internet cafes in Accra are patronized mostly by the youth. Even though respondents were randomly sampled, most of them happened to be University students and graduates. Most of the respondents (who were employed) were earning between ¢260,000.00 (GH¢26.00) and ¢550,000.00 (GH¢55.00) monthly between the years 2000 and 2001 showing that though using the internet could be a drain on their financial resources, they patronised it all the same.

More than half of the respondents (69%) said they used the net to browse for information on educational opportunities and also for news around the world, though e-mails polled the highest percentage (93%) of the uses respondents put the internet to. Other uses such as exchanging information, e-commerce and chatting were not commonly used by the subjects.

The findings further revealed the number of times respondents used the internet and the time spent during each usage. Twenty six percent of the respondents checked their mails daily, 30% used the Internet weekly and 28% used it twice a week and two of them used it monthly. Almost all respondents claimed they spent a maximum of 2-4 hours and ¢2,500.00 (GH¢0.25) - ¢10,000.00 (GH¢1.00) during each usage.

Markwei (2001) conducted a survey with the aim of finding out the extent of awareness and use of the Internet and its services by the academic staff and postgraduate students of the University of Ghana, Legon. This has a special interest to the present study because its research area is almost the same as where the present study was conducted. In addition, its research focus,

methodology and population are similar to those used in the current research. The main findings of the study indicated that both staff and students were fully aware of the Internet and most of its services. Academic staff, in general, used the Internet more than the students. The study also established that both staff and students from the Faculty of Science used the Internet and its services more than those from the Faculties of Arts and Social Science.

E-mail happened to poll the most popular internet service in terms of subjects' awareness and usage of internet services. The respondents' main motivation for using the internet was communication with friends and colleagues. The email was followed, in terms of usage and awareness, by the World Wide Web. Access to the internet showed that about 25% of staff, compared to 12% of students had an account on a computer that gave them access to the internet. This was attributed to the fact that unlike students, staff might have more access to the internet in their various offices than the students. Another reason could be that staff could be more likely to afford for accessing the internet than students.

Yahoo was also shown to be the search engine used most frequently by both staff and students, with respondents form the Science faculty in both groups using it more than those from other faculties. Alta Vista and Infoseek were also widely used by respondents from the Science Faculty. Students from the Arts Faculty were shown to be the least users of these search engines. The staff also appeared to use these tools than the students. In addition, information gateways such as Arts and Humanities Data Services (AHDS) and Business and

Economics Information Gateway (Biz/Ed) were poorly used especially by the student respondents. The results further indicated that male respondents used the internet more often that female respondents among staff members, though female respondents in the case of students used it more than their male counterparts

It was postulated that the young one used the Internet more than the old, that is, the rate of Internet use decreases with age. As regards the benefits of the Internet to respondents, both staff and students from all faculties rated the Internet as very useful. The specific ways in which the Internet had helped respondents in their academic work was the provision of information in their subject areas. It was however noted that some respondents were not users of the Internet mainly because they lacked adequate knowledge or the training for it.

In conclusion, Markwei recommended the training of both staff and students to use specific tools to ensure effective utilization of the Internet in all their academic pursuits.

In a related study undertook by Bosu (2000), she conducted a study on the availability and utilisation of educational technology in the University of Cape Coast. She sought to identify availability and the level of utilisation of educational technology materials in University, 122 lecturers in the five Faculties were polled and Heads of the audiovisual centres/units were interviewed. The main instruments used for the study were questionnaire and interview. The questionnaire was used to elicit information from lecturers

whereas the interview guide used to elicit information from the heads of the audiovisual centres/ units. A checklist designed was to ascertain the quantity and kind of audiovisual equipment available at the audiovisual centres/units.

The findings from the study showed that a high percentage of the lecturers were aware of the existence of the audiovisual centres/units but had little knowledge about what the centres/units had to offer in terms of facilities and services, whatever they knew was from personal observation and enquiry. It was established that the centres/units were not adequately equipped to cater for the needs of the lecturer population, low level usage due to the physical attributes, limited access, inadequate equipment and the unavailability of the media at the time that they are needed. There was also low know-how on the part of the lecturers in relation to the use of the equipment, the centres/units are attached to Departments which control and manage what is available.

In her recommendations, the researcher stated that the centres/unit should be autonomous so that it service the whole University well, all services available should be made know to the University community and finally, there should be regular in-service training for lecturers as result of the modern trends and rapid changes in technology.

This study is of particular interest to the present research because its methodology and the population studied are similar to those used in the current research.

In a related study by Dzakpasu (2005), the researcher sought to examine the perpetual differences among lecturers of University of Education, Winneba,

to multimedia learning interfaces as an Internet initiative. In this study it was established that Internet characteristics adds to the interesting aspects in learning and taxonomy based on teaching and learning principles. One hundred and seventy-four respondents were studies using structured questionnaires. The findings from the study did indicate that majority of the lecturers agreed to accept the introduction of web technology into the University of Education, Winneba. The lecturers understood the concept of web environments and were ready to use it. Their age, gender and areas of specialization has an influence on their attitude to change. They were rather motivated by their desire to make the system work. It was recommended that teaching through the web technology should be integrated into the learning environment of the University of Education, Winneba.

The relevance of this study is to the present study stems from the fact that, the study areas for the two studies were the same, all the respondents used in the previous study are also part of the present study's respondent. The two studies sought to establish the use of ICT on the two University campuses.

Technology Leadership in the School Environment

Increasingly, school administrators and teachers and support staff are required to assume leadership responsibilities in areas with which they are unfamiliar, and for which they have received little training. New competencies that school-based administrators and the teacher staff need to develop in order to be effective in their new roles as technology leaders. An argument is made that technology leadership is much more than resource acquisition and

management. Instead, we argue that technology leadership has multiple dimensions given the complexity of schools as learning organisations. Merely installing computers and networks in schools is insufficient for educational reform.

In his critique of the current state of educational technology, Kearsley (1998, p. 51) calls on educators to "develop a new conceptual basis for applying technology" – one that looks at how we think, solve problems, make decisions and interact using computers as tools. A major challenge for technology leaders especially the administrators is to support teachers as they explore and experiment with diverse ways to integrate technology in meaningful, challenging and authentic ways across the curriculum.

A significant impediment to successful technology integration is teachers' limited access to appropriate ongoing professional development. Many staff in the school environment lacked meaningful opportunities to acquire the skills needed to meet the ICT outcomes. A challenge for technology leaders is to provide responsive and flexible professional development opportunities that focus on technology integration and design, rather than computer applications alone.

Unfortunately, technology planning has too often been limited to the goal of acquiring hardware and software. Schools have focused on purchasing equipment, setting up labs and wiring their buildings, without considering the substantial organisational and cultural changes that are necessary to support appropriate use of technology to enhance student learning, teaching, research,

sharing information and the use of the facilities in management. As a result, many schools have expensive computer labs that are being used for typing, games and drill, if they are being used at all (Glennan & Melmed, 1996).

In addition, school administrators have had to make difficult decision regarding equipment purchases, wiring and networking. In these schools, technology integration was part of a shift in power relations, control of knowledge and traditional school organisation. Leaders and teachers at all levels of the school jurisdiction are involved in developing and supporting technology-enabled learning environments for children.

Effectives of ICT Integration into the School System

Successful experiences with ICT integration can provide important lessons for educational leaders who are anxious to achieve similar results in their own schools. Increasingly, research is providing evidence that ICT integration, under certain conditions, can positively impact student learning and can facilitate school reform initiatives. The seemingly diverse examples of successful practice have five key elements in common:

1.   Student engagement;

2.   Shared vision;

3.   Equity of access;

4.   Professional development; and

5.   Ubiquitous networks.

Leaders "communicate their vision by how they spend their time, what they talk about, what problems they solve first, and what they get excited about. In every

act, leaders reinforce the values they hold and the vision they hope to achieve" (NCREL, 2000, p. 5).

Effective ICT use respects individual learning styles and offers choice, while encouraging students to select activities that challenge stereotypes. In this way, traditional organisational structures and physical boundaries have adapted to accommodate technology.

The arrival of digital technologies in schools had impacted the roles and responsibilities of staff in significant ways. ICT has triggered demands for systemic changes in public schools necessitated by the shift from the industrial age to the knowledge economy. Inevitably, teachers and principals and other supporting staff feel the pressure to change, and must find ways of implementing and sustaining technological innovations in the school environment.

Usability of ICT in Decision Making

It is a common knowledge that an organisation's survival and success depends on the quality decisions that its management makes .It can be assumed that decision-makers' attitudes towards ICT as an aid in their strategic decision making (SDM) process depend on how they perceive the functionality (the existence of suitable programme functions in the organisation) and usability of the ICT in their decision-making work. Furthermore, it can be assumed that the effectiveness and efficiency with which the ICT can support SDM are, to a large extent, driven by the usability of the ICT tools. There have been many debates in the research literature on how usability should best be defined and on

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how the system development process can be organised so as to best accomplish usability in the resulting system.

Allwood and Thomee (1998) suggested such a usability concept. This concept includes the users' acceptance of the software, i.e. their willingness to use the procedures, and their competence to use the software. User friendliness is also a part of the concept, a term which is used here in a technical sense, and includes the degree to which the software is compatible with, and gives support to the users' mental processes. Furthermore, it encompasses the degree to which the software is accessible to the user, and the degree to which it is adapted to, or is adaptable to, the specific psychological features of the individual user, including his or her preferences. Finally, user-friendliness includes the degree to which the programme provides the user with effective help resources and support staff to whom to turn to with questions. One question of interest in the present study was to what extent the different components of usability will show up in the executive managers' attitudes to, and use of ICT in the context of, SDM.

It can be noted from the above discussions that each of the studies reviewed had a bearing on the present work and therefore helped the current researcher to assess the situations that pertains at the study area and those that are different, regarding the changes in time, place and subjects.

CHAPTER THREE

THE METHODOLOGY OF THE STUDY

Organisation of Chapter

This chapter deals with the methods that were used to conduct the study. The chapter focuses on the research design adopted, the population, sample size, sampling procedures, research instrument, data sources, data collecting procedure, pre-testing of the instrument and the data analysis procedures.

Research Design

The problem under investigation required a fact-finding kind of research design. The study was quantitative, descriptive and exploratory. It was exploratory because its purpose was to examine staff's use of ICT facilities in the teaching, learning and research as well as management of the University.

Exploratory research is always undertaken when there is not enough information about the research topic under consideration. Since there was not enough information on the extent of usage of ICT facilities by the staff of the University of Cape Coast, the study sought to provide information in this regard. The study mainly employed the descriptive sample survey approach which sought to assess the frequency of use of the ICT facilities by the staff of the University of Cape Coast. In particular, the study tried to find out whether the staff used the facilities in their daily work and the constraints that they faced. This information is important because one of the objectives of the University of Cape Coast's Corporate Strategic Plan is to provide the institution

with integrated and modern information and communication technology facilities to be used for teaching, learning, research and management.

The study was also a descriptive survey because it involved collection of data in order to test hypothesises or answer questions concerning current status of the subject matter under study. It is meant to determine and reveal the way things are (Gay, 1992). It was directed towards the determination of the nature of a situation, as it exists at the time the study was conducted. As Fraenkel and Wallen (1983) pointed out, obtaining information from a large group of people to a set of carefully worded questions and carefully administered questionnaires lies in the heart of the survey research. Gay (1992) opined that descriptive survey is a research technique which is very useful when investigating educational problems. Pilot and Hungler (1995) stated that, descriptive survey basically describes, observes and documents aspects of a situation as it naturally occurs.

The choice of the descriptive survey design was motivated by the fact that, it helps to present the true state of affairs of a given situation having collected data from a number of people almost responding to the same set of questions about the situation. The data that were to collected from the respondents of the study were used to describe the existing the rate of use of the ICT facilities by the staff of University of Cape Coast and the problems encountered during the use. This reflected the true state of affairs regarding the utilisation of ICT facilities in the University of Cape Coast. It was felt that the descriptive survey design would best help find out the actual state of affairs.

Population

The study population was the staff of the University of Cape Coast. It consisted of two categories; namely, Senior Members and Senior Staff. The senior members of the University were the lecturers (teaching) and the assistant registrars and deputy registrars in the Registrar's department within the central administration and other senior members in analogous positions at the audit and finance sections (non-teaching). The senior staff were those employees of the University who are of the rank of or above administrative assistant and those in analogous positions. Table 2 below shows the distribution of population by status.

Table 2

Distribution of Population by Status

Status	No.	Percentage (%)
Senior Members (Teaching)	320	32
Senior Members (Non-teaching)	37	4
Technical Senior Staff	315	31
Non-Technical Senior Staff	325	33
Total	997	100

Source: DPU, 2005.

The senior member (teaching) category consisted of professors, associate professors, senior lecturers and lecturers. The senior members (non-teaching) included the registrar, deputy registrars, senior assistant registrars, assistant registrars, senior accountants and accountants. The senior staff were of three

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categories: those in administration, technicians and non-technical staff. The ranks for the administrative staff were chief administrative assistants, principal administrative assistants, senior administrative assistants and administrative assistants. The same positions existed in an analogous form for the other two categories. At the time of the study, the staff strength of the University in terms of senior members was 357 of which 37 were in the Registrar's department and audit and finance sections in the central administration while the total number of the senior staff was 640 (DPU, 2005). The total number of the senior staff consisted of technicians and the non-technical staff. The non-technical staff population was 325 and the remaining 315 was the staff population for the technician category. The study focussed on the non-technical senior staff of the University. This group was made up of the senior staff in administration and support services. The support services included the staff in the audit and finance sections, senior assistants and other staff performing services that are not technical.

Sample

The sample for the study comprised a total of 365 respondents. Of this number, 180 respondents were senior members (teaching) who constituted 49 % of the total sample. There was no sampling for the senior members (teaching). A census of the entire lecturer population of 320 was conducted from which the above figures were obtained for the study. Twenty-two respondents were also senior members (non-teaching) representing six percent of the sample. The remaining category of the sample was made up of 163

respondents of senior staff non-technical who represented 45% of the sample.

Table 3 below shows the distribution of sample by status.

Table 3

Distribution of Sample by Status

Status	No.	Percentage (%)
Senior Members (Teaching)	180	49
Senior Members (Non-teaching)	22	6
Non-Technical Senior Staff	163	45
Total	365	100

The choice of the sample size was motivated by the assertion made by Nwana (1992) that, if the population is of a few hundreds, a sample size of 40% or more will do; if the population is of several hundreds a sample size of 20 % will be appropriate; a few thousands, a 10 % will do and if is of several thousands, five percent or less will do. So from the foregoing, the 50 % sampled was appropriate for the senior staff non-technical. In the non-technical, there were two categories; those in pure administration duties and those performing non-administrative duties.

<div align="center">Sampling Procedures</div>

In this study, a combination of sampling methods was used for the selection of sample. The study population for the senior staff was stratified and for that matter multi-stage sampling method was used in the selection of the sample. The quota scheme was used to apportion various quotas to the groups in the population for the sample to be representative enough to make the

generalisation valid. The simple random sampling, that is, the lottery type was employed to select the study sample especially from the senior staff and the senior members (non-teaching). In selecting the sample size for the senior members (non-teaching), their names were written on pieces of paper and put in a container. The container was shaken and shuffled, the respondents were picked after each shake and shuffled until all the 22 were obtained. The respondents were looked for and the questionnaires were given them to complete. The sample size for the senior staff was arrived on by the quotas given to the various groups in that category. The simple random sample technique that is, the lottery method was to obtain the required sample size for the study. The respondents for each group were looked for and the questionnaires administered to them. This was done until the required numbers for the groups in the study population for the senior staff were arrived at.

Research Instrument

Three sets of instruments were designed and developed for the study. To facilitate the design and development of the instruments, the researcher searched the literature and used the issues raised in background of the study to write questionnaire items that would elicit information to answer the research questions. Thus, three sets of questionnaires were constructed.

The use of the questionnaires as opined by Kumekpor (1993) is useful and appropriate for all categories of the population. Sarantakos (1998) identified questionnaires as being helpful in that, they standardize data collection,

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ensuring high confidentiality of respondents eliciting truthful information from them.

The questionnaires included a set of both open and close ended items and had seven sections with direct linkage to the research questions raised for the study (appendices A, B and C). Some items were open-ended; they allowed the respondents to give responses that the researcher did not think of. As Lokesh Koul (1997) pointed out, open questions provide for greater depth of responses and the freedom given to the respondents to reveal their opinions and clarify their responses. The questionnaires were designed to be completed by the respondents themselves because the study population was highly literate.

The seven sections of the questionnaire solicited information on the extent of usage of the ICT facilities, types of ICT applications available in the University set-up, benefits, access, awareness, perceptions and the problems and challenges associated with ICT applications in the University by the staff. The first section of each set of questionnaire elicited on information on the background of the respondents that were useful for the investigation. The variables covered were gender, age, department, faculty and rank. These are important since social construct can affect their decisions to use the facilities.

The second section dealt with the availability, adequacy and location of the ICT facilities in the school system. Respondents were required to indicate where a facility was located, its adequacy that is meeting the individual needs and its availability for use play a major factor in their decision to use the facility. This section sought to find out whether the respondents had access to

computers and if the computer was networked; that is, if it was connected to other computers in the system or otherwise. The type of computer used was also required. Respondents were also asked to indicate the ICT tools or the application software that they use in their work and also where these resources were located in the various places in the system. This item was included because in some organisations such resources were regulated by the system administrators to ensure judicious and efficient use of these resources. If they had computers that were networked and are hooked onto the intranet and internet then some resources can easily be shared by all the users on the system. Information on the speed and the reliability of the internet was sought from the respondents. The purpose of this section was to find out whether the right kind of resources were provided and that they were at the expected places and access to the facilities are easy when the need to use them arises.

The third section dealt with the proficiency of staff in the use of the ICT facilities in the University. There were items relating to respondents' capacity to use the ICT facilities available to them, that is whether they had had any training in the use of the facilities, where they had the training from and whether the training was adequate or not.

The fourth section of the questionnaire elicited information on the application of ICT in teaching, learning, research and management. The purpose was to investigate the extent to which the academic and two categories of non-academic staff of the University effectively and efficiently use the ICT facilities in relation to their work. These items were on a 4-point Likert type

scale on with the responses, " very often", "often", "quite often" and "not at all".

In sections five and six, information elicited was on the use of the ICT facilities in research by the staff to enhance their knowledge, competencies and skills and also to what extent do the staff, use the ICT facilities to access academic information electronically from the library. The purpose was to ascertain the how easy and fast information can be accessed from the library not necessarily walking to the library.

The final section of the questionnaire dealt with the institutional support for the ICT facilities put in place by the University of Cape Coast. The first items were meant to elicit information on existence of certain committees and units in University system that supports the use and maintenance of ICT facilities on campus. The next sets of items were to elicit information on what was considered to be constraints in the application and use of the facilities. There was an item that sought to find out where the University should double its efforts in terms of acquisition of ICT equipment and if possible reduce the problems staff encountered in using the facilities. The issue of the satisfaction about the availability of ICT facilities on campus was asked and respondents were expected to indicate their views by choosing from options provided. The last item was an open ended question that elicited suggestions from respondents. This brought up issues that the researcher never thought of. In processing the data, the researcher took into consideration the comments and

suggestions made by the respondents. The deductions from the responses were used for the conclusions and the recommendations from the study.

Pre-testing of Instruments

The main objective of the pre-testing was to check whether the questions were clear enough and to improve upon their quality of the study. It was meant to identify problems that might arise during the administration of the questionnaire and also to establish the content validity and internal consistency (reliability). Some lecturers in the field of research at the Centre for Development Studies, UCC and colleague students were given the questionnaires to preview. Their suggestions were used to improve upon the questionnaires. Cronbach's Alpha α was used to determine internal consistency (reliability) of the questionnaires (Appendix D).

The participants for the pre-testing were selected from the Faculties of Social Sciences and Science and all the Faculty Officers. The reason for this choice was that the remaining faculties have the same composition of staff as the selected faculties. Also, the Faculty Officers used for the pre-test had been in the University system for a while and had gone through various ranks. The results from the pilot study enabled the researcher to revise the questionnaires and remove ambiguous questions. It also helped in streamlining and reducing the number of items on the three sets of questionnaires. Questions that were found to be overloaded were made simpler and clarity of expression was also ensured. In section B, item six was initially, *do you have access to a computer?* And the respondents are expected to tick *"yes"* or *"no"*, the item was changed

to the present state to elicit more information, there was no question as to whether the respondents had had any training on the use of ICT facilities and where they had it from, but these items have been added. The items in sections D, E and F started with *"what extent do you..."* these items were changed to *"how often do you..."*, *"funds to purchase new equipments"* was removed as one of the constraints in the application of ICT facilities, in prioritising the ICT needs of the University of Cape Coast., the respondents were asked to rate them on a 5 point scale. The question was not clear to them so it was revised to Rank on a 3 point scale. The final instruments adopted for the study are as indicated in appendices A, B and C.

Data Sources

The study made use of both primary and secondary sources of data. Primary data were collected through the use of questionnaires administered to the staff of the University. The staff categories used were senior members (teaching and non-teaching) and senior staff in the Faculties, Sections and Units in the University. Published and unpublished literature particularly from the internet, journals, newspapers, reports, recommendations from committees, articles, conference papers and unpublished theses on the subject were utilized as secondary sources of data.

Data Collection Procedure

The researcher and two research assistants collected the data for the study. The research assistants were given a day's training to enable them understand the questions in the questionnaire and also to get the focus and the

intent of the research right so that they could explain to the respondents if the need arose. The assistants helped in administering the questionnaires to the respondents in the senior staff category and senior members (teaching) and the remaining categories of respondents were handled by the researcher himself.

To facilitate the collection of data, strict protocol requirements were adhered to. In the case of the staff in the Registrar's Department, permission was sought from the Registrar with an introduction letter from the Director of Institute for Educational Planning and Administration, University of Cape Coast (IEPA), to administer the questionnaires to his deputy and assistant registrars. This enabled me to get all the questionnaires from that category of respondents. As much as possible all the other respondents were encouraged to response to the questions in the questionnaire. They were told that, this was strictly an academic exercise so they should respond to the questions without any reservations. Confidentiality was assured and respondents were encouraged to return the completed questionnaires to the researcher immediately. Alternatively, the researcher was to return the next day for the completed questionnaires. The action was taken to reduce the incidence of maturation.

In spite of these measures, a few problems were encountered during collection of the data, some lecturers were attending workshops and conferences outside the University; some were on study leave, others were attending meetings and lectures which made it difficult to contact them. In the senior members category, a total of one hundred and eight-five (180) completed questionnaires were returned by the senior members (teaching) and twenty-two

by the senior members (non-teaching). A total of one hundred and six-three (163) completed questionnaires were returned by the senior staff category.

Data Analysis Procedures

The data collected were the views of the senior members and senior staff in the University of Cape Coast on the use of ICT facilities in their work who were sampled for the study. The design for the study was descriptive so descriptive statistical tools were used to analyse the data from the field. The analyses were done using the main sections of the questionnaires in relation to the research questions raised. Quantitative data were checked, edited, coded, serialised and processed with the SPSS software programme. In scoring the items fashioned on the Likert scale, the tiems were weighted as follows; 4-very often, 3-Often, 2-Quite often and 1-Not at all. The SPSS software helped the researcher to analyse data in charts, frequencies, tables, and percentages of occurrences that is the univariate analysis as opined by Owen and Jones (1978). This presented a clear picture of the responses from the respondents. Bivariate and multivariate analysis were also done, this made it possible to make inferences to the general population.

The bivariate analyses done was the chi square test to show the relationship between the variables that is the relationship between age and rate of usage of the ICT by the staff of the University. The results from the test were used to generalise the findings to population from which the study sample was drawn from.

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Summary

This chapter has been devoted to the methodology used for the study. The design for the study was described and the rationale for its adoption, the population for the study that is those who constituted the population to be studied, the sample size that is the part of the population that were studied for the study. The sampling procedure, research instruments, pilot study and data sources for the study were discussed. The chapter also dealt with the data collecting procedures and the data analysis procedures used in the study. The next chapter which is the fourth dealt with the analysis and the discussion of the data collected from the field to corroborate or brings new dimensions to the existing literature on the subject matter that was studied.

CHAPTER FOUR

RESULTS AND DISCUSSION

The study sought to find out the extent of use of the ICT facilities in the University of Cape Coast. Questionnaires were administered to three categories of staff targeted for the study namely; senior members (teaching), senior members (non-teaching) and the senior staff (non-technical). The results of the study are presented and discussed in this chapter.

Background Characteristics of Respondents

In all, 365 respondents were involved in the study. Senior members (teaching) were 180 forming 49%, senior members (non-teaching) were 22 (6%) and 163 with 45% forming the respondents for the senior staff (non-technical). Table 4 shows the distribution of senior members (teaching) by faculty who participated in the study.

Table 4

Distribution of Senior Members (Teaching) by Faculty

Faculty	No.	Percentage (%)
Agriculture	21	11.7
Arts	24	21.1
Education	51	13.3
Science	46	28.3
Social Sciences	38	25.6
Total	180	100.0

Table 5 shows the distribution of senior members (non-teaching) by section/faculty who participated in the study.

Table 5

Distribution of Senior Members (Non-Teaching) by Section/Faculty

Section/Faculty	No.	Percentage (%)
Academic	4	18.2
Personnel	3	13.6
Training & Dev't	2	9.1
General Administration	6	27.3
Faculty	7	31.8
Total	22	100.0

Table 6 shows the distribution of non-technical staff senior by section/faculty, that is those performing administrative and non-administrative duties in the various sections/faculties of the University, who participated in the study.

Table 6

Distribution of Non-Technical Senior Staff

Section/Unit	No.	Percentage (%)
Agriculture	21	12.9
Arts	12	7.4
Education	33	20.2
Science	30	18.4
Social Sciences	10	6.1
Support Service	57	35
Total	163	100.0

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Demographic characteristics of respondents

Gender and age play an important role in the choices and the activities that one undertakes. It was therefore considered proper for the gender and ages of the respondents to be taken and analysed so that comparisons can be made.

Table 7 shows the gender composition of the senior members (teaching), senior members (non-teaching) and non-technical staff who participated in the study. Nearly 89.0 % of the senior members (teaching) were males, emphasizing the male dominated nature of the teaching staff. Similarly, about 73% of the senior members (non-teaching) were males. In the case of the non-technical senior staff, the gender composition was fairly balanced. Table 8 shows the age range of the three categories of respondents who participated in the study.

Table 7

Gender Composition of Respondents

	Categories of Staff					
Gender	SMT		SMNT		NTSS	
	No.	%	No.	%	No.	%
Male	160	88.9	16	72.7	93	57.1
Female	20	11.1	6	27.3	70	42.9
Total	180	100.0	22	100.0	163	100.0

SMT= Senior Members (Teaching), SMNT= Senior Members (Non-Teaching), NTSS=Non-Technical Senior Staff

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Table 8

Age Distribution of Respondents

	Categories of Staff					
Age	SMT		SMNT		NTSS	
	No.	%	No.	%	No.	%
25 - 35	24	13.3	3	13.6	97	59.5
36 - 45	58	32.2	12	54.6	21	12.9
46 - 55	76	42.2	7	31.8	41	25.2
56^+	22	12.2	-	-	4	2.5
Total	180	100.0	22	100.0	163	100.0

SMT= Senior Members (Teaching), SMNT= Senior Members (Non-Teaching), NTSS=Non-Technical Senior Staff

The figures from Table 8 show that 74.4 % (134) of the senior members (teaching) who were involved in the study were between ages of 36 and 55 year with 12.2 % (22) above the age of 56 years. In the case of senior members (non-teaching), nearly 55 % (12) of them were between the ages of 36 and 45 years. Over 70 % (118) of the non-technical senior staff were between the ages of 25 and 45 years. Only 2.5 % were above the age of 56 years.

The University of Cape Coast has 40 academic departments and several sections/units. The academic departments have their distinct role of teaching and research and this is done with various modes methods of teaching that are chosen to suit the needs particular to areas of specialisation. In this case, efforts were made to ensure that all academic departments were involved in the study. There are also various sections/units whose operations are unique which are

undertaken for the well being of the University. The study covered all these sections and units.

The ranks of the respondents from the various categories were sought. There were several ranks of staff in the system, staff in various categories with different ranks performs different and unique functions with some of the functions cutting across the ranks. This was to identify the ranks of the respondents since ones rank or status in the system tells the level of authority that person has and the degree of access to resources at his disposal for the performance of his duties and tasks.

Table 9 represents the various ranks of the senior members (Teaching) who took part in the study. From Table 9, 1.1 % (2) of the total respondents in the senior members (teaching) were full professorial rank with 73.3 % (132) of them being in the category of lecturer. This clearly showed that most of the respondents covered in the study were lecturers. Table 10 depicts the ranks of the senior members (teaching) who participated in the study.

Table 9

Ranks of Senior Members (Teaching)

Ranks	No.	Percentage (%)
Professor	2	1.1
Assoc. Professor	7	3.9
Senior Lecturer	39	21.7
Lecturer	132	73.3
Total	180	100.0

Table 10

Ranks of Senior Members (Non-Teaching)

Ranks	No.	Percentage (%)
Deputy Registrar	2	9.1
Sen. Assist. Registrar	7	31.8
Assistant Registrar	13	59.1
Total	22	100.0

From the Table 10, 59.1% of the respondents were Assistant Registrars with 9.1% of them being Deputy Registrar category. In Table 11, the respondents were grouped into two categories, that is, those in administrative positions and those in non-administrative positions. Over 54.6% of the respondents were in the administrative positions, with the remaining 45.4% of the respondents being in the non-administrative positions. This shows that there were more people in the administrative positions in the senior staff non-technical category were involved in the study. The rest of the analyses of the study was done based on the research questions raised by the researcher to guide the study.

Table 11

Ranks of Non-Technical Senior Staff

Ranks	No.	Percentage (%)
Administrative Positions		
Admin. Assistant	20	12.3
Sen. Admin. Assistant	43	26.4
Principal Admin. Assist.	19	11.7
Chief Admin Assist.	7	4.3
Non-Administrative Positions		
Accounting Assistant	9	5.6
Sen. Acct. Assistant	10	6.1
Auditing Assistant	10	6.1
Sen. Auditing Assistant	4	8.6
Purchasing Officer	5	3.1
Sen. Research Assistant	20	12.3
Sen. Programming Assist.	6	3.7
Total	163	100.0

Findings of the Study

Research Question 1: What are the types of application programs, other ICT facilities and their accessories that the staff of the University of Cape Coast use in their daily activities?

This question was meant to find out the availability and location of the ICT facilities at the disposal of the staff in their various departments, sections and units and whether the staff of University of Cape Coast used them in their daily activities? Tables 12, 13 and 14 summarise the relevant information.

Table 12

Senior Members' (Teaching) Views Regarding Accessibility to Computers

Accessibility	No.	Percentage (%)
Have no access to a computer	12	6.7
Have a computer that stands alone	65	36.1
Have a networked computer	103	57.2
Total	180	100.0

Table 12 shows that 93. 3 % (168) of the senior members (teaching) do have a computer in their offices with 6.7% (12) of them have no access to computers. Over 50 % of the lecturers did indicate that they have access to computers in their office which were networked onto the intranet or internet. A little over 36 % have computers that were not networked onto the intranet or internet.

Table 13

Senior Members' (Non-Teaching) Views Regarding Accessibility to Computers

Accessibility	No.	Percentage (%)
Have no access to a computer	1	4.5
Have a computer that stands alone	8	36.4
Have a networked computer	13	59.1
Total	22	100.0

The Table 13 shows 95.5 % (21) of senior members (non-teaching) have access to computers in their offices. More than half, that is, 59.1% (13) of them had computers that are networked and connected to intranet or internet in their offices.

Table 14

Senior Staff Non-technical Views Regarding Accessibility to Computers

Accessibility	No.	Percentage (%)
Have no access to a computer	28	17.2
Have a computer that stands alone	61	37.4
Have a network computer	74	45.4
Total	163	100.0

As shown in Table 14, 82 % (135) of the non-technical senior staff had access to computers in their offices with 17.2 % (28) having no access to computers in their offices. Of the percentage that had access to computers in their offices, 45 % (74) were networked and hooked onto the intranet/internet. The results show that the senior members (non-teaching) had the greatest access to computers in their offices and invariably also had the greatest percentage of their computers hooked onto the intranet or internet.

The researcher was interested in knowing the most popular type of computer being used by the staff of the University. The rationale was that when a particular brand or type of computers is used, the cost of maintenance reduces. This is because when service technicians from the suppliers come over, they service all the machines before they return to their company. Also, local technicians acquire indepth knowledge, skills and expertise and eventually take over the maintenance and services of the computers when service warranty from the supplier expires.

The responses to the question are presented in the Table 15. The Table shows the brands of computers that were being used by all the categories of staff in the University of Cape Coast during the period of the study. As shown in Table 15, 105 senior members (teaching) used the DELL type of computers representing 58.3% of sampled survey. The least used type among the senior members (teaching) was Expert Computer which had 1.1 % (2). Eighteen percent of the senior members (teaching) used HP Compaq Computers. In the category of senior members (non-teaching) 50.0 % (11) used DELL Computers

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with 18.2 % (4) using Compaq and HP Compaq Computers. The trend was the same in the non-technical senior staff category. Dell Computers was the most popular amongst them, 43.6 % (71) of them uses DELL Computers with nearly 8 % (13) using Toshiba and other types of computers. Compaq was the next most popular type used after Dell.

Table 15

Types of Computers used by the Staff of the University of Cape Coast

| Types | Categories of Staff | | | | | |
| | SMT | | SMNT | | NTSS | |
	No.	%	No.	%	No.	%
Compaq	17	9.4	2	9.1	37	22.7
Hewlett Packard (HP)	12	6.7	2	9.1	16	9.8
HP Compaq	34	18.9	7	31.8	26	16.0
Expert Computer	2	1.1	-	-	-	-
Dell	105	58.3	11	50.0	71	43.6
Toshiba	-	-	-	-	5	3.0
Other Types	10	5.6	-	-	8	4.9
Total	180	100.0	22	100.0	163	100.0

SMT= Senior Members (Teaching), SMNT= Senior Members (Non-teaching), NTSS=Non-Technical Senior Staff

From the foregoing analysis, it is evidently clear that, DELL Computer were the most popular type of computer used by the staff of the University. This could be due to the fact that the DELL computers and its accessories have high levels of performance, efficiency, cost and the staff might a have a special preference for it over other brands of computers. A check from the Purchases

Office confirmed that the brand was relatively less expensive compared to other brands. It cost ¢ 11, 300,000.00 (GH¢1,130.00) to have a DELL computer and its accessories whereas at the same time one will need 12,700.000.00 (GH¢1,270.00). The Officers in charge of purchases stated that the DELL had high specifications in relation to other brands, the following were given as specifications of the brand Pentium 4 (Intel processor), 3.0 GHZ, 512 MB RAM, FDD: DVD-RW, LAN WIN XP-PRO LCD 17″(TFT Screen). Moreover, the researcher was informed that the suppliers provide one year warranty and service agreement for the computers. It could also be fact that the University's technicians might have acquired a lot of expertise, knowledge and technical know how when it comes to handling this brand of computer in the areas of maintenance and repairs. This observation was validated by the Computer Centre which provides support services for the University with regard to ICT use. So DELL has become the preferred choice when there is the need to acquire a computer for the work of the University.

The next item on the questionnaire in to relation to the research question concerned the types of application programs that staff use in their work. The respondents were asked to indicate by ticking as many as possible the ICT tools or application software that they use in their daily work or task or duties. Frequency tables were constructed from the responses given by the senior members (teaching), senior members (non-teaching) and non-technical senior staff.

Tables 16, 17 and 18 present the most frequently used application

softwares or programs by the staff of the University in their daily work.

Table 16

Application Programs or Software Used by Senior Members (Teaching)

Application Software	No.	RF (%)
MS Word	179	25.5
Excel	76	10.8
Desktop Publishing	35	5.0
Ms Access (Data mgt sys)	33	4.7
Power – Point	107	15.3
E-Mail	138	19.7
Internet/Intranet Access	133	19.0
Total	701	100.0

As show in Table 16, nearly 26 % (179) of the senior members

(teaching) mostly used the MS Word application software. This was followed

by the email and intranet or internet access having 19.7 % (138) and 19.0 %

(133) respectively. The senior members (teaching) also do use the Power-Point

application having a substantial 15 % (107). The high usage of the MS Word

was obvious in the sense that everybody who login into a computer will use the

application in one way or the other. The lecturers use the software to prepare

their teaching notes, typing assignments and examination questions, typing

research findings, reports and other related works.   Applications programs like

Excel, Desktop publishing and MS. Access (Database management systems) are rarely used by the lecturers looking at the percentages in the table. This distribution in the table gives an impression that the respondents use applications software like MS Word, PowerPoint, E-mail, Intranet and Internet access more often than the application softwares like Excel, Desktop Publishing and MS. Access (Data management systems).

Table 17

Application Programs or Software Used by Senior Members (Non-Teaching)

Application Software	No.	RF (%)
MS Word	21	24.4
Excel	14	16.3
Desktop Publishing	7	8.1
Ms Access (Data mgt sys)	9	10.5
Power – Point	10	11.6
E-Mail	13	15.1
Internet/Intranet Access	12	14.0
Total	86	100.0

From Table 17, MS Word was the most popular software application used by respondents having 24.4 % (21). The trend for the usage of the other applications in the case of the senior members (teaching) was the same, looking at the figures in Table 16.

As shown in Table 18 below, the MS Word polled the highest percentage of the usage representing 30.8% (157). The next applications with higher usage were email and intranet or internet access. The less used programs were the Desktop publishing and MS Access with 4.7% (48).

Table 18

Application Programs/Software Used by Non-Technical Senior Staff

Application Software's	No.	RF (%)
MS Word	157	30.8
Excel	75	14.7
Desktop Publishing	24	4.7
Ms Access (Data mgt sys)	24	4.7
Power – Point	64	12.5
E-Mail	83	16.3
Internet/Intranet Access	83	16.3
Total	510	100.0

From the foregoing analysis, it was clearly evident that, the most popular application softwares amongst the categories of the staff of the University of Cape Coast were MS Word, email, intranet or internet and Power-Point and the least used ones were Desktop Publishing and MS Access (Data Management Systems).

Research Question 2: Where are the ICT facilities and application programs available to the staff located?

This research question was meant to find out where the ICT resources for the staff of University were located in the system which enables them to utilise them. Respondents were asked to indicate the ICT tools or application softwares that they used in their work and where these resources are located in the various places in the system. Staff in institutions or organisations should have easy access to the all the equipment needed for the execution of their duties. In some organisations such resources are regulated by the system administrators to ensure judicious and efficient use of the organisation's time and other resources. If the computers are networked to each other on a local intranet, all these resources are shared and the cost of acquiring one for every office is eliminated. Tables 19, 20 and 21 show the locations of the facilities in respect of computers, printers, application programs/ softwares.

Table 19

Location of ICT Resources Available to Senior Members (Teaching)

	Relative Frequency (%)				
Resources	Own Office	Head's Office	Other Offices	Com. Lab.	ICT Centre
Computers	44.9	14.0	11.3	18.2	11.6
Printers	36.0	25.1	1.0	25.6	12.3
Software	53.0	12.3	9.8	14.0	10.9
Internet Access	39.2	11.9	10.8	14.0	24.1

Table 19 shows where the respondents have access to the ICT resources in the University of Cape Coast. Nearly 45 % of the senior members (teaching) indicated that they accessed the facilities in respect to computers in their offices. This was followed by 18 % who indicated that they can also have access to computers from the Department's Computer Laboratory. The respondents also did indicate that apart from these two places, they can also have access to computers located in the Head of Department's office, in other offices, Faculty Computer Laboratories and the University Information and Communication (ICT) Centre.

The trend is the same for the location of printers and application softwares. Majority of the respondents had access to printers and softwares in their offices whereas they can also accessed the printers either located in the Head of Department's office, in other offices, the Department or Faculty Computer Laboratories and the ICT Centre. Respondents indicated that they could access the internet on their computers in their offices or the ICT Centre and the Department or Faculty Computer Laboratory. The responses showed that the University had done its best in the provision of the ICT facilities for use by the senior members (teaching) of the University. This is because the staff of the University had access to all the ICT facilities that they needed for the performance of their tasks in their offices. Where these facilities were not

available in the lecturers' own offices, they could easily be accessed in other

places on campus.

Table 20

Location of ICT Resources Available to Senior Members (Non-Teaching)

	Relative Frequency (%)				
Resources	Own Office	Head's Office	Other Office	Com. Lab.	ICT Centre
Computers	66.7	10.0	16.7	3.3	3. 3
Printers	48.3	17.2	34.5	-	-
Softwares	68.8	-	-	-	31.2
Internet Access	58.3	-	-	-	41.7

Table 20, shows that, nearly 67 % of the senior members (non-

teaching), who were involved in the study had access to computers from their

offices. They also had access to computers in the other offices. The same trend

is seen in respect to accessibility to printers, nearly 48 % have the printers in

their offices whereas they can also have access in the other offices. Almost 69

% have access to application softwares in the offices. In respect to accessibility

to intranet and internet they indicated that, they accessed the facilities either in

offices or the ICT centre.

Table 21

Location of ICT Resources Available to Non-Technical Senior Staff

	Relative Frequency (%)				
Resources	Own Office	Head's Office	Other Office	Com. Lab.	ICT Centre
Computers	48.1	17.6	16.7	7.7	9.9
Printers	45.0	20.0	24.0	4.0	7.0
Softwares	52.8	15.4	20.0	5.1	6.7
Internet Access	33.7	19.0	20.0	4.7	22.6

Table 21 shows the responses from the non-technical senior staff when asked to indicate where their ICT facilities were located. From the Table, 48 % indicated that the computers that they use were in their offices followed by the Head's office. The table shows that most of the ICT resources were located in the offices of the staff.

From the results, it can be seen that, in the University of Cape Coast there are several printers in the system which are standing alone, which means that the University had spent a lot of money to get individual printers for staff whereas it would have been cost effective and cheap if the University had bought a number of network printers and hooked them to all the computers in the system as done in some large organizations.

On the application software, all the respondents indicated that the application softwares that they used daily were located on the computer that they used. This shows that in the University of Cape Coast, the University has no system administrators who regulate the use of application softwares. The

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staff can have access to any application software that they wish to use whether it relates to their work or not. In some organizations all the application softwares are located on a main server, managed by the system administrators. The application softwares are given to the staff based on their role in the organization. This is to ensure that staff do what they are expected to do during the organization's working hours. All other applications are made available to staff after the normal working hours. Organizations do this to ensure efficient use of time and get the best of output from staff. This situation is the opposite in the University of Cape Coast where all the staff of the University irrespective of their roles in the system have access to all the application software provided they have access to a computer.

The speed, reliability and stability of the UCC intranet or internet facilities were sought from the respondents. This was to establish whether the resources, files in remote locations and other shared facilities can be accessed easily irrespective of where they are located on campus when the need to use them arises. The respondents were asked to rate the reliability and stability of UCC intranet or internet connection in terms of the number of hours or days it was on. The Tables 22, 23 and 24 show the ratings of the reliability of the intranet or internet of the connection from all the respondents of the study.

Table 22

Senior Members (Teaching) Rating of the Reliability of the Intranet and Internet Connectivity on UCC Campus.

Rating	No.	Percentage (%)
Very Reliable	22	12
Unreliable	81	45
Reliable	70	39
Very reliable	7	4
Total	180	100

As shown in the Table 22, nearly 57 % (103) of the senior members (teaching) stated the intranet or internet connectivity on campus was unreliable or worse. However, 43% (77) indicated that the intranet or internet connection on campus was reliable or better. This difference in perception of the reliability of the connectivity may be due to the fact that some Departments and Faculties probably had a good network in place and so the connectivity appeared stable whereas in Faculties and Departments where the networks were not good, down-rated the connectivity as unreliable.

Table 23

Senior Members (Non-Teaching) Rating of the Reliability of the Intranet and Internet Connectivity on UCC Campus.

Rating	No.	Percentage (%)
Very Reliable	1	4.5
Unreliable	11	50.0
Reliable	9	41.0
Very reliable	1	4.5
Total	22	100.0

From the Table 23, very unreliable and unreliable of the intranet and internet connectivity had the highest response, which was over 50.0% (11) half of senior members (non-teaching), rated the connection as unreliable or worse. The trend is the same as in the case of the senior members (teaching) in Table 23 with similar reasons.

As shown in Table 24, 46.8 % (77) stated that the intranet and internet connectivity on campus was unreliable with 53 % (86) stating that the connectivity of the intranet and internet was reliable. This response from the non-technical senior staff was in sharp contrast with the positions of the senior members (teaching and non-teaching). The reason might be that, the senior member uses the internet and intranet facilities more often than the senior staff.

Table 24

Non-Technical Senior Staff Rating of the Reliability of the Intranet and Internet Connectivity on UCC Campus

Rating	No.	Percentage (%)
Very Reliable	17	10.0
Unreliable	60	36.8
Reliable	77	47.2
Very reliable	9	6.0
Total	163	100.0

In the case of the reliability of the connectivity of the intranet and internet in terms of when one wants to use facility, the responses from the senior members (teaching), senior members (non-teaching) and non-technical senior staff were the same in that the connection was highly unreliable. So from the results, it was clear the intranet and internet connectivity on UCC campus were unstable and unreliable and as a result, might affect the use of the resources.

The Table 25 show the ratings of the speed of the intranet or internet of the connection from all the respondents of the study.

Table 25

Rating of the Speed of the Intranet and Internet Connectivity on UCC

Campus by Staff

Rating	Categories of Staff					
	SMT		SMNT		NTSS	
	No.	%	No.	%	No.	%
Very Slow	18	10.0	1	4.5	12	7.4
Slow	82	45.6	13	59.1	53	32.5
Fast	72	41.1	8	36.4	89	54.6
Very Fast	6	3.3	-	-	9	5.5
Total	180	100.0	22	100.0	163	100.0

SMT= Senior Members (Teaching), **SMNT**= Senior Members (Non-Teaching),
NTSS=Non-Technical Senior Staff

From Table 25, 55.6 % (100) of the senior members (teaching) stated

that the speed of the UCC intranet or internet connectivity was slow. In the case

of senior members (non-teaching), 63.6 % (14) stated that the speed of the

intranet/internet connectivity on campus was slow. This was not the same for

the non-technical senior staff who indicated that the connectivity was fast since

60.1 % (98) of them had that opinion. So looking at the figures in the table for

all categories of staff, one can say that the intranet or internet connectivity on

UCC campus was slow at the time of the study.

Research Question 3: Does the staff have the capacity to use ICT facilities?

This research question was meant to find out whether the staff had the capacity to use the ICT facilities at their disposal. The question tried to determine whether staff were proficient in the use of the ICT facilities in the University. The respondents were asked questions as to whether they had the capacity to use the ICT facilities available to them. In particular, they were requested to indicate whether they had had any training in the use of the facilities. If they had had any training, where did they received that training and how adequate was the training.

When senior members (teaching), members (non-teaching) and non-technical were asked whether they had had any training, 89% (160), 90 % (20) and 86 % (140) respectively replied in affirmative. Table 26 shows where those who had received some training got the training from.

Table 26

Venue of Training on ICT Received by Staff

	Categories of Staff					
Location of Training	SMT		SMNT		NTSS	
	No.	%	No.	%	No.	%
From UCC	46	25.6	16	72.7	49	30.1
From Elsewhere	59	32.8	2	9.1	50	30.7
Learnt on Their own	55	30.6	2	9.1	41	25.2
No Training	20	11.0	2	9.1	23	14.0
Total	180	100.0	22	100.0	163	100.0

From Table 26, majority of the senior members (teaching) sampled for the study had their training in the use of the ICT facilities from elsewhere. The training was not provided by the University. This could mean that they had the training before joining the University or outside the University while in the service of the University. Nearly a third of the respondents (30.6 %) learnt the use on their own. This shows that more than two thirds of the senior members (teaching) sampled studied had their ICT training outside the University. In the case of the senior members (non-teaching), almost all them had their training in the use of the ICT facilities from the University with four indicating that they were not trained by the University. Only two had had no training in ICT use. This was a different picture when compared with the senior members (teaching). When the non-technical senior staff were asked to indicate whether they had had any training in the use of the ICT facilities available to them, 86 % (140) indicated that they had had training in ICT use.

From the responses gathered, it was clearly established that majority of the staff of the University had had some level of training in the use of the ICT facilities. Training to enhance the capacity of the staff to use the facilities came from three sources. This mighty be due to fact that most of the staff of the University did not want to be left behind in the area of ICT use.

The respondents were also asked to indicate whether the training that they had received was adequate, taking into consideration the kind of activities that they undertake using the facilities. The responses from the respondents are presented in Table 28 which shows the distribution of responses from the senior

members (teaching), senior members (non-teaching) and non-technical in respect to the level of training ICT received.

The figures in Table 27 show that more than half 55.6 % (100) of the senior members (teaching) indicated that the training that they had received was adequate or better. A small fraction 16.1 % (29) could not indicate whether the training that they had received was inadequate, adequate or very adequate. This position could have resulted because they had realized that there were a lot of facilities that they could not use and had to call a colleague to assist to the facilities. Therefore, they might have felt that they would need further training.

Table 27

Level of Training received by Staff of the University of Cape Coast

| Level of Training | Categories of Staff | | | | | |
| | SMT | | SMNT | | NTSS | |
	No.	%	No.	%	No.	%
Inadequate	51	28.3	7	31.8	45	27.6
Adequate	90	50.0	12	54.5	73	44.8
Very Adequate	10	5.6	1	9.2	15	9.2
No Response	29	16.1	2	18.1	30	18.4
Total	180	100.0	22	100.0	163	100.0

The responses from the senior member (non-teaching) also showed that over 63.7 % (13) of the respondents indicated that the training that they had was substantial in terms of adequacy with 31.8 % (7) stating that the training that they had received was inadequate. Two people couldn't neither state whether

the training that they had was inadequate, adequate nor very adequate. The distribution of responses from the non-technical senior staff show that 54.0 % (88) of them stated that their training pertaining to the use of ICT facilities was adequate whereas 27.6 % (45) of staff in the category sampled indicated that, the training that they had received was inadequate. The responses also show that 18.4 % (30) could neither state whether the training that they had received was inadequate, adequate nor very adequate.

In summary, one can say that the staff of the University of Cape Coast, that is, senior members (teaching), senior members (non-teaching) and non-technical senior staff had an appreciable of levels of training in respect to use of ICT facilities available to them. It seems majority of them had had some kind of training, it was just half of them around 50% felt that the training was adequate.

Research Question 4: What is the level of knowledge of the staff in the use of the ICT facilities?

The study sought to establish the level of knowledge of the respondents in the use of the ICT facilities at their disposal. They were to state whether they were beginners, ordinary or expert users in the field of ICT, taking into consideration the knowledge that they possessed in relation the use of the facilities. Their responses are given in the Table 28 for all the three categories of respondents.

Table 28

Level of Knowledge of Staff of the University of Cape Coast in ICT Use

	Categories of Staff					
Level of Knowledge	SMT		SMNT		NTSS	
	No.	%	No.	%	No.	%
Beginner	35	19.5	-	-	30	18.4
Ordinary	139	77.2	21	95.5	116	71.2
Expert	6	3.3	1	4.5	17	10.4
Total	180	100.0	22	100.0	163	100.0

From Table 28 above, majority of the respondents in all the staff categories were ordinary users in the field of ICT. Almost all the senior members (non-teaching) 95.5% (21) were ordinary users. The non-technical senior staff had the highest percentage of 10.4 % (17) being expert. This clearly shows that the staff of University of Cape Coast has an appreciable of level of knowledge in relation to use of the ICT facilities at their disposal.

Research Question 5: How often do staff use the computer and the other ICT Facilities in their Work?

This research question was asked to elicit information on the use of the computers and other ICT facilities by the staff of the University in respect to teaching, learning research and management. The purpose was to investigate the extent to which the senior members (teaching), senior members (non-teaching) and non-technical senior staff use the ICT facilities in their work. Likert-type scale was used to rate how frequently they used the facilities, by describing the use as "very often" "often" "quite often" or "not all". The

respondents were asked to tick the appropriate response to the questions. The mean of the staff categories were used to determine their responses. The following ranges were used to interpret the specific response to the question asked; No usage (1.0 -2.0), Low usage (2.1 – 3.5) and high usage (3.6 – 5.0) to facilitate the computation, presentation and interpretation of the responses. The responses were presented in tables for all the categories of staff who participated in the study. Table 29 shows the senior members (teaching) use of the ICT facilities available to them.

Table 29

Senior Members (Teaching) Usage of ICT Facilities in their Work

Type of Usage	N	Mean	SD
For developing teaching materials?	180	2.49	0.07
To present lectures?	180	3.47	0.94
To give and receive assignments?	180	3.51	0.90
To provide feedback to students?	180	3.66	0.77
For distance learning?	180	3.77	0.75
To provide basic computer literacy skills?	180	3.58	0.84
To provide computer skills relevant to respective academic discipline?	180	3.32	0.90
To do online teaching and learning?	180	3.67	0.81
For ICT in research?	180	2.11	1.00
Using ICT research tools like statistical packages, simulations, etc?	180	2.61	0.10

Table 29 continued

	N	Mean	SD
To collect academic information?	180	2.28	1.03
To disseminate academic information?	180	3.04	1.02
To collaborate research Worldwide?	180	2.99	1.04
To provide academic information/journals through CD-ROM's?	180	3.42	0.90
Access to other virtual libraries?	180	3.45	0.87
Using library staff to assist you in collecting on the internet	180	3.41	0.82
Overall Usage of ICT	180	3.17	0.51

From Table 29, a mean of 2.49 with a standard deviation of 1.070 shows that the lecturers in the University of Cape Coast do use ICT in developing their teaching materials which falls between 2.1 -3.5 suggesting a low usage by the lecturers. On how often lecturers use ICT to present lectures, a mean of 3.47 with a standard deviation of 0.94 was obtained indicating a low use by the lecturers in that area. A mean of 3.51 with standard deviation of 0.90 in respect of how often the lecturers use ICT in giving and receiving assignments suggests a low usage as well. When the lecturers were asked how often they use ICT to provide feedback to students the responses yielded a mean of 3.66 with a standard deviation of 0.77, this implying a high usage by the lecturers. A mean of 3.77 and a standard deviation 0.75 were recorded when they were asked to

indicate how often they use ICT for distance learning, this connotes a high usage on the part of the lecturers. On how often they use ICT to provide basic computer literacy skills, the results show that the usage is high. In the area of how often do they use ICT to provide computer skills relevant to receptive academic discipline, a mean of 3.58 and standard deviation of 0.84 were obtained which signifies low usage by lecturers. A mean of 3.67 and a standard deviation of 0.81 were recorded when they were asked how often they use ICT to do online teaching and learning. This signifies a high usage in this area by the lecturers. A low usage was registered when the respondents were asked to indicate how often they use ICT in research. Since a mean of 2.11 with a standard deviation of 1.00 were recorded for this question. Another low usage was also registered when a mean of 2.61 with a standard deviation of 1.100 were recorded for the question how often do you use ICT research tools like statistical packages, simulations and N6. On how often they used ICT to collect academic information, the results signified a low usage since a mean and standard deviation of 2.28 and 1.03 were recorded respectively. A mean of 3.04 with a standard deviation of 1.02 were registered for the question how often they used ICT to disseminate academic information. This signifies a low usage by the lecturers. There was also low usage by the lecturers in relation to how often they use ICT to collaborate research wide world, since a mean of 2.99 and standard of 1.038 were registered. From the responses for the question on how often they used ICT facilities in the library to provide academic information through CD-ROMS, a mean of 3.42 with a standard of 0.90 was obtained here,

pointing low usage by the lecturers. Use of ICT facilities to access Virtual Libraries elsewhere was low (M= 2.43, SD= 0.87). So was the use of Library staff to assist in gathering information on the internet (M=3.41, SD=0.82).

Overall, ICT use by the senior members (teaching) was low (M=3.17, SD=0.51). Table 30 presents the frequency of use of ICT facilities by senior members (non-teaching) of the University

Table 30

Senior Members (Non-Teaching) Usage of ICT Facilities in their Work

Type of Usage	N	Mean	SD
For use in your work at the office?	22	1.82	0.96
To deliver your duties?	22	3.23	0.11
To assign tasks to the staff in the office?	22	3.41	0.10
To receive feedback from the subordinates?	22	3.50	0.86
For distance learning to enhance your capacity on the job?	22	3.45	0.86
To research into new concepts, issues and theories in management?	22	2.45	1.18
To collect information from other sections of the University?	22	3.36	0.95
To disseminate information to colleague in other units and sections?	22	3.50	0.96
To collaborate and share ideas?	22	3.50	0.96
Overall Usage	22	3.13	0.66

From the Table, the responses from the senior members (non-teaching) on the statement "how often do you use ICT in your work at the office?" the calculated mean was 1.82 with a standard deviation of 0.96 which implies that there was low use of ICT among the senior members (non-teaching) in their work at the office. A mean of 3.23 was obtained when they were asked whether they do use the ICT facilities to deliver their duties with a standard deviation 1.11 showing that there was a low usage of ICT facilities amongst them. On the issue of how often do they used ICT to assign tasks to the staff in the office the mean recorded was 3.41 with a standard deviation of 1.10 which signifies a low usage of ICT facilities by the senior members (non-teaching). The question "how often do you use ICT to receive feedback from the subordinates" produced a calculated mean of 3.50 registering a low usage. As to whether the senior members (non-teaching) uses the ICT facilities for distance learning to enhance their capacity on the job, the mean generated from the responses to the question was 3.45 with a standard deviation of 0.86, this also signifies a low usage of ICT by the senior members (non-teaching) in respect to distance learning. The senior members (non-teaching) were also asked to state how often they use the ICT to research into new concepts, issues and theories in management, the result from the table shows that there was low level of use by them in respect to using facilities for research. On the use of ICT to collect information from the other facilities, sections and units of the University, the responses from the senior members (non-teaching) yielded a mean of 3.36 which goes to confirm a low usage from them. The senior members (non-teaching) were asked to indicate whether they do disseminate

information to colleagues in other units and sections, the mean computed from the responses was 3.50 which indicate a low level of usage in using ICT to disseminate information. As to whether they use ICT to collaborate and share ideas, the mean value for the responses gathered was 3.5 with a standard deviation of 0.964 registering a low usage on the part of the senior members (non-teaching). The overall mean valve recorded for the responses from senior members (non-teaching) was 3.14. This signifies that there was a low usage of ICT facilities by the senior members (non-teaching). Table 31 represents the responses obtained from the non technical senior staff who were involved in the study.

Table 31

Non- Technical Senior Staff Usage of ICT Facilities in their Work

Type of Usage	N	Mean	SD
For use ICT in your work at the office?	163	2.34	1.21
To deliver your duties?	163	3.34	0.95
To assign tasks to the staff in the office?	163	3.71	0.79
To receive feedback from the subordinates?	163	3.80	0.68
For distance learning to enhance your capacity on the job?	163	3.45	0.97
For research into new concepts, issues and theories in management?	163	2.96	1.22
To collect information from other sections of the university?	163	3.53	0.91
To disseminate information to colleague in other units and sections?	163	3.73	0.73
To collaborate and share ideas?	163	3.53	0.83
Overall Usage	163	3.38	0.62

When the non-technical senior staff were asked to indicate how often they use ICT in their work, the mean recorded was 2.34 with a standard deviation of 1.21, this signifies a low usage among the non-technical senior staff. On how often do they use the ICT to deliver their duties, the computation from the responses yielded a mean of 3.40 with a corresponding standard deviation of 0.95 registering a low usage. In the area of assigning tasks to the staff in the office the mean registered from the responses was 3.71 with a standard deviation of 0.79 signifying a high usage of the facility but on receiving feedback from the subordinates using ICT, the responses produced a mean of 3.80 with a standard deviation of 0.68 which indicates that there was a low usage. In using the ICT to enhance one's capacity through distance learning, the non-technical senior staff gave out responses that produced a computed mean of 3.45 with a standard deviation of 0.97, indicating a low usage of ICT in this area. The non-technical senior staff were also asked to indicate how often they use the ICT to research into new concepts, issues and theories in management, the responses also did produce a computed mean of 2.96, with a standard deviation of 1.22 showing a low usage. On how often do they use ICT to collect information from other sections and units of the University, the mean recorded was 3.53 which also signifies a low use of the facilities for information collecting. On the issue of using ICT to disseminate information to colleagues in other units and sections of the University, the responses gathered from the respondents gave a computed mean of 3.73 which shows a high use by staff in the non-academic senior staff. Finally, when

respondents were asked to indicate whether they use ICT to collaborate and share ideas, the mean of the responses was 3.527 signifying a low usage.

Overall, the use of ICT among the non-technical senior staff of the University of Cape Coast was low (M=3.38, SD=0.62).

Research Question 6: What are the challenges or constraints faced by the staff in using the ICT Facilities available to them and are they aware of Committees, Units or Sections which are in charge of ICT.

This research question also sought to find out the challenges or constraints that the staff of University of Cape Coast faced in using the ICT facilities in their daily activities. When an individual faces a lot of challenges or constraints in whatever he or she undertakes, he or she can be motivated or discouraged by the challenge or the activity. The challenge or constraint can also become a barrier which will discourage the individual from pressing on to achieve the desired goal. So the respondents were asked to tick which of the following they think were challenges or constraints in using the ICT facilities at their disposal; inadequate ICT infrastructure, constant interruption of electricity supply, unavailability of spares of equipment, unreliable Internet Service Provides (ISPs) and inadequate knowledge in the field of computing. The responses from the staff of the University are presented in Tables 32, 33 and 34 when they were asked to indicate their challenges or constraints in relation to the use of ICT facilities available to them.

Table 32

Challenges or Constraints faced by Senior Members (Teaching) in using ICT facilities

Challenges	N	Yes (%)	No (%)
Inadequate ICT Infrastructure	180	97 (53.9)	83 (46.1)
Constant Interruption of Electricity Supply	180	121 (67.2)	59 (32.8)
Unavailability of Spares of Equipment	180	55 (30.6)	125 (69.4)
Unreliable Internet Service Providers	180	148 (82.2)	32 (17.8)
Inadequate Knowledge in Computing	180	59 (32.8)	121 (67.2)

From the Table 32, the main challenge or constraint pointed out by the senior members (teaching) was the reliability of the Internet Services provided when 82.2% (148) of them stated that was a major problem when it comes to the use of the internet. To the senior members (teaching), constant interruptions in power supply were a challenge when it registered a response of 67.2% (121) saying yes. Unavailability of spares of equipment 69.4% (125) and inadequate knowledge in computing 67.2 % (121) were not of much challenge or constraint to them.

Table 33 present the responses from the senior members (non-teaching) when asked to indicate their challenges or constraints in using the ICT facilities at their disposal.

Table 33

Challenges Constraints Faced by Senior Members (Non-Teaching) in using ICT Facilities

Challenges	N	Yes (%)	No (%)
Inadequate ICT Infrastructure	22	14 (63.6)	8 (36.4)
Constant Interruption Electricity Supply	22	7 (31.8)	15 (68.2)
Unavailability of spares of equipment	22	6 (27.3)	16 (72.7)
Unreliable Internet Services Provider	22	18 (81.8)	4 (18.2)
Inadequate Knowledge in Computing	22	8 (36.4)	14 (63.6)

From Table 33, the non-academic senior members indicated that the major constraint was the unreliable internet service being provided by the internet service providers. This was followed by inadequate ICT infrastructure which recorded a yes response of 63.6% (14). Senior members (non-teaching) stated that unavailability of spares of equipment was not much of a problem when it comes to the use of ICT in the University when the question yielded a no response of 72.7% (16) from those involved in the study. The senior members (non-teaching) also indicated that constant interruption of electricity was not a problem when 68.2% (15) of them responded in the negative.

Table 34 shows the responses from the non-technical senior staff who were involved in the study when asked to indicate their challenges or constraints faced in using the ICT facilities at their disposal.

Table 34

Challenges or constraints Faced by Non-Technical Senior Staff in using ICT Facilities

Challenges	N	Yes (%)	No (%)
Inadequate ICT Infrastructure	163	106 (65. 0)	57 (35.0)
Constant Interruption of Electricity Supply	163	73 (44.8)	90 (55.2)
Unavailability of Spares of Equipment	163	40 (24.5)	123 (75.5)
Unreliable Internet Service Providers	163	100 (61.3)	63 (38.7)
Inadequate Knowledge in Computing	163	51 (31.3)	112 (68.7)

From Table 34, the non-technical senior staff indicated that inadequate ICT infrastructure 65.0% (106) and unreliable internet service providers 61.3% (100) were major challenges or constraints that they faced in using the ICT facilities available to them. Whereas they also indicated that unavailability of spares of equipment 75.5% (123) and inadequate knowledge in Computing were of no problem to them at the time of study.

From the foregoing analysis, the major constraints faced by the staff of the University at time that study was conducted were inadequate ICT infrastructure and unreliable internet service providers. In the area of constant power interruption, it was the senior members (teaching) who indicated that it was a problem, the other two groups that is the senior members (non-teaching)

and non-technical senior staff did not see it as a problem. Inadequate knowledge in computing was not a problem to the staff.

The respondents were also asked to indicate whether they were aware that there are committees and units that were responsible for all issues related to ICT use in the University. The respondents were to indicate this by ticking out their responses. The rationale for this question was to establish whether the staff knows who to talk when there is problem relating to the use of ICT facilities or when they need any assistance or advise on what to do. The responses from the staff are presented in Table 35. Table 35 represent the responses elicited from the staff when asked to indicate whether they were aware of the existence of committees or units that deals with issues in relating to ICT use in the University of Cape Coast.

Table 35

Staff Awareness of Committees and Units that handles ICT issues.

Committee/Units	SMT %		SMNT %		NTSS %	
	A	NA	A	NA	A	NA
Defines and monitors policies and Standards	33.9	66.1	100.0	-	24.5	74.5
Mgt and Maintenance of ICT infrastructure	56.7	43.3	100.0	-	52.1	47.9
Considers ICT needs	29.4	70.6	-	-	17.8	82.2

SMT=Senior Members (Teaching), SMNT= Senior Members (Non-Teaching), NTSS=Non-Technical Senior Staff, A = Aware, NA = Not Aware

From the Table 35, over 60% of the senior members (teaching) were not aware that there was a committee that defines and monitors institution wide ICT policies and standards in the University. The same can be said for the non-technical senior staff. But the situation was different in the case of the senior members (non-teaching) who were aware of the existence of the committee. The staff were all aware of the existence of a unit that carries the responsibility of management and maintenance of ICT infrastructure. The staff were also not aware of Committee that considers users ICT needs.

The respondents were asked to prioritise the ICT needs of the University in respect to ICT for teaching, learning and research, ICT for library and archival services and ICT for management purposes. This was to find out which area of ICT the University should double its efforts or commit more resources to.

The senior members (teaching) prioritised first the ICT for teaching, learning and research. Their second priority was on ICT for library and archival services with their third priority for ICT use being ICT for management purposes. The senior members (non-teaching) also prioritized the ICT needs of university in this order, they indicated that ICT for management purposes was their top most priority the second priority was ICT for teaching, learning and research with the final are being ICT for library and archival services. The non-technique senior staff ranked the ICT for teaching, learning and research as their first priority ICT for library and archival services was their

second priority with ICT for Management purposes being ranked as the last priority.

It can be deduced from the responses that ICT for teaching, learning and research was the top priority among the staff of the University. The least priority among them was ICT for management purposes.

The respondents for the study were also asked to rate the ICT facilities available to them on campus in terms of level of satisfaction. There were expected to indicate whether they were satisfied with the ICT facilities, or not or very satisfied with the ICT facilities. The responses from the question are presented in Table 36 for all the staff involved in the study.

Table 36 show the responses of staff studied in relation to their level of satisfaction about the ICT facilities available on campus.

Table 36

Level of Satisfaction of Staff about ICT Facilities on Campus

Level of Satisfaction	Categories of Staff					
	SMT		SMNT		NTSS	
	No.	%	No.	%	No.	%
Not satisfactory	72	40	12	54.5	81	49.7
Satisfactory	90	55	10	45.5	80	49.1
Very satisfactory	9	5	-	-	2	1.2
Total	180	100	22	100.0	163	100.0

As shown in Table 36, 60% (99) of the senior members (teaching) indicated that they were satisfied with the ICT facilities which they had at their disposal whereas 50.3% (82) of the non-technical senior staff were also

satisfied with the available ICT facilities. However, the senior members (non-teaching) indicated that were not satisfied with the ICT facilities available on campus. This shows that the level of satisfaction about the ICT facilities available on campus among the staff of the University was satisfactory.

Discussion of Research Findings

Here, the findings from the study are discussed under the following captions based on the research questions that guided the study: types of computers used, applications/programs; locations of ICT resources; capacity of staff to use the ICT facilities; level of knowledge in the use ICT; how often do staff use computers; and staff awareness of committees units and sections and challenges or constraints faced by staff in respect to ICT use.

Type of Application Programs, Other ICT Facilities and their Accessories that the Staff of the University Of Cape Coast use in their daily activities.

Staff of the University will be able to use the ICT facilities if these facilities are made available to them. The staff of the University had to use these applications programs and other ICT facilities effectively in their scope of work or duties. As shown in the NCS's research on internet, ICT connectivity in Ghana was not evenly distributed among the various regions in Ghana. This could be due to the fact that many organizations which are networked such as government organizations, private organizations, international organizations, media organizations and other are all based in the Accra. To a large extent government and private organizations have not invested much into these ICT facilities in their regional offices. From the data gathered for this study it was

shown that the University of Cape Coast have enough ICT facilities and these facilities are networked as shown in Tables 12, 13 and 14. The staff who participated in the study indicated that the computers that they use are linked to each other with a small percentage stating that they do not have access to computers. This shows that almost every office in the University had a computer and its accessories and more than half of these computers have been networked and are hooked to the intranet or internet. Markwei (2001) stated that the academic staff at the University of Ghana has greater access to the internet through computers than students. In the present study which dealt with only staff of the University of Cape Coast, the findings showed that over 88% the staff involved in the study had computers in their own office. Which goes to confirm Markwei's report that staff has greater access to computers. One discovery that was made at time of this was that non-academic senior members had the greatest access to computers in the system. Application programs or softwares enable the user to use the facility to accomplish a given task or duty. It was established from the study that the staff of the University of Cape Coast mostly used applications like Ms. Word, Ms. Excel, E-mail, Internet or Intranet Access and PowerPoint in their various scopes of work or duty.

In order to make the use of ICT practical, users ought to have computers that serve as the foundation for the take off of any ICT business or usage. A modern day education enterprise can not exist in a competitive environment without the use of modern computers for its undertakings. The study sought to establish the most popular brand or type or make of computer amongst the staff

of the University who were involved in the study. The DELL computer was the most popular brand amongst all the three categories of staff who participated in the study. This was followed by HP Compaq and Compaq computers. This finding suggests that the users acquired the knowledge for interacting with these brands and is also in accordance with the usability and ease parts of Shackel's (1991) paradigm which ensures that users can actually use a system or technology successfully.

Where the ICT facilities and application programs are available to the staff located were sought by the study. Before one can establish that an intended user of a given facility is making maximum of the facility the user should have ease access to the facility. If there should be any barrier to the accessibility of the facility, then it is the users themselves. The facilities were in respect to computers, printers, softwares and internet access. The location of these facilities plays an important role in their usage in any given moment. From the study these facilities were located in the user's own office and other offices, laboratories and other related places. Jagboro (2003) reported that almost all the sample used for the study ranked Cyber Cafes as their main location where they get access to the ICT facilities (Internet) where places like departmental offices, computer building, H.O library, and personal offices recorded low percentages. But in this present study the situation is different because, the personal offices and Departmental offices (computer laboratories) recorded higher percentages in terms of location of these facilities in relation to access to usage. The finding shows that the respondents have access to the

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facilities mainly in their personal offices and as a result use them. This was in consonance with the utility and likeability sections of the Shackel's Acceptability framework. The users found the facilities useful because they use them for internet or internet purposes, preparing notes on the part of the academic senior members, daily office tasks and duties. The utility part ensure that the system or the facilities does what needed functionally that is the computers, printers and other facilities performs for its users. On the speed, reliability and stability of the UCC connectivity in respect to intranet and internet. It came out that the speed of the connectivity was nothing to write home about since the speed was slow at the time of the study. The system was unreliable and unstable from the findings gathered from the study. It can be deduced from the findings that the speed and unreliability and unstableness of the intranet and internet connectivity on campus can be attributed to low bandwidth, too many junctions in which the signals had to passed through to reach the user, and combination of UTP and fibre cables for the networks on campus. The unstable nature of the connectivity could be a result of staff switching off plugs that supplies power to internet and intranet switches and hups in their offices after close of work.

Staffs' Capacity to use ICT Facilities

There is a general perception that the African continent lacks the basic facilities and expertise needed for ICT usage. The lack of expertise in the use of ICT and inadequate facilities are some of the problems associated with ICT use in Ghana.

There are many people who know the importance of the ICT and who would like to use them but they lack the expertise to do so. Ojedokun (2001) in his study at the Botswana University found that some of the students could not use the internet not only because of inadequacy of the facilities but also because they lacked the expertise needed for the use of the facilities. Hofstetter and Sine (1998) also found that "technical terms can scare people". Especially when computers are involved, the technical terms and other technicalities can make things difficult for people to understand and that people may shy away from learning how to use the facilities to do simple things. For lack of expertise people may shy away from Internet usage and decide not to be part of the fast growing information age.

So for one to perform his or her work with the use of the ICT facilities, the individual has to be familiar with the systems and tools that he or she will be using in executing the tasks. When the individual is not familiar with the systems and a simple task can be time consuming. It was therefore necessary for the staff to have to capacity to the use the facilities. This shows that there has been great shift in capacity to use ICT from the time Ojedokun (2001) and Markwei (2001) studies and the current study. It can be deduced from the findings that more are getting training in the use of ICT. They needed to be skillful in the use of facilities to enable them fit into the fast growing age of information super highway. It was clearly established from the findings that majority of the staff who had training in ICT were not trained by the University they had the training from elsewhere or learnt on their own.

On the adequacy of the training received by the staff on ICT use, the response on the issue was positive. Over 55% of the respondents in all the three categories stated that the training received was adequate. In this situation the desire on the part of staff to use the facilities will be there. As stated earlier on, when the individual does not have the capacity to use a facility he or she may shy away from the use of the facility. In this case the staff as gathered from the findings had adequate training to use the ICT facilities at their disposal. It was therefore expected that staff of the University would use the facilities made available to them by the University.

Level of Knowledge of the Staff in the Use of the ICT Facilities

The staff who wanted to use the ICT facilities available on campus had found various sources to acquire training for its usage. One of the questions that the study sought to answer was, what was the level of knowledge base of the staff who are using the ICT facilities. Their level of knowledge in ICT usage would motivate them to use the facilities whether they were beginners, ordinary and expert users. Bandura (1982) suggested that the quality of experience a user enjoys during interactions with IT could influence believes about his or her ability to successfully interact with IT in the future. When the individual beliefs that he or she can interact with the facilities and that interaction will be successful he or she will go ahead and use the facility because he has a level of perceived efficacy of that activity. If he or she thinks that there are serious uncertainties in efficacy expectation, there desire to use the facility is less. A large percentage of the staff of the University as gathered

from the study had training in ICT use and was adequate and therefore had made them ordinary users of ICT facilities which means that the staff had good knowledge in IT use. Thus when the staff beliefs that they have capacity and know how to use the facility to accomplish their tasks, they are more likely to use the facilities than those who do not have the capacity and know how in ICT facilities usage. From the findings, the level of knowledge of staff of University cape Coast in ICT usage was at an appreciable level and therefore the staff will not shy away from the use of the facilities rejecting the claim by Ojedokun (2001) and Hofstletter and Sine (1998) due to changes in time and space.

Staff's use of the Computer and other ICT facilities in their Work

When the staff are able to put the facilities into good use that is to accomplish their tasks, then we can say that they are really using the system and its tools in their daily work. The findings from the study showed that majority of survey used the facilities in their work. This suggests that the staff involved in the study had acquired the knowledge for interacting with the ICT facilities which in accordance with the instability part of shackel's (1991) paradigm which ensures that the user can actually use a system or technology successfully. The staff had accepted the use of ICT in their daily tasks. This fits Davis' (1989) Technology Accept Model in that, the more useful and easy a user finds a technology, the more frequently he or she is likely to use it. The users only engaged themselves in behaviours that they thought would help them to perform their job better. This point is buttressed by the view expressed by

Gefen and Straub, (1997), Lederer, Manpin and Zhuang (2000), Szajna (1996), Taylor and Todd (1995), Vankatesh (1999) and Vonkatesh and Davis (1996) who found that users will use computer technology if they believe it will result in positive outcomes. Also Culpen (1995) opined that no matter how sophisticated and how capable a technology may be the effective implementation of that technology depends on users having positive attitudes towards it. This is true to the extent that the staff accepted the use of ICT. The findings from the study show that the staff had accepted the use of ICT facilities though the overall usage was low.

The responses given by the staff involved in the study on the issue of using ICT to enhance one's capacity on the job through distance learning showed that the respondents used that avenue to enhance their capacity on the job, looking at the results from the three categories of the staff involved in the study (Tables 29, 30 and 31). This shows that the staff shared ideas, concepts and theories with colleagues in other Universities, organizations and research institutions worldwide. Koontz and Weihrich (1990) stated that "Universities need to train with a global perspective" (p.284) this supports the responses from the staff.

It can be gathered from the study that the senior members (teaching) of the University used the ICT facilities to provide basic computer literacy skills to the students use it from specific academic disciplines, use for research, to access virtual libraries in the world that is through the internet, therefore making use of its facilities like e-mails and search engines. It can be deduced

that, they use ICT for information to enrich their teaching and research. The study by Pew Internet and America life (2003) revealed that e-mail an ICT facility had become increasable popular and potent tool for political communication in America. This assertion is true for this study when the responses gathered for the e-mail and internet or internet usage was positive for all the categories involved in the survey (Tables 16, 17 and 18. This is also supported by the study by Markwei (2001) and Jagboro (2003). Jagboro (2003) stated that the e-mail has become a seemingly indispensable part of people's lives. The most often used protocol is electronics mail, which is also known as e-mail. Every registered user on the internet has an e-mail address. E-mail is a great way to communicate because it avoids the delays. The study by Anderson (2003) on the use of the Internet in which a student was the case study revealed that the student was internet "dependent". The findings for this study from Tables 29, 30 and 31 that is, questions directly related to internet or internet shows that the staff in the University of Cape Coast were not addicted to the internet or "internet dependents". This may due to the fact that the internet connectivity on UCC campus was unreliable, the speed very slow and unstable as in seen Tables 22, 23, and 24 at the time of the study. Markwei's (2001) report indicated that, the academic staff appeared to have more access to the internet than students. When this was related to this study all the three categories of staff have equal access to the internet. So the story is not different in the University of Cape Coast as it pertains in the University of Ghana in relation to access to internet by staff of the University. This might mean the

that, they use ICT for information to enrich their teaching and research. The study by Pew Internet and America life (2003) revealed that e-mail an ICT facility had become increasable popular and potent tool for political communication in America. This assertion is true for this study when the responses gathered for the e-mail and internet or internet usage was positive for all the categories involved in the survey (Tables 16, 17 and 18. This is also supported by the study by Markwei (2001) and Jagboro (2003). Jagboro (2003) stated that the e-mail has become a seemingly indispensable part of people's lives. The most often used protocol is electronics mail, which is also known as e-mail. Every registered user on the internet has an e-mail address. E-mail is a great way to communicate because it avoids the delays. The study by Anderson (2003) on the use of the Internet in which a student was the case study revealed that the student was internet "dependent". The findings for this study from Tables 29, 30 and 31 that is, questions directly related to internet or internet shows that the staff in the University of Cape Coast were not addicted to the internet or "internet dependents". This may due to the fact that the internet connectivity on UCC campus was unreliable, the speed very slow and unstable as in seen Tables 22, 23, and 24 at the time of the study. Markwei's (2001) report indicated that, the academic staff appeared to have more access to the internet than students. When this was related to this study all the three categories of staff have equal access to the internet. So the story is not different in the University of Cape Coast as it pertains in the University of Ghana in relation to access to internet by staff of the University. This might mean the

University had committed a lot of resources to the provision of internet access and other ICT facilities for staff use.

The infrequent use of ICT by senior members (teaching) as seen in Table 29 to research and to collaborate research world wide confirms Adele and Milheim's (1995) claim that "many academics are still not aware of its (internet) resource and possibilities". However, the unreliable and unstable nature of the connectivity of the internet could be a contributing factor since this makes the use of the internet or intranet boring and frustrating. The low usage could also be that the staff had not learnt enough to get acquainted with the inner components of internet which would have enabled them to locate information not only with the use of search engines but also with the use of advanced search interfaces and information gateways. The senior members (non-teaching) had a record low of 1.82 as the mean with a standard deviation of 0.96, for the question, how often they use the ICT in their office work. This low usage might be the fact that the senior members (non-teaching) do not really do most of the routine tasks in the offices that they supervised. The use of the computers for the work is done by the clerical staff with the senior members (non-teaching) in the office, section or unit providing leadership and supervision to ensure that the work is done.

The findings from the study showed that there was a low usage of the ICT facilities on UCC campus by all the three categories of staff who were involved in the study. This suggests that the University had not really computerized all its activities and as a result so many things can be done

without using the ICT. It can also be deduced from the findings that even though the staff had what it takes to use the ICT facilities available to them they are not keen on making all their activities ICT oriented.

Challenges or Constraints faced by the Staff of the University in using the ICT and staff's awareness of Committees, Units or Sections which are in charge of ICT.

The study revealed that all respondents faced one kind of challenge or the other during the usage of the facilities. From the findings of the survey, the senior members (teaching) stated that an unreliable service from Internet service providers was their biggest challenge. The same view was shared by the senior members (non-teaching) but this challenge was not the major challenge faced by the non-technical senior staff. The reason could be that the senior members (teaching) use the internet for seeking information and other materials for the preparation of teaching notes and other purposes such as doing research. When there is a great challenge which the user cannot solve the frequency of usage of the facilities become minimal. This might have accounted for the low means recorded for ICT for developing teaching materials and research. Bandura (1986) reached this conclusion by stating that, a user who believes that they are capable of using the ICT to accomplish his or her tasks are more likely to use it than the one who do not share similar self-efficacy beliefs. The senior members (non-teaching) and non-technical senior staff also faced this challenge in their attempt to communicate with their associates at other sections or units of the University. It is expected that users of information

technology know the associated problems with different types of communications on the problems with different types of communications on the internet and derive means to solve them when they are encountered. But problems with ISPs and its solution are beyond the staff involved in the study. Another challenge faced by the staff involved in the study was inadequate infrastructure as gathered from the responses. Inadequate knowledge in ICT was not a major challenge in using the facilities. This observation is in line with the responses gathered on training received and level of knowledge in ICT (Tables 24 and 25). The responses gathered from the findings on challenges showed that the senior members (teaching) had serious reservations about the interruption of power supply but the non-academic senior members and the non-technical senior staff had a different opinion on the issue. This situation is so because of major of the senior members (non-teaching) and the non-technical senior staff happens to at the Southern Campus (old site) where there was a generator that powers the system whenever there was a power failure. Unavailability of spares parts of the facilities in times of breakdown was not a challenge or problem for the staff.

The ages of the senior members (teaching), senior members (non-teaching) and non-technical senior staff who were involved in the study were sought. This was done to establish if there was a relationship between age of the respondents and the desire to use the ICT facilities available at their disposal. The respondents were grouped into two age brackets young ones that is below the age 35 and the old ones above the age of 36. A two-tailed Chi

Square test of association was run to find out whether there was a significant association between age and computer use (Tables 37 and 38). The Tables 37 and 38 shows the results for the Chi Square test for the senior members (teaching) and non-technical senior staff.

Table 37

Chi Square Test Results for Non-Technical Senior Staff

	Value	df	Asymp. Sig (2-sided)
Pearson Chi-Square	4.069	2	.131
Likelihood Ratio	4.081	2	.130
Linear-by-Linear Association	3.444	1	.063
N of Valid Cases	163		

Table 38

Chi Square Test result for Senior Members (Teaching)

	Value	df	Asymp. Sig (2-sided)
Pearson Chi-Square	6.679	3	.083
Likelihood Ratio	7.291	3	.063
Linear-by-Linear Association	6.214	1	.013
N of Valid Cases	180		

With two degrees of freedom at the 0.05 significance level and chi square critical of 5.99. The chi square calculated (4.069) is less than chi square critical (5.99). Therefore there was no significant association between age groups and the level of usage for the non-technical senior staff since the p-valve of the test two-tailed was 0.131. In the case of the academic senior members, with the three degree freedom at the 0.05 significance level and chi square critical of 5.99. The chi square calculated (6.679) is less than chi square critical (5.99). Therefore there was no association between age groups and the level of usage as well. The sig two-tailed valve of 0.083 supports this assertion.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study was concerned with the use of the information and communication technology facilities by the staff of the University of Cape Coast. The focus was to establish the level of usage of the ICT facilities by the staff who were involved in the study. Questionnaires were administered to 365 respondents who provided for the study. Charts, percentages and tables were used to present the findings of the study in relation to how the ICT use is beneficial to the University. The issues explored included the demographic characteristics of the respondents; the types of applications programs and other ICT accessories used by the study; where these application programs and other accessories located; whether the staff have the capacity to use these ICT facilities; what their level of knowledge in relation to the use of the facilities was; how often the staff use the ICT facilities in their daily work and the challenges faced by the staff during the use of the facilities; and whether they were aware of committees, units or sections that handled issues on ICT use.

The University had in its Strategic Plan (2003) to provide integrated and modern information and communication technology for use by lecturers for teaching and research and other categories of staff for use in their work. The staff accepted to use to these ICT facilities in the work but questions still remains as to whether they were using the facilities at in their activities very

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often. Based on these, the outcomes of the study and the findings from the data analysed are summarised in the next section.

Summary of Research Findings

On the accessibility to computers and of how many of these computers are hooked onto the intranet and internet, it came to light that majority of non-academic senior members had the greatest access, followed by the academic senior members and the non-technical senior staff. This shows that the University had done well in the provision of computers and their accessories and other ICT gadgets for the use by the staff in spite of the fact that some respondents stated they did not have access to these facilities. At the time of the study only a few computers in the University had been connected to the intranet and internet, because some sections, units and departments had not been networked and therefore could not be connected to the system. So people who needed the services of the intranet or internet had to access them from other points in the University.

It was gathered from the study that the most popular brand of computer used was DELL, followed by HP Computer because these brands of computers had high levels of efficiency and the suppliers of DELL computers provide after sales services and a year's warranty. The personnel at the service units of the University had also acquired in-depth knowledge and skills in servicing these brands of computers and its accessories. Also, most popular application softwares used daily by the staff on campus were MS Word, Intranet or Internet access in which the e-mail was the most frequently used facility. The internet

and PowerPoint were the most popular ones used while the least used was Desktop publishing. What accounted for this was that the staff used Ms Word for typing of letters, reports, questions for examinations and quizzes and other related tasks, the e-mail for communication between colleagues on campus and others outside. A PowerPoint was being used for teaching and presentation of issues by the staff workshops, seminars and fora. The findings showed the staff have all ICT gadgets in their offices and in some cases from the Head's office or the department or faculty computer laboratories. At the time of the study, it was established that the speed of UCC intranet and internet connectivity was very slow, unreliable and unstable during most part of the day. This was due to problems in networking, unreliable internet providers and occasional interruptions in power supply. Majority of the staff involved in the study had had training in the use of ICT. Therefore, they had an appreciable level of knowledge in the use of ICT facilities at their disposal.

The research findings showed that staff of the University of Cape Coast who participated in the study had embraced the use of ICT in their work on campus. However, it was gathered that even though the staff had accepted the use of ICT facilities in their work and other related tasks, in general, usage was low in respect to ICT for research, collecting academic and collaborating research worldwide on the part of the senior members (teaching). In the case of the senior members (non-teaching), low usages were recorded for the daily use of ICT in their work at the office and researching into new concepts, issues & theories in management. The same trend of low usage was recorded by the non-

technical senior staff. This state of affairs could be attributed to a myriad of factors which need further investigation.

Major challenges confronting the staff in the use of the ICT facilities were unreliable services being provided by the internet service providers and inadequate ICT infrastructure. This sends signals that the University should double its efforts in the provision of ICT facilities. The majority of the staff (over 60%) stated that they were satisfied with the ICT facilities on campus available to them at the time of this study.

Conclusions

Based on the findings of study, it can be concluded that the staff of the University of Cape Coast have come to accept the use of the ICT facilities in their daily work or activities. The staff use of ICT facilities for office work, teaching and learning, research and information sharing is gradually gaining grounds. Ages of the staff who participated in the study had no association with their level of ICT use

Recommendations

The findings of the study revealed some inadequacies in the use of ICT facilities on the University of Cape Coast campus that the University need to address. The following recommendations are therefore made:

1. The University should ensure that all departments, sections and units are provided with computers and their accessories. The University should set aside a percentage from the academic facility user fees

paid by the students for the sole purpose of providing computers and their accessories.

2.   The University should as a matter of urgency provide an alternative source of power for the departments, sections/units and the lecture theatres so that the facilities can be used in the event of power failure from the national grid.

3.   The Computer Centre should facilitate the networking of all the faculties, schools, sections and units. All computers in these places should be hooked onto the campus intranet and the internet. The faculties and schools in particular can use a percentage of their share of the academic facility user fees received from the central administration to pay for this exercise.

4.   In view of the huge resources on the internet and their usefulness to teaching, learning and research, the University should encourage the staff to make use of them.

5.   The University should do everything possible to ensure that the intranet and internet connectivity on campus are reliable and stable at an appreciable speed to eliminate the frustrations that staff faced in using the facility by increasing the bandwidth being used now.

6.   The University should also ensure that the internet service provider provide uninterrupted internet services to the campus since majority of the respondents expressed serious reservations about the services being provided. The University is currently using only one service

provider so a second provider should be introduced into the system. This will bring about competition and the University will get better services from the internet service providers.

7. The University should organise constant training sessions in ICT use for the staff to update their knowledge and skill in IT since the area is a fast changing one because innovations and discoveries, so that the staff can keep pace with advancement in ICT only with regular training.

8. The senior members (teaching) should be encouraged by the Deans of Faculty and school to deliver lectures using PowerPoint. Students and lecturers should also be encouraged to use the search engines for research. The University should commit a lot of resources into this venture by buying data projectors and telejectors.

9. The senior members (teaching) should be given specialized training in the use of the advanced search engines on internet to help in their research activities

10. There are too many printers in the system as shown in Table 16, the departments and facilities should find a way of using networked printers to cut down the cost on printing and serving on these numerous printers.

Areas for Further Research

It would be a good idea for further research to be conducted into reasons why there was a low ICT usage among the staff. There should be a complete

study on the use of the internet and its search engines by the academic senior

members to enhance the teaching and research.

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APPENDICES

APPENDIX A

QUESTIONNAIRE FOR SENIOR MEMBERS (TEACHING)

STAFFS' UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) FACILITIES IN THE UNIVERSITY OF CAPE COAST

The purpose of this questionnaire is to have an overview of the rate of use and application of ICT in University of Cape Coast as it relates to facilitating teaching, learning, research, library, and management of the University.

You are assured of the confidentiality of your responses, so I would be most grateful if you could answer the questions as candidly as possible.

Thank you.

Instruction: Please Mark 'X' In The Appropriate Box.

SECTION A: BIOGRAPHIC DATA

1. Gender: 1. [ ] Male

           2. [ ] Female

2. Age: [ ] 25 - 35 years.

      [ ] 36 – 45 years.

      [ ] 46 – 55 years.

      [ ] Above 56 years

3. Department:..

4. Faculty: ....

5. Rank: 1. [　] Professor

2. [　] Assoc. Prof

3. [　] Snr. Lecturer

4. [　] Lecturer

6. Administrative Position: 1. [　] Dean

2. [　] Head of Department

SECTION B: AVAILABILITY, ADEQUACY AND LOCATION OF ICT FACILITIES

7. How accessible is a computer to you? **Tick (√) your response**

i. I have no access to a computer. [　]

ii. I have a computer that stands alone. [　]

iii. I have a networked computer. [　]

8. If you have a computer, what type of computer is it?

Type of Computer	Tick as many as appropriate (√)
i. IBM	
ii. Compaq	
iii. Hewlett Packard (HP)	
iv. HP Compaq	
v. Toshiba	
vi. Expert Computer	
vii. Del	
viii. Some other type (Please specify)	

9. Which of the following ICT tools/application software do you or your supporting staff use in doing their work? (Tick as many as appropriate).

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Type of application software	Tick as many as appropriate (√)
Word Processing	
Spreadsheet	
Desktop Publishing	
Database Management Systems	
Presentation Software (eg. PowerPoint)	
E-Mail	
Internet Access	

10. Indicate by ticking (√) in the space below the location of ICT resources available to you.

RESOURCES	LOCATION OF THE RESOURCES				
	In your Office	Head's Office	In another Office	Dept's Computer Lab.	ICT Centre
Computer					
Printers					
Application Software					
Internet Access					

11. How would you rate the reliability and stability of UCC Internet/intranet connection in terms of the number of hours/days it is on?

    1. [   ] Very Poor

    2. [   ] Poor

    3. [   ] Good

    4. [   ] Very Good

    5. [   ] Excellent

12. How would you rate the speed of your UCC Internet/intranet connection?

    1. [   ] Very Poor

    2. [   ] Poor

    3. [   ] Good

    4. [   ] Very Good

    5. [   ] Excellent

SECTION C: PROFICIENCY IN ICT

13. Have you ever had any training in the use of ICT facilities? **Tick (√) your response**

    1.[   ] Yes   2. [   ] No

14. Where did you receive the training from? **Tick (√) your response**

    1.[   ] From UCC   2.[   ] From elsewhere

    3. [   ] Learnt on my own   4. [   ] No training at all

15. If your response to **Q 13 is yes**, how adequate is the training received?

    1. [   ] Inadequate   2. [   ] Adequate   3. [   ] Very adequate

16. How would you also rate your proficiency in ICT in general?

    1. [   ] Beginner   2. [   ] Ordinary   3. [   ] Expert

SECTION D: APPLICATION OF ICT IN TEACHING AND LEARNING

Tick (√) the appropriate responses.

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT A ALL
17a. How often do you use ICT in developing your teaching materials?				
17b. How often do you use ICT to present Lectures? Eg Telejectors overhead projectors				
17c. How often do you use ICT in giving & receiving of assignments?				

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	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
17d. How often do you use ICT for distance learning?				
17e. How often do you use ICT to provide basic computer literacy skills?				
17f. How often do you use ICT to provide computer skills relevant to respective academic discipline?				
17g. How often do you use ICT to do online teaching & Learning?				

SECTION E: APPLICATION OF ICT IN RESEARCH

Tick (√) the appropriate responses.

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
18a. How often do you use ICT in Research?				
18b How often do you use research tools like statistical packages, simulations etc?				
18c. How often do you use ICT to collect Academic Information?				
18d. How often do you use ICT to Disseminate Academic Information?				
18e. How often do you use ICT to Collaborate research Worldwide?				

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SECTION F: APPLICATION OF ICT IN ACADEMIC INFORMATION

SERVICES

Tick (√) the appropriate responses.

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
19a. How often do use ICT facilities in the library to provide academic information /journals through CD-ROM's?				
19b. How often do you use the ICT facilities in the library to access other virtual libraries?				
19c. How often do you use the library staff to assist you in collecting information on the Internet?				

SECTION G: ICT ORGANIZATIONAL SUPPORT

Tick (√) the appropriate responses

20. Which of these are you aware of?

      (i). The UCC has a committee that defines and monitor institution wide ICT policies and standards. [   ]

      (ii). The UCC has committees and units that carry responsibility of management and maintenance of the ICT infrastructure. [   ]

      (iii). The UCC has committees that consider users' ICT needs. [   ]

      (iv). Don't know about any of the above [   ]

21. Which of the following would you say are constraints in the application and use of ICT facilities in UCC? Tick (√) your responses

    i.   Inadequate ICT infrastructure [ ]

    ii.   Constant interruption of electricity supply [ ]

    iii.   Unavailability of spares of equipment [ ]

    iv.   Unreliable Internet Service Providers [ ]

    v.   Inadequate knowledge in the field of computing [ ]

22. Rank, in terms of priorities (1 to 3), with 3 being the highest; what, in your view, are the ICT needs of UCC;

    a. ICT facilities for teaching, learning and research [ ]

    b. ICT facilities for Library and Archival services [ ]

    c. ICT facilities for Management purposes [ ]

23. On the whole, how would you rate the ICT facilities available to you on campus?

    1.[ ] Not Satisfactory   2.[ ] Satisfactory   3.[ ]Very Satisfactory

24. Please write in the space provided below any suggestions that can lead to improvement in the development and use of ICT in management, teaching and learning in UCC.

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    Thank you

QUESTIONNAIRE FOR NON-TECHNICAL SENIOR STAFF STAFFS' UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) FACILITIES IN THE UNIVERSITY OF CAPE COAST

The purpose of this questionnaire is to have an overview of the rate of use and application of ICT in University of Cape Coast as it relates to facilitating teaching, learning, research, library, and management of the University.

You are assured of the confidentiality of your responses, so I would be most grateful if you could answer the questions as candidly as possible.

Thank you.

Instruction: Please Mark 'X' In The Appropriate Box.

SECTION A: BIOGRAPHIC DATA

1. Gender: 1. [   ] Male   2. [   ] Female

2. Age: [   ] 25 - 35 years.

   [   ] 36 - 45 years.

   [   ] 46 - 55 years.

   [   ] Above 56 years

3. Department:...

4. Faculty: 1 [   ] Agric

   2. [   ] Arts

   3. [   ] Education

   4. [   ] Science

   5. [   ] Social Sciences

   6. [   ] School of Business

5. Rank/Status: ....

SECTION B: AVAILABILITY, ADEQUACY AND LOCATION OF ICT FACILITIES

6. How accessible is a computer to you? **Tick (√) your response**

    i. I have no access to a computer. [   ]

    ii. I have a computer that stands alone. [   ]

    iii. I have a networked computer. [   ]

7. If you have a computer, what type of computer is it?

Type of Computer	Tick as many as appropriate (√)
i. IBM	
ii. Compaq	
iii. Hewlett Packard (HP)	
iv. HP Compaq	
v. Toshiba	
vi. Expert Computer	
vii. Del	
viii. Some other type (Please specify)	

8. Which of the following ICT tools/application software do you or your supporting staff use in doing their work? **(Tick as many as appropriate).**

Type of application software	Tick as many as appropriate (√)
Word Processing	
Spreadsheet	
Desktop Publishing	
Database Management Systems	
Presentation Software (eg. PowerPoint	
E-Mail	
Internet Access	

9. Indicate by ticking (√) in the space below the location of ICT resources available to you

RESOURCES	LOCATION OF THE RESOURCES				
	In your Office	Head's Office	In another Office	Dept's Computer Lab.	ICT Centre
Computer					
Printers					
Application Software					
Internet Access					

10. How would you rate the reliability and stability of UCC Internet/intranet connection in terms of the number of hours/days it is on?

　　　　1. [   ] Very Poor　　　　2. [   ] Poor　　　　3. [   ] Good

　　　　4. [   ] Very Good　　　　5. [   ] Excellent

11. How would you rate the speed of your UCC Internet/intranet connection?

　　　　1. [   ] Very Poor　　　　2. [   ] Poor　　　　3. [   ] Good

　　　　4. [   ] Very Good　　　　5. [   ] Excellent

SECTION C: PROFICIENCY IN ICT

12. Have you ever had any training in the use of ICT facilities? **Tick (√) your response**

　　　　1. [   ] Yes　　　　　　2. [   ] No

13. Where did you receive the training from? **Tick (√) your response**

     1. [   ] From UCC   2. [   ] From elsewhere

     3. [   ] Learnt on my own   4. [   ] No training at all

14. If your response to **Q 12 is yes**, how adequate is the training received?

     1. [ ] Inadequate   2. [ ] Adequate   3. [ ] Very adequate

15. How would you also rate your proficiency in ICT in general?

     1. [ ] Beginner   2. [ ] Ordinary   3. [ ] Expert

SECTION D: APPLICATION OF ICT IN YOUR OFFICE WORK
Tick (√) the appropriate responses

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
16a. How often do you use ICT in your work at the office?				
16b. How often do you use ICT to communicate with other staffs'?				
16c. How often do you use ICT to assign tasks to the staff in the office?				
16d. How often do you use ICT to receive feedback from the subordinates?				
16e. How often do you use ICT for distance learning to enhance your capacity on the job?				

SECTION E: APPLICATION OF ICT IN RESEARCH
Tick (√) the appropriate responses

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
17a. How often do you use ICT in Research into new concepts, issues and theories in management?				
17b. How often do you use ICT to collect Information from the other sections of the University?				
17c. How often do you use ICT to disseminate information to colleague in other units and sections?				
17d. How often do you use ICT to Collaborate and share ideas?				

SECTION G: ICT ORGANIZATIONAL SUPPORT
Tick (√) the appropriate responses

18. Which of these are you aware of?

(i). The UCC has a committee that defines and monitor institution wide ICT policies and standards. [   ]

(ii). The UCC has committees and units that carry responsibility of management and maintenance of the ICT infrastructure. [   ]

(iii). The UCC has committees that consider users' ICT needs. [   ]

(iv). Don't know about any of the above [   ]

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19. Which of the following would you say are constraints in the application and use of ICT facilities in UCC? **Tick (√) your responses**

    i.   Inadequate ICT infrastructure [ ]

    ii.   Constant interruption of electricity supply [ ]

    iii.   Unavailability of spares of equipment. [ ]

    iv.   Unreliable Internet Service Providers [ ]

    vi.   Inadequate knowledge in the field of computing [ ]

20. Rank, in terms of priorities (**1 to 3**), with **3** being the highest; what, in your view, are the ICT needs of UCC;

    a. ICT facilities for teaching, learning and research [ ]

    b. ICT facilities for Library and Archival services [ ]

    c. ICT facilities for Management purposes [ ]

21. On the whole, how would you rate the ICT facilities available to you on campus?

1. [ ]Not Satisfactory   2. [ ] Satisfactory 3. [ ] Very Satisfactory

22. Please write in the space provided below any suggestions that can lead to improvement in the development and use of ICT in teaching, learning and management in UCC.

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    Thank you

QUESTIONNAIRE FOR STAFF SENIOR MEMBERS
(NON-TEACHING)
STAFFS' UTILIZATION OF INFORMATION AND
COMMUNICATION TECHNOLOGY (ICT) FACILITIES IN THE
UNIVERSITY OF CAPE COAST

The purpose of this questionnaire is to have an overview of the rate of use and application of ICT in University of Cape Coast as it relates to facilitating teaching, learning, research, library, and management of the University.

You are assured of the confidentiality of your responses, so I would be most grateful if you could answer the questions as candidly as possible.

Thank you.

Instruction: Please Mark 'X' In The Appropriate Box.

SECTION A: BIOGRAPHIC DATA

1. Gender: 1. [ ] Male   2. [ ] Female
2. Age: [ ] 25 - 35 years.   [ ] 36 - 45 years.
   [ ] 46 - 55 years.   [ ] Above 56 years

3. Section: [ ] Academic   [ ] Personnel
   [ ] T & D

Faculty (specify)...

Other unit/section (specify).....................................

4. Rank: [ ] Registrar   [ ] Deputy Registrar
   [ ] Snr. Asst. Registrar   [ ] Asst. Registrar

SECTION B: AVAILABILITY, ADEQUACY AND LOCATION OF ICT FACILITIES

5. How accessible is a computer to you? Tick (√) your response

    i. I have no access to a computer. [   ]

    ii. I have a computer that stands alone. [   ]

    iii. I have a networked computer. [   ]

6. If you have a computer, what type of computer is it?

Type of Computer	Tick as many as appropriate (√)
i. IBM	
ii. Compaq	
iii. Hewlett Packard (HP)	
iv. HP Compaq	
v. Toshiba	
vi. Expert Computer	
vii. Del	
viii. Some other type (Please specify)	

7. Which of the following ICT tools/application software do you or your supporting staff use in doing their work ?. (Tick as many as appropriate)

Type of application software	Tick as many as appropriate (√)
Word Processing	
Spreadsheet	
Desktop Publishing	
Database Management Systems	
Presentation Software (eg. PowerPoint	
E-Mail	
Internet Access	

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8. Indicate by ticking ($\sqrt{}$) in the space below the location of ICT resources available to you.

RESOURCES	LOCATION OF THE RESOURCES				
	In your Office	Head's Office	In another Office	Dept's Computer Lab.	ICT Centre
Computer					
Printers					
Application Software					
Internet Access					

9. How would you rate the reliability and stability of UCC Internet connection in terms of the number of hours/days it is on?

    1. [   ] Very Poor   2. [   ] Poor   3. [   ] Good

    4. [   ]Very Good   5. [   ] Excellent

10. How would you rate the speed of your UCC Internet connection?

    1. [   ] Very Poor   2. [   ] Poor   3. [   ] Good

    4. [   ] Very Good   5. [   ] Excellent

SECTION C: PROFICIENCY IN ICT

11. Have you ever had any training in the use of ICT facilities? Tick ($\sqrt{}$) your response

    1. [   ] Yes   2. [   ] No

12. Where did you receive the training from? Tick ($\sqrt{}$) your response

    1. [   ] From UCC   2. [   ] From elsewhere

    3. [   ] Learnt on my own   4. [   ] No training at all

13. If your response to **Q 11 is yes**, how adequate is the training received?

    1. [   ] Inadequate   2. [   ] Adequate   3. [   ] Very adequate

14. How would you also rate your proficiency in ICT in general?

    1. [   ] Beginner   2. [   ] Ordinary   3. [   ] Expert

SECTION D: APPLICATION OF ICT IN YOUR OFFICE WORK

Tick ($\sqrt{}$) the appropriate responses.

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
15a. How often do you use ICT in your work at the office?				
15b. How often do you use ICT to communicate with other staffs'?				
15c. How often do you use ICT to assign tasks to the staff in the office?				
15d. How often do you use ICT to receive feedback from your subordinates?				
15e. How often do you use ICT for distance learning to enhance your capacity on the job?				

SECTION E: APPLICATION OF ICT IN RESEARCH

Tick (√) the appropriate responses

	VERY OFTEN	OFTEN	QUITE OFTEN	NOT AT ALL
16a. How often do you use ICT in Research into new concepts, issues theories in management?				
16b. How often do you use ICT to collect information from the sections of the University?				
16c. How often do you use ICT to disseminate information to colleague in other units?				
16d. How often do you use ICT to Collaborate and share ideas?				

SECTION G: ICT ORGANIZATIONAL SUPPORT

Tick (√) the appropriate responses

17. Which of these are you aware of?

(i). The UCC has a committee that defines and monitor institution wide ICT policies and standards. [

(ii). The UCC has committees and units that carry responsibility of management and maintenance of the ICT infrastructure. [   ]

(iii). The UCC has committees that consider users' ICT needs. [   ]

(iv). Don't know about any of the above [   ]

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18. Which of the following would you say are constraints in the application and use of ICT facilities in UCC? **Tick (√) your responses**

    i.   Inadequate ICT infrastructure   [   ]

    ii.   Constant interruption of electricity supply [   ]

    iii.   Unavailability of spares of equipment. [   ]

    iv.   Unreliable Internet Service Providers [   ]

    vii.   Inadequate knowledge in the field of computing [   ]

19. Rank, in terms of priorities (**1 to 3**), with **3** being the highest; what, in your view, are the ICT needs of UCC;

    d. ICT facilities for teaching, learning and research [   ]

    e. ICT facilities for Library and Archival services [   ]

    f. ICT facilities for Management purposes [   ]

20. On the whole, how would you rate the ICT facilities available to you on campus?

    1. [   ] Not Satisfactory

    2. [   ] Satisfactory

    3. [   ] Very Satisfactory

21. Please write in the space provided below any suggestions that can lead to improvement in the development and use of ICT in teaching, learning and management in UCC.

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    Thank you

APPENDIX D

RELIABILITY ANALYSIS SCALE (ALPHA) OF PRE-TEST RESEARCH INSTRUMENT

Reliability coefficient: Accessibility to computers and application softwares

N of Cases =   12

N of items = 9

Alpha= 0.78

Reliability coefficient: Location of computers, printers and softwares

N of Cases =   12

N of items = 16

Alpha= 0.75

Reliability coefficient: Level of usage of ICT facilities

N of Cases =   12

N of items = 16

Alpha= 0.88

Reliability coefficient: Awareness of committees, sections, units that look into ICT issues

N of Cases =   12

N of items = 9

Alpha= 0.78

Reliability coefficient: Challenges faced by staff in using ICT

N of Cases = 12

N of items = 6

Alpha= 0.62