THE USE OF THE INTERNET AS A MEANS OF COMMUNICATION BY UNIVERSITY OF GHANA STUDENTS

BY

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DECLARATION

I declare that this thesis is my original work, written under the supervision of Prof. Kwame Karikari of the School of Communication Studies. This work has not been presented in part or whole to any institution for any purpose. All references and quotations are duly acknowledged.

Candidate's Signature

Supervisor's Signature

DEDICATION

I dedicate this book to my mother, Madam Elizabeth Osei Akyaa and my late father, Nana Ntiamoah Boateng II.

ACKNOWLEDGEMENTS

I express my sincere thanks to the Almighty God who has successfully taken me through the process of producing this work. I am equally grateful to my supervisor, Prof. Kwame Karikari, for his guidance, corrections and motivation. To Prof K Ansu-Kyeremeh, Dr. Audrey Gadzekpo and the other lecturers of the School of Communication Studies, I say a big 'thank you' for their assistance and support in diverse ways.

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ABSTRACT

This study was conducted with the aim of finding out the extent of students' use of the Internet and its applications on the University of Ghana campus. The kinds of communication students did on the Internet were investigated; so were the extent of students' familiarity with the Internet and the problems faced during students' Internet usage. Both the qualitative and quantitative methods were used for sampling, data collection and analysis of data.

The main findings of the study indicated that students were aware of the Internet and some of its applications. All the respondents used the Internet and were familiar with it, except about a tenth of them who could not use the technology for lack of the necessary training and skills. It was also discovered that respondents used the Internet mainly for emails. The main obstacles to students' use of the Internet were the lack of Internet in their various departments and the lack of adequate funds for accessing the Internet from Internet cafes.

A significant relationship has been established between gender and students' choice of Internet applications. That is, among the resident students of the University of Ghana, from which the sample was drawn for this study, gender is likely to influence the kind of application students choose for communication on the Internet. In addition, one's age or the course one offers is likely to influence how often one uses the Internet for communication.

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CHAPTER ONE

INTRODUCTION

1.0 General Introduction.

Apart from the physiological needs – food, shelter, clothing, etc. – which are required for the upkeep of the human body, another fundamental need of the human being is communication. Communication is a necessity in our contemporary world since it cuts across all spheres of life. As Wright (1975) would put it, communication is fundamental to human survival as every human society is founded on the capacity of its members to maintain, through communication, a working consensus about the social order.

Information Technology (IT) is a critical tool that enhances communication and work processes in today's world. The world of IT has changed very fast over the years, especially in the area of the Internet - the vehicle for conveying messages across borders. Aside from the sheer magnitude of available information, information on the Internet can take on a dynamic quality as it is created, consumed, shared and changed.

The Internet evolved from an experiment conducted in the United States during the Cold War. It dates back to the 1960s when the US Defence Department conducted a research into computer networks that could facilitate the easy flow

of information and also store available information. In the 1970s, four mainframe computers were connected together for a military network called Advance Research Projects Agency Network (ARPANET). People could send packets of information across the United States, and those packets could travel by a variety of routes to reach their destination. ARPANET grew during the 1970s because new nodes and routes were added to include university researchers. The benefits of electronic mail were attractive to users and as a wider community of faculties, students and research organisations began to use the network, it gained popularity as a tool of communication in North America. Since it was a decentralised network, there were few means to control its expansion. (Universal Almanac, 1996).

The use of the Internet spread widely in the 1990s when the US National Science Foundation created equipment that could cause all other computer networks to connect to the government network. The network has expanded at such a rapid rate that it is not easy to estimate how many people use the Internet worldwide. This was the kind of thing US President Clinton's administration envisioned. As noted by Clinton's Vice-President, Gore (1993), one goal of the Clinton administration was to facilitate computer-linked communication on an electronic superhighway. By information superhighway, Gore meant a system by which information would be conveyed from one place to another, just as goods are transported, on roads and highways.

With this model in mind, the American public viewed the information superhighway as a facilitator of all kinds of data transfer, nationally or internationally, at a high speed and at a relatively low cost. The Internet has become the nerve centre for information exchange on the information superhighway and thus, it has become necessary to conduct studies into its usage.

1.1 The Internet in Ghana

In 1995, Ghana became the second country in sub-Saharan Africa and the first in West Africa to have full Internet connectivity. This achievement was made possible by the efforts of several organisations, including Network Computer Systems (NCS), Ghana Telecom and the Ministry of Transport and Communication. The NDC government of Ghana vowed to vigorously promote access to the information superhighway through the use of the Internet in all segments of society, particularly in the educational system, to help close the knowledge gap. The then Minister of Finance, in his 1997 budget statement, made the following declaration:

> *In view of the positive effects of the application of information technology on development, Government will ensure that key institutions of state machinery are linked to the Internet. All the science resource centres will be connected to the network as and when they are commissioned. The programme to link the Universities together and to the Internet will also be pursued.*

There has been an exponential growth in the Internet and e-mail systems over the years as a result of the network. With the Structural Adjustment Programme in Ghana and the government's open economic policy, the telecommunications sector embarked on a programme of privatisation. The NCS received approval from the Ministry of Transport and Communication to offer value-added e-mail and other services to subscribers in the country. Downstream providers have also been licensed to encourage the proliferation of Internet services through cheaper access rates.

In addition, the Ghana Research and Academic Network (GARNET) made provisions to cater to universities, research institutions and high schools in Ghana. The Internet has now spread to various sectors in the country, especially in the urban centres. Government institutions, schools, NGOs as well as private organisations are now hooked onto the net.

1.2 Internet Service Providers (ISPs)

Out of the twenty (20) Internet Service Providers (ISPs) Ghana had in 1997, just about four of them were active at the time of this research. These included Network Computer Systems (NCS), K. Compu Services Limited, Africa Online and InternetGhana. Even though the basic components needed for providing services are inadequate, these ISPs have managed to frog leap into areas like electronic business (e-business) and, electronic commerce (e-commerce) to

increase their sales and services. Thus, the services of Africa Online and the NCS extend to all the cities in Ghana (Quaynor et. al. 1997).

Internet connectivity in Ghana shows a disparity between government and private organisations. While various government organisations, the ministries and Parliament are all connected to the Internet, only a handful of private organisations are connected. Statistics provided by the NCS show that less than 50 per cent (46%) of the private sector was connected to the net as at 1995. At the time of this research however, about 70 per cent of the private sector is hooked onto the net with just about 38 per cent of government organisations connected to it (See Appendix 2). In addition, provisions have been made for the Ghana Research and Academic Network (GARNET) to cater to universities, research institutions and high schools in Ghana.

1.3 The University of Ghana and the Internet.

The University of Ghana has seen some enhancement as far as the provision of Internet services is concerned. The Balme Library, as well as some faculties, is networked. Since 1996, the library has been offering e-mail services to both staff and students. With the growth in the University population and the need for computer literacy, the CD-ROM database (Internet café at Balme Library Main) offers training on Microsoft Excel, MS Word, Introduction to Windows and also teaches students on how to make searches on the Internet. The CD-ROM also has an annex, which presently bears the responsibility of offering students and

other users email and other services that are not provided or allowed in the main library. With the Balme Library Annex Internet Cafe offering email and other services to users, the CD-ROM is now considered as an electronic library, a component of the Balme library, which is mainly for academic research.

To enhance academic searches, the CD-ROM offers a wide range of databases for its users. The fifty (50) different databases include Silver Platter, Psycho Info (Psychology Information), Psycho Lit, Eric Database and Life Science, which are all in abstract form. The CD-ROM database service is also linked to other libraries in countries like Denmark. It places orders for academic materials from these libraries, on behalf of students and other users who request for them.

The University also encourages private investors who provide Internet services for fees. Some of these service providers offer training to students on Internet usage and other Microsoft applications. Apart from the departments that are hooked onto the net, there are a number of Internet cafes from which students can access information. These include:

- CD-ROM, Balme Library Main
- Balme Library Annex Cyber Café
- Legon Hall Main Internet Café
- Legon Hall Business Centre
- Professional Associates (Legon Hall Annex 'A')
- Carrera Cyber Café (Akuafo hall Main)

- Efanyi Zoka Services (Akuafo Hall Annexes 'A' & 'B')
- African Virtual University.

Each of these cafes has personal computers (PCs) ranging between five (5) and twenty-five (25) with the Balme Library Annex having the highest number of PCs. Generally, these cafes have telephones and inbuilt decoders as part of their connections and the services they provide include email and Internet chat (apart from CD-ROM), academic searches, electronic news, films, music and browsing. Students therefore have a number of providers (though inadequate, compared to the general student population) to give them Internet services (see Appendix 1 for notes on some Internet services/applications).

1.4 Research Problem.

Though many people celebrate any new communication technology that is invented, the fact also remains that every new technology comes with a kind of debate over its merits and demerits for different groups or classes of people. Just as the printing press, of old, enjoyed some glories and criticisms from various classes of people in Europe at the time, so is the Internet considered to be much more advantageous to some societies than others. Scholars have raised a lot of arguments about Africa, in relation to this age of Information Technology and the use of new communication technologies. Okigbo (1995:120) asserts 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.

Uche (1988:5) attributes Africa's status in this era to political, economic and social problems. He opines that Africa is "yet to undergo the political, economic, social and technological transformations needed to become a member of the much-talked-about Information Society." Karinga (1996) who holds a similar view says that due to the low socio-economic status of a majority of African countries and Structural Adjustment Programmes which have hit these countries, equipment for information superhighway is extremely difficult to obtain, maintain and repair. Other problems include poor telecommunication infrastructure, illiteracy, poverty, high cost of computers and unreliable electricity power.

The diffusion of environmental information and communication technologies, according Karembu (1996), implies critical adaptation such as ability to deal with computers. It also calls for specialised knowledge of network administration and design which in most cases is weak or absent in Africa. She observes that illiteracy levels in Africa are high, aggravating the problems of training as the majority of the population generally lacks the basic skills to exploit new innovations.

These statements about Africa generated the interest of the researcher in this study. The other problem for which the study is being conducted has to do with

gender and the Internet. In the same way as Africa is considered inadequately served, women are perceived to be even more deprived of the use of the Internet and other communication technologies.

Over the years, skills related to computer technologies have been viewed as the domain of male experts who have, in many ways, shaped the production and consumption of computer-mediated avenues of communication. While certain technologies are perceived as "appropriate" for women, others have been delineated as "male" technologies. Davies (1988), for example, has documented the process through which the typewriter was defined as a "women's" technology.

Several authors have described the ways in which household technologies such as the washing machine have been viewed as women's technologies (Bose and Bereano, 1983; Leto, 1988). Ullman (1996) has also observed that women's online discussions mainly take the form of chat room conversations and e-mails. From the perspectives of these writers, women can hardly be considered to have the know-how for dealing with new communication technologies as the Internet, and even where they do, they use only a limited aspect of it.

The issues that triggered this research emanated from the foregoing arguments. Whether University of Ghana students use the Internet, given the opportunities of literacy, electricity and Internet facilities, is worthy of investigation. Also, whether

female students are familiar with the Internet technology as much as, better or less than male students, is a subject which is worthy of exploration. What is the extent of student patronage in the use of the Internet on campus? Does gender influence students' use of the Internet? What are some of the problems students encounter when using the Internet? These are some of the general questions that will be answered in this study.

1.5 Objectives of the Study.

The Internet has become an essential part of life in the information society. This communication technology has spread rapidly and has enabled people to do so many things – things that are strategically important to their life in the information society. Being able to use the Internet has become a basic skill in the modern world; understanding the Internet and knowing how to communicate with it have also become part of literacy.

The driving motive for this research was propelled by the curiosity to find out students' attitude to using the Internet, which is now considered a novel information technology. The research explored the things students use the Internet for. Specifically, this study aimed to find out:

1. Whether students are aware of the Internet and patronise its usage on the University of Ghana campus.
2. The kind of communication students use the Internet for.

3. Whether male and female students equally use the same Internet services for communication.
4. The kind of reactions students have after their first encounter with the Internet.
5. Whether the level of a student determines how often he / she uses the Internet.
6. Whether male and female students are equally familiar with the Internet technology.
7. Whether male and female students spend equal amounts of time with the Internet each week.
8. Whether students find the Internet as a useful channel for communication
9. The problems that students face in using the Internet for communication

1.6 Research Questions

The data gathered for this study were used to answer the following questions.

1. What kind of communication do students use the Internet for?
2. Do the levels of students influence how often they use the Internet?
3. What are the reactions of students on their first encounter with the Internet?
4. Are both male and female students equally familiar with the Internet technology?
5. Do both male and female students use the same Internet applications for communication?

6. Do male and female students spend equal number of hours with the Internet each week?
7. Do students consider the Internet a useful channel for communication?
8. What problems do students face in their use of the Internet?

1.7 Hypotheses

This study was based on the following assumptions:

1. There is likely to be a difference between male and female students, in relation to the number of hours they spend using the Internet.
2. There is likely to be a relationship between gender and students' familiarity with the Internet technology.
3. Gender is likely to influence the kinds of Internet applications students often use for communication.
4. Demographic characteristics like age, courses offered and the level of students are likely to influence how often students use the Internet for communication.

1.8 Significance of Study

Marshall McLuhan posits that we are now in a "global village",. This is an era which Cordell (1985) and other scholars call the Information Society or Information Age. In this age, information is commodified like all goods and services. Information has now become the tool for measuring wealth or power, especially among media practitioners. The Americans describe this age as

characterised by a superhighway, that is, an era in which information travels at a very high speed. The dissemination of information in this age is thus likened to the transportation of goods. This has been made possible by the invention of new communication technologies like the Internet.

The smooth running of organisations is increasingly reliant upon media and communication technologies, which present new options for the traditional ways of doing things. Organisations in today's world therefore depend largely on people who are familiar with and can use the technologies to be able to trade in information that can help them.

It is in this light that this study becomes important. The findings of this study will help the University authorities to know if students really use the Internet for communication. The study will also enable the University to identify the problems students encounter in their Internet usage and find ways and means of resolving them. In addition, this study will help the school authorities to encourage students' use of the Internet. Thus, almost all students who pass through the University will be familiar with the Internet in order to enhance their job opportunities in the outside world.

Another significance of this study is that it will serve as a reference material for the various Internet cafes on campus, in relation to student patronage and the likely advantages or problems students get from these cafes. Thus based on the

results of this study, the cafes can maintain or improve upon their services to students.

1.9 Operational Definitions.

In this study, the following terms will be defined as follows

1. **Use:**

- Accessing, sending and receiving information via the Internet.

2. **Internet:**

- The various services of the Internet, such as e-mail, chat, the web, news bulletin board, as well as search engines like Yahoo, Google, etc.

3. **Means:**

- Tool or channel.

4. **Communication:**

- Research, learning, chatting, browsing, accessing news, sending and receiving mails, etc on the Internet.

5. **Students:**

- Graduate and undergraduate students of the University of Ghana who are resident on the University campus.

6. Levels of students:

- The levels of students on the academic ladder: E.g. Level 100, Level 200, Level 300, Level 600 and so on.

7. Familiarity:

- Students' ability to use the Internet, based on their know-how to use search engines, locate sites and access information.

8. Internet Service Providers (ISPs):

- 'ISPs' is used (in Chapter One) to refer to the various organisations in Ghana, which provide Internet services to subscribers in the country.

- 'ISPs' is also used extensively in this work to mean people who work in Internet cafes on the University of Ghana campus, to assist students and other users in accessing the Internet.

1.10 Summary

This chapter dealt with the background of the study and Internet connectivity in Ghana and the University of Ghana. Some basic Internet applications as well as the domains and sub-domains of the Internet were also described. Key among the issues discussed or outlined in this chapter were the research problem, objectives of the study, research questions, hypotheses, significance of study

and operational definitions. The next chapter discusses the theories on which this study is based.

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CHAPTER TWO

THEORETICAL FRAMEWORK

2.0 Introduction

The study of mass communication is rooted in a much larger field of enquiry concerned with human communication, which is sometimes identified as "Communication Science" (Rogers, 1986). There are alternative ways of dividing up this larger whole but one way is according to the level of social organisation at which communication takes place From this perspective, McQuail (1987) views mass communication at the apex of a pyramidal distribution as follows:

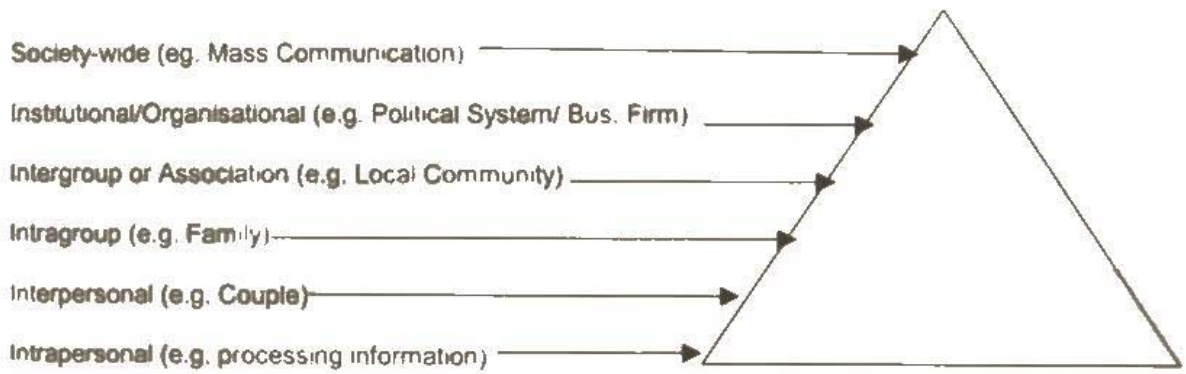


Fig.1 Levels of Communication Process

According to McQuail, each of these levels of communication entails a particular set of problems and priorities, and has its own body of evidence and theory. The intrapersonal level bases attention on the processing (that is, comprehension, recall, interpretation) of information, such as media news, and also on interaction

with the environment. Theory deals with mental states and processes at this level. The interpersonal and intragroup levels are mainly concerned with forms of discourse, patterns of interaction, questions of affiliation or attachment, the setting of norms, hierarchy and control, the marking of boundaries, influence and diffusion. Formal organisations deal with questions of control and the efficiency of information transmissions. In groups and associations, there is more attention to voluntary attachment, interaction, co-operation and the formation of norms.

McQuail (1970) adds that mass communication is only one of the processes of communication operating at the society-wide level, readily identified by its institutional characteristics (a mixture of purpose, organisation and actual activity). Since it is comprehensive, mass communication can involve a consideration of any of the lower level processes named above. Internet communication incorporates all the levels on McQuail's pyramid. For instance, by way of accessing the Internet, the user (s) may decide to do any of the following:

- browsing the Internet (when intrapersonal communication can take place),
- chatting with a friend or relative (interpersonal communication) or
- accessing the news (participating in mass communication).

Communication science as a whole tends to identify a set of questions, common to all levels, which theory and research try to answer. They are:

- Who communicates to whom (sources and receivers)?
- Why communicate (functions and purpose)?

-How does communication take place (channels, language codes)?

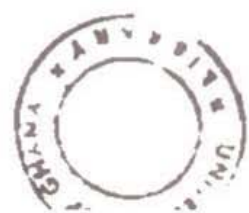
-What is the communication about (context, objective or reference, type of information)?

-What are the consequences of communication (intended or unintended)?

Just as every form of communication is faced with the foregoing questions, Internet communication or experience is also influenced by the above questions. Undoubtedly, every user of the net is faced with questions about 'whom to communicate with', 'the means of access (e.g. search engine, chat, e-mail, etc.)', 'reason for communicating' and 'ability to achieve the intended outcome(s) from system use'.

Studies into communication channels have shown that a transmitter operates on a message to produce a signal suitable for the transmission over a channel (Severin and Tankard, 1979). The signal takes different forms, depending on the communication system being used. In speech, the signal is a varying sound pressure travelling through the air (the channel). In radio and television, the signal is the electromagnetic wave which is transmitted, while newspapers, magazines and books utilise the printed word and illustrations as the signal on a page (the channel).

All the above-mentioned channels have implications for Internet communication. By way of convergence, the Internet is capable of providing information from



other media - speech, television, radio, newspapers, magazines, books and others. In this regard, a plethora of communication forms - spoken or written words, musical notations, music, pictures, mathematical notations, body movements and facial expressions - can be accessed from the Internet. The Internet is thus a channel for many kinds of communication. Users of the net are likely to access the majority of the above-mentioned communication forms on the Internet.

2.1 IT-Based Perspectives

Being a channel for converging all other media for transmission, the Internet 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 Internet communication. 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. To a large extent, the use of the target technology reflects some level of user satisfaction, and patterns of use may also affect the impact Internet usage has on individuals.

Exploring the determinants of IT use produces descriptive information about "successful" Internet usage and prescriptive information for how to better deploy Internet resources (Taylor and Todd, 1995). Davis et. al. (1989) found very strong effects of Internet usefulness on behavioural intentions and further noted that temporary changes could influence the usefulness and ease of use of the Internet. Quite simply, understanding Internet use means understanding why a user might or might not use it (Morris and Turner, 2001).

At some point, however, people who develop an interest in a new IT actually use the system for one thing or another. What is it about those usage experiences that shape the success of IT use and hence, to what degree do users accept a new IT? Examining the notion of acceptability in this particular study has a basis in a number of theoretical perspectives. The Acceptability Paradigm, Technology Acceptance Model (TAM), Uses and Gratifications Theory and Self-efficacy Theory are classic and contemporary theories which form the basis of this study and explain why people may or may not use the Internet. These theories have been successfully used by Morris and Turner (2001), Taylor and Todd (1995), McQuail et.al. (1972) and other researchers in studies on IT usage, radio, television and other media. It is therefore expected that these theories will be useful for understanding and interpreting the present study.

2.2 The Acceptability Paradigm

Within contemporary human-computer interaction literature, Shackel's (1991) Acceptability framework has been one of the most influential paradigms for conceptualising 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.

According to Shackel, *Utility* ensures that the system does what is needed functionally; *Usability* examines whether the users can actually work the system successfully and *Likeability* determines whether the users feel the system is suitable. All these three dimensions are balanced against cost, which includes both capital and 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 worthy to continue 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 most 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 - Internet use, in the context of this study (Fishbein and Ajzen 1975).

Bandura's (1982) self efficacy theory (see p.29) 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 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 will explore the events between occasions of Internet use, establish any differences and commonalities between users and assess the extent to which students on the University of Ghana campus can use the technology. This study will also explore any possible

problems students encounter during Internet use and provide recommendations to the University authorities on how to help students to get acquainted with the Internet technology.

2.3 The Technology Acceptance Model (TAM)

Although a host of factors contribute to the success or failure of a new information technology, recent attention has focused on the role individual user acceptance plays in IT implementation. One model proposed to explain IT user acceptance is Davis' (1989) Technology Acceptance Model (TAM). This model has been validated across a wide range of users and technologies since its origination. It has been cited by many researchers of IT usage as a viable means of explaining user acceptance. The Technology Acceptance Model specifically refers to how the interrelationships between usefulness, ease of use (of IT) user intentions and IT user behaviours vary as a function of time or experience. Davis presents the variables of TAM as shown in the following diagram:

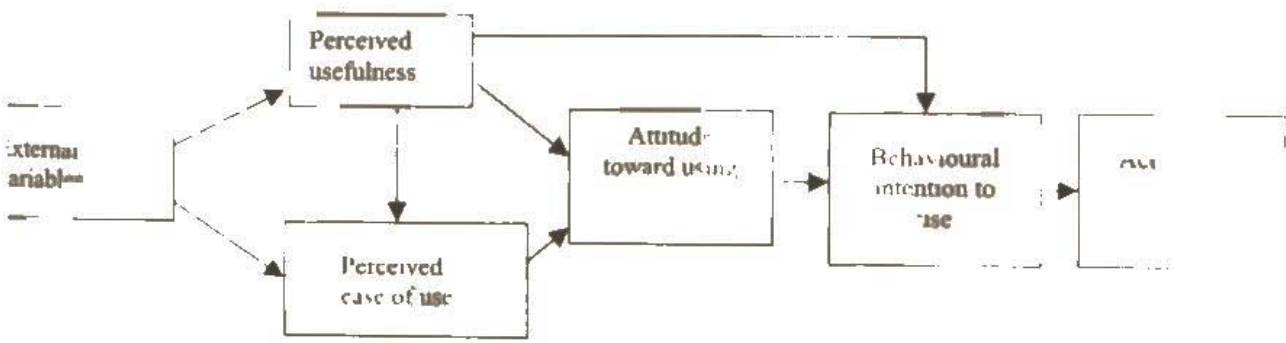


FIG.2. The **Technology Acceptance Model (Davis, 1989).**

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 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 "behavioural 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 opines that the relative influence of Tam variables in dertermining 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 characterisation which holds true across a variety of user populations.

TAM has much significance to this study in the sense that the Internet is one of the technologies in vogue at the present age. Based on this model, the findings of the study will be used to determine the extent to which respondents find the

Internet useful and easy to use, as well as the frequency with which they use it. TAM is therefore a very influencial paradigm for conceptualising the acceptability of the Internet to the subjects sampled for this study. It will be used to explain why a respondent may or may not use the Internet.

2.4 The Uses and Gratifications Theory

The Uses and Gratifications theory draws on research that dates back to the 1940s and was used by Herzog (1942), Lasswell (1948) and other communication researchers. This theory seeks to examine the uses to which people put the media and the gratifications they derive from them. The theory centres on a generalisation that we should investigate how people use the mass media rather than merely worry about how the media use people.

The uses and gratifications tradition takes the audience member as the focus. According to this theory, audience members can articulate their needs and the uses to which they put the media. The term "uses" implies that audiences are active, rather than passive, members of the communication process and that they are willingly exposed to the media. The term "gratifications" refers to the rewards and satisfactions experienced by audiences, and also helps to explain the motivations behind media use

McQuail et al. (1972) posit that the audience member temporarily occupies a particular position in relation to media content; a position affected by a number of

factors including those deriving from his / her personality, social background , experience, immediate social contact and the content itself. The audiences define their expectations and use the media content to respond to such expectations. Thus, they derive certain affective, cognitive and instrumental satisfaction.

Though the uses and gratifications theory was propounded long before the invention of the Internet, its components and meaning apply to the use of new media like the Internet. This theory can play a major role in studying Internet usage, considering the fact that the Internet is a type of media and its users, the kind of audience that the uses and gratifications theory envisages. This theory will be used to assess the uses subjects put the Internet to and the satisfactions they derive from it.

2.5 The Self-Efficacy Theory

Another theoretical paradigm that influences this study is the self-efficacy theory. According to its proponent, Bandura (1982), self-efficacy is defined as people's judgements of their capabilities to organise and execute the course of actions required to attain designated types of performances. 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.

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

From Bandura's definition of the self-efficacy theory, it is possible that any aspect of Internet usage experience that raises or lowers self-efficacy beliefs can influence subsequent usage behaviours. Thus, subjects who believe they are capable of using the Internet to accomplish their tasks are more likely to use it than those who do not share similar self-efficacy beliefs.

2.6 Summary

This chapter dealt with the theories that form the foundation of this study. Various theories were discussed, taking into account, both classic and contemporary communication models that inform the present study. The next chapter is devoted to the literature review, drawing from IT or Internet-related studies conducted in Western countries, Africa and Ghana.

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LITERATURE REVIEW

3.0 Introduction

Dizard (1985) points out that the communication industry involves a three-stage progression, beginning with changes in the basic information production and distribution industries to a greater range of services available for other industries, and resulting in an expanded range of information facilities at the consumer level. According to him, the first stage of transformation is already well underway. It is concentrated in what the US Department of Commerce called the "primary information sector" in its 1977 study. This stage is dominated by a relatively small group of large corporations that are the builders and operators of the basic information and communications infrastructure.

The second stage of the new information economy involves the industries and organisations – both public and private – that are the primary users of the new high technology network. Their dependence on the services of the new technology is already extensive. The banking industry, for instance, has moved to a universal electronic funds-transfer system that will gradually replace most of its paper transactions. The education industry is also benefitting from electronic learning systems. Computer-assisted instruction, already used by millions of students, is becoming commonplace.

The third stage of the information age, according to Dizard is the mass consumerisation of high-technology (high-tech) information services. It involves the application of available technology for a new kind of mass information network. Advanced information and communication resources limited largely to use by business and government organisations are now extended to homes, schools and small organisations, providing a wide range of computer-based information resources (or Internet services) to people.

These stages in the communication evolution – from basic information production and distribution to mass consumerisation of high-tech information services have attracted a number of studies. One area of high-tech information services and consumption that has attracted the interest of researchers is the Internet. Quite a number of Internet-related studies have been conducted in the areas of business, education and other disciplines.

This section of the study is concerned with the review of some of the literature on the use of the Internet. Particular attention is paid to some studies conducted in Western countries, Africa and Ghana.

2.1 Internet Usage in some Western Countries.

Morris and Turner (2001) in a study assessed users' subjective experience with the World Wide Web in the US. The main objective of the study was to identify factors capable of accounting for IT user behaviour from time to time. They used the quantitative and qualitative methods for the study and this makes their research relevant to the current study which uses similar research methods.

For the quantitative approach, the researchers 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 ones, 48% of the subjects, had had three or more years of Internet experience and therefore formed the high experienced group.

Using statistical methods for the analysis, Morris and Turner noted that the two groups exhibited significant mean differences 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,

- relevance of information to the task,
- organisation 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.

For the qualitative aspect of the study, Morris and Turner 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 performed similar or related tasks.

According to a survey of 12-15 – year – old students, conducted by Pew Internet and American Life Project (2001), the Internet is replacing the library. Pew found out that 71% of the teens polled considered the Internet as their primary source of information for school work. Only 24% said the library was their primary source of information. The findings also revealed that 41% of the respondents used e-mail to contact their teachers and classmates about their homework, while 34% used the Internet to download study aids. This study gives evidence of how significant the Internet is for the young students, as regards their academic work. The significance of Pew's study lies in its choice of subjects and the variables that were explored. The current research also investigates students' use of the Internet as a means of communication and the extent to which the Internet is significant to them.

In another 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, two 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. Other findings made by the research company included the following:

- 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.
- 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.
- Approximately 66% of the Internet users said that their ability to get news from a variety 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, etc.).
- 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.

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 had become an increasingly popular and potent tool for political communication in America. The importance of this study lies in Pew's focus on the use of Internet applications, a variable investigated in the

current research. Among the findings made with regard to Americans' use of the Internet for political communication were the following:

- Two-thirds of politically engaged Internet users during the 2002 midterm election sent or received emails related to the campaign, while campaigners assessed the email as being a very effective tool for communicating with the press.
- About one-third of those who used the Internet for politics in the same year (2002) used email to send and receive jokes about the campaign. The same percentage of Internet users received email relating to campaign endorsements, while 22% sent email relating to their political preferences.
- Seventy-nine per cent (79%) of politically engaged net users sought information about candidate record and 10% of them participated in online discussions about the 2002 elections.
- About a third registered their opinions in online polls and 34% asserted that information they found online made them decide to vote the way they did during the 2002 elections.
- Pew's research further indicated that the number of Americans who used the Internet to get political news and information grew by 39% between the summer of 2000 and 2002 midterm elections. Meanwhile, more than 50% Internet users were yet to be drawn to the political arena.

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. One male student was chosen for the case study and the following findings were made:

- The Internet was the student's source of interpersonal communication.
- His pattern of Internet use revealed the tendency to stay logged-on for increasing amounts of time.
- Internet use had resulted in his frequent absence from lectures, and poor academic performance.
- He had withdrawn from his hobbies as a result of Internet usage.
- 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.

Likert type scales were used to assess how Internet use impacted 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.

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:

- Using greater amounts of time or longer periods on the Internet than was intended.
- Social, occupational or recreational activities being reduced because of Internet use.
- The desire or unsuccessful efforts to cut down or control Internet use.
- A great deal of time spent in recovering from Internet use.

- 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-dependents. 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.

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 is relevant to the current study in the following ways:

First, its target population is similar to the population studied in the current research.

Secondly, it uses the triangulation method for data collection and analysis for the purpose of comparison, a method which is almost like the one used in the present study.

3.2 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, Ile-Ife. She used the survey method for data collection and analysis. One hundred copies of a questionnaire were randomly administered on a sample of postgraduate students in the University.

The main library in the University – the Hezekiah Oluwasanmi (H.O.) Library – was ranked first as a source of research materials, followed by research institutes, CD-ROM databases, 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 of Internet use 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 utilisation 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 points at the departmental and faculty levels in the University.

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 addition, the variables explored are almost the same as some of the variables investigated in the current research.

In another 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 his study were investigated in the current research, and this makes the former study relevant to the latter.

Using the qualitative method for 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 on 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 were:

- computing experience,
- information anxiety,
- computer phobia,
- obsessive computing, and
- computer 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. 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 the current one lies in its use of the survey method which is also used in the present research. Also, the variables explored are similar to some of the variables investigated in the present study.

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

- Have respondents ever sent messages on the Internet for somebody else?
- How often do the respondents use the Internet?
- 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 Internet cafes, community centres, non-governmental organisations 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 finding Davis made was that the Internet served as a socialisation tool for its users. Using the results of her study, Davis draws a comparison between the Senegal and U.S. situation: "There's this idea that the Internet in 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 center, 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 is similar to the method used in the present study. Also, Davis investigated some of the variables studied in the present research.

3.3 Internet Usage in Ghana.

A research conducted by Quaynor et. al. (2000) of the Network Computer Systems (NCS) showed that corporations and companies formed the largest

block among Internet subscribers in Ghana. Media organisations were among the least users of the 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 Mean 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 by subscribers and therefore more suited for "serious" purposes. This study is important because the variables it explored are similar to some of those studied in the current research. In addition, it describes the extent of Internet use in the country.

Armah (1996) conducted research to find out the kind of services provided by the CD-ROM and users' views about those services (University of Ghana, Legon). She used both the qualitative and quantitative methods in this research. The significance of her study lies in her use of the triangulation research approach, the setting and the research focus which are similar to those used in the current study.

In an interview conducted for the librarians in charge of the CD–ROM work station, Armah found out that the library provided literature searches for its users. Training was also provided for users to enable them conduct their own searches on the CD-ROM. In addition, the CD-ROM provided current awareness services on bibliographic situation with abstracts and indices.

The facility was patronised mainly by postgraduate students, researchers and lecturers of the University of Ghana and also by some researchers from other government institutions and organisations. Occasionally however, some undergraduate students of the university also make use of it.

In a survey administered to twenty (20) users, 80% of the respondents indicated they did request for information on the CD-ROM and 70% of them noted their satisfaction with the information obtained. The finding also showed that 40% of the respondents used materials obtained from the CD-ROM search for theses and project work, seminars and academic articles, 13% for lectures and 7% for other purposes. Seventy- two percent (72%) of the subjects indicated the CD-ROM had made an impact on their research; and 28% of them said the searches had made an impact on teaching, project work and studies. Generally, the respondents indicated that the introduction of the CD-ROM had helped a lot in academic research. Ninety percent (90%) of the users considered it very useful. Only 10% of them said it was negligible.

The respondents also noted some problems. These included the inadequacy of equipment and staff at the CD-ROM work station. The work station had only two (2) CD-ROM drives attached to two (2) PCs with only one printer for all its users. This created a lot of inconveniences for its numerous users. Users also noted that the CD-ROM work station was too small, obscure and far away from the reference desk. Based on her findings, Armah made the following recommendations:

- More work stations should be provided,
- More CD-ROM drives, computers and printers should be provided, and
- More and up-to-date databases should be provided to cover more subject disciplines.

Doku (2001) conducted a study on the patronage of six Internet cafés 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. A majority of the subjects fell within the 21–25 age cohorts, indicating that Internet cafes in Accra are patronised 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 and ¢550,000 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 information on educational opportunities and also for news around the world, though emails 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.

Doku also discovered the reasons respondents had for their preference for certain Internet cafes. Fifty-four per cent said they preferred a particular Internet café because of the good customer service provided. Forty-seven per cent said their preference was due to the proximity of the café to their place of residence, while forty-three per cent said their preference was due to the low rates charged. Doku's subjects therefore seemed to be more concerned about customer care than low charges.

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 two to four hours and ¢2,500 - ¢10,000 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 research is of special interest to the present study because its research area is 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 students. The study also established that both staff and students from the Science Faculty used the Internet and its services more than those from the Arts and Social Science faculties.

Email happened to be the most popular Internet service that students were aware of and used frequently. The 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 12.5% 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 Internet accounts in their various offices. Another reason could be that staff were more likely to afford the Internet than students.

Yahoo was also shown to be the search engine used most frequently by both staff and students, with respondents from the Faculty of Science in both groups using it more than those from other faculties. Alta Vista and Infoseek were also widely used by respondents from the Faculty of Science. Students from the Faculty of Arts were shown to be the least users of these search engines. The staff respondents also appeared to use these tools more 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 than female respondents among staff members, though in the case of students, in the case of students female respondents used it more than their male counterparts. The study also established a significant relationship between Internet use and age. It was postulated that the young used the Internet more than the old, and that the rate of Internet use decreased 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 utilisation of the Internet in all their academic pursuits.

It can be noted from the above discussions that each of the studies reviewed has a bearing on the present work and could therefore help the current researcher to assess the situations that pertain and those that are different, regarding the changes in time, place and subjects.

3.4 Summary

This chapter has been concerned with the review of some of the literature available on the area of this study. Examples were drawn from the United States and Europe, Ghana and other parts of Africa. In the next chapter, the various methods used for this research are discussed.

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CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter deals with the methods that were used for conducting this study. It explains the research approach, sampling procedure, data collection and the methods used for analysing the data collected for this research. In addition, the population and the sample chosen for the study are described in this chapter.

4.1 Research Approach.

In this study the triangulation approach to data gathering and analysis was used. That is, a combination of both the qualitative and quantitative methods was employed to be able to compare data gathered from two different perspectives. Morris and Turner (2001) used both the qualitative and quantitative methods of research to assess user's experience with the World Wide Web. Using sample sizes of 23 respondents for the qualitative approach and 1600 subjects in the quantitative approach to generate responses, they came up with findings on users' perceptions about the ease of using the Internet and the usefulness of it. Ojedokun (2001) also used the survey method to investigate the extent of University of Botswana students' access to the Internet and their usage of it

These and other methods used in other Internet-related studies informed the present researcher on choosing the methods to be used in this study. Using the qualitative approach, in-depth information was gathered from Internet service providers on campus. The quantitative (survey) approach was used to find out the spread of Internet use among some resident students of the University of Ghana. Based on the methods that were used in the survey, the findings of this research could be used to describe the resident student population from which the sample was drawn for this study.

4.2 The Population.

Two categories of people were studied in this research. For the qualitative approach, a sample was drawn from the people who manage the various Internet cafes on the University campus. For the quantitative approach, a sample was drawn from a total population of 5317 students resident in five main halls and two graduate hostels at the University of Ghana. These halls and hostels are somehow close to one another so they were purposively selected to enable the researcher to commute easily from one to another for data collection. Table 1 (see p60) gives the distribution of the various halls and hostels with their respective population.

TABLE 1: A Distribution of the Resident Student Population.

HALL / HOSTEL	MALES	FEMALES	TOTAL
Akuafo	755	220	975
Legon	670	310	980
Mensah Sarbah	483	507	990
Volta	-	658	658
Commonwealth	1387	-	1387
Valco Hostel	127	65	192
Grad. Hostel Annex	77	58	135
TOTAL	**3,499**	**1,818**	**5317**

4.3 Sampling Procedure.

In this study, a combination of sampling methods was employed. The sample for the qualitative analysis was drawn from seven (7) Internet cafes on the University of Ghana campus. Two cafes could grant one interview each because of their very busy schedules. In addition to that, two respondents were selected from each of the remaining five Internet cafes, on the basis of availability of personnel and their willingness to grant interviews. For the quantitative aspect of the study, the multistage sampling method was used to draw samples from the various halls and graduate hostels on the University campus. Only the main halls were included because some halls do not have annexes and even for those which do,

the population is skewed towards the male students. Each hall or hostel was given a quota of respondents based on its population.

In each hall or hostel, one male block and one female block were purposively selected. This was done to ensure an equal representation of male and female blocks For the single sex halls, two blocks each were randomly selected to give each student an equal chance of being included in the sample. A list of the rooms on each sampled block was used for the random selection of rooms. Only one student was interviewed in a room to give students in many rooms an equal chance of being represented in the sample.

4.4 The Sample.

In all, twelve (12) respondents were drawn from the various Internet cafes on campus, for the qualitative study. Among these, three were females and nine were males because there are fewer women in the business than males.

Two hundred (200) resident students were interviewed for the survey because that would be representative enough of the population in the halls used for this study. The quota for each hall or hostel was worked out as follows:

$$\frac{\text{Number of Students in the Hall or Hostel}}{\text{Total Number of the Population}} \times \text{Sample Size} = \text{Quota}$$

The following table shows the quotas assigned to the various halls and hostels.

TABLE 2: A Distribution of the Quotas Assigned to the Various Halls and Hostels.

HALL / HOSTEL	MALES	FEMALES	TOTAL
Akuafo	29	8	37
Legon	25	12	37
Mensah Sarbah	18	19	37
Volta	-	25	25
Commonwealth	52	-	52
Valco Hostel	5	2	7
Grad. Hostel Annex	3	2	5
TOTAL	**132**	**68**	**200**

4.5 Research Instrument.

One of the instruments used for gathering data for the qualitative aspect of this study was an interview guide. This was made of four main sections with open-ended questions, and it guided the researcher to elicit information from the interviewees. Apart from the interview guide, other research instruments that helped in the data collection were a notebook and a tape recorder with cassettes. The notebook was used for taking notes during the interview and the tape

recorder, for recording the conversation to enable the researcher to crosscheck and also quote from the respondents during the analysis.

The questionnaire was the instrument used to collect data for the quantitative analyses. According to Wimmer and Dominick (2000), one way to increase the response rate in any survey is to prepare a persuasive introduction to it. In this regard, a simple and pleasant introduction was given to the questionnaire to generate a higher response rate. All instructions necessary for completing the questionnaire were clearly and specifically stated. The questions were mainly close-ended, though a few open-ended questions were added to seek clarifications to some of the close-ended questions.

4.6 Data Collection.

The data used for the qualitative analyses were collected through Individual In-depth Interviews (III). The questions asked were based on the research objectives and/or questions. In the course of the interviews, some of the questions were reworded, re-ordered and altered to suit the different circumstances under which the interviews were conducted. The question and answer format was accompanied by note-taking and tape recording of conversations.

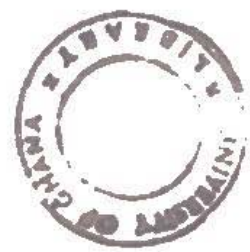
The questionnaires for the survey were self-administered because the students were literate enough to read the questions and answer on their own. To ensure

that the questionnaire was adequately designed, it was pretested, using ten (10) respondents who were randomly selected. A useful attribute of the pretest was that it enabled the researcher to find out emerging mistakes and shortcomings of the questionnaire and to correct any possible problems associated with it before starting the actual research.

4.7 Data Analysis.

The data gathered from the in-depth interviews were analysed in a narrative form. Direct quotes were drawn from interviewees to support the description of data, when necessary. The researcher made comparisons within and across Internet cafes. That is, the similarities and differences in the opinions of individuals in an Internet café were evaluated. In addition, the views of ISPs from one café to another were compared. The analysis was done under the four main sections (drawn from the research questions and) used for the interview guide.

Various quantitative methods of analysis were also used for describing the data collected from the survey and also for making inferences to the general population. Univariate, bivariate and multivariate analyses of findings were done, using the SPSS software package. The univariate analysis of data helped the researcher to describe the findings in the form of charts, tables, percentages and frequencies of occurrences (Owen & Jones, 1978).



The bivariate analyses done were the t-test, to show the differences between groups and the chi square test, to show the relationship between variables. In addition, a regression analysis (multivariate analysis) was done to find out how a dependent variable could be influenced by various independent variables. The results derived from these tests were used to generalise the findings to the population from which the sample for the survey was drawn.

4.8 Summary

This chapter discussed the methodology used for the work. The methods used for sampling, data collection and analysis were also discussed. In the next chapter, the data collected for this study are analysed and the findings, presented in percentages, tables, graphs and narratives.

REFERENCES

1. Owen, F. & Jones, R. (1978). *Statistics*, London, Polytech Publishers Ltd.

2. Wimmer, R.D. & Domnick, J.R. (2000). *Mass Media Research: An Introduction*, 6th ed. London, Wadsworth Publishing Company.

CHAPTER FIVE
FINDINGS AND ANALYSIS

5.0 Introduction.

This study sought to find out the use of the Internet by University of Ghana students as well as Internet service providers' perception about students' use of the Internet. Questionnaires were administered to the sample drawn from the student population and individual indepth interviews were conducted for some ISPs. Summaries of the responses to the various questions asked in this reseach are presented as findings in this chapter. The findings will be presented under various headings. Responses elicited from the ISPs will be presented as findings to the qualitative aspect of the research and the data collected from the survey will be described, using quantitative analyses.

5.1 Demographic Characteristics of ISPs.

In all, twelve Internet service providers on the University campus were interviewed (see Appendix 6 for the the number of the ISPs interviewed in each cafe). Nine of these were males and three were females because there were fewer females in the business than males at the time of this research. Four of the 12 respondents were University staff members and eight were private business operators, an indication that private business operators are being encouraged by the University authorities to put up more business centres to serve students. Only two of the interviewees were university graduates The remaining ones,

especially those in the private sector were polytechnic, advanced level and senior secondary graduates. This implies that people with various kinds of qualification operate the Internet, provided they have the technological know-how and the capital

By way of opening discussions, the informants were told about the assertions made about Africa, that the continent lacks the facilities and expertise needed to use the Internet. Respondents were asked to give their opinions about this assertion in addition to what they think about Ghana. They came up with varying opinions. An interviewee at the Legon Business Services Centre gave a two-sided view on the issue. To him, in Africa and Ghana, *"... our set-up with the Internet is a bit poor. We are now getting used to the whole thing. The truth is that ... our knowledge about Internet is really down."* His other point of view was that, *"The westerners think, we are not doing what we should do but we can do more than they can do."* Basing this view on his experience with students, the respondent added, *"One thing about Africans or Ghanaians is that we're fast learners. You teach them one thing and before you realise, they know another one. So that gives the impression that if we have been introduced to those things well, we would have done better."*

Two interviewees at the Balme Library Annex Internet café shared similar views with this informant. Both of them noted that Ghana has the problem of investing in the Internet but while one attributed the problem to lack of expertise, the other

attributed it to lack of basic facilities. According to the latter, *"We are now in the information age and students have seen the importance of the internet to upgrade themselves ...and to get more information. However, there are no adequate computers and students often complain about this".*

A respondent at CD-ROM, holding a similar opinion, pointed out that there is a level of expertise for Internet in Africa and Ghana but the problem is that Africans and Ghanaians lack the capital for buying adequate Internet facilities. Another interviewee in the same café said that Africa's problem has to do with the level of computer literacy. To her, some of the students who patronise the café are "semi-computer literates". Therefore, they depend on the service providers to be able to access information.

5.2 Students' Patronage in Internet Cafés.

On the question of students' patronage of Internet cafes, the interviewees gave similar responses that students highly patronise the cafés, especially in the evenings when they close from lectures and when they are free. A majority of the respondents said that the high patronage in the evening was also due to the speed of the computer, during this time. An informant at Carrera cyber café, who added an additional view, said students' patronage *"depends on the speed of the café and the service offered. Fast Internet connection connects a good number of customers because information comes fast."* This echoes the findings of Morris and Turner's (2001) study where subjects based the usefulness of the IT, on

certain factors like search engine options and availability of information at remote sites. Here, "speed and services provided" were the determining factors to high patronage

Another variable which the study sought to find out was the rates charged at the various Internet cafes. It was discovered that interviewees at the Legon Business Centre and Balme Library Annex were always pressured by students who queued at all points in time to await their services. This was because their charges (¢4000 or ¢5000 per hour) were cheaper and more affordable, compared to some other places.

Almost all the respondents also said students accessed the Internet either individually or in groups. They did come in groups especially to do group assignments and so on. To one interviewee at Professional Associates, "Those who can't use it don't come at all or they come with their friends" to assist them.

Asked how much time students spent on the Internet, various answers were given by the service providers. All the interviewees in the private cyber cafes said their computers were automated to ensure that students did not exceed the number of minutes they booked for. According to a respondent at Benx Zola Services, students usually spent 30 minutes in accessing information because "they do not have much money to stay longer." One respondent at Carrera held a similar view but his colleague (also at Carrera), who expressed a slightly

different opinion said the time students spent with the Internet depended on individual account. Those who could afford stayed longer; those who could not stayed briefly. These views were at variance with the opinions of two interviewees at Professional Associates who had observed that some students spent two to three hours, researching to get information for their academic work. Thus, the time students spent on the Internet ranged between 30 minutes and three hours.

5.3 The Kinds of Communication Students Do on the Internet.

There were both similarities and differences in respondents' opinions about the kind of communication students used the Internet for. The kinds of communication common to all the cafés included browsing and academic research. Apart from one café (CD-ROM), all the other cafés also mentioned e-mails and chatting as the kind of communication that students do most. Other kinds of information accessed, especially in the private cafés included music, films, electronic news, job placements and advertisements. Some cafes were said not to allow certain types of communication. At CD-ROM for instance, both respondents said emailing, chatting and entertainment were not allowed. People could acquire Internet training or access the Internet for purely academic materials. As one of the respondents put it:

> *This is not a cyber café ...we do purely academic searches here... and people think that Internet is meant for email and nothing else. Over here*

We want to prove to them that it's more than email. ...If we allow email, it will always be email, email, email.

This finding was in consonance with Armah's (1996) finding that the CD-ROM provided training and literature searches for its users. However, the respondents at the Balme Library Annex gave contrasting views. According to one respondent there,

> *Normally, students come here to do their emails. ...The whole world is now a global village and apart from the academic work, they need to make a lot of contacts. The two will help them to really come up as full-fledged students.*

Thus, emails here were not taken for granted. They were considered as a kind of communication with serious implications.

Interviewees were further asked to distinguish between males and females, in terms of the kind of communication they do. They did not differ in their views on the kind of communication male and female students did on the Internet. More than 70% (9) of the respondents said female students did more chatting and emails than the other forms of communication. Male students, according to them, did more browsing, research, listened to music, read the news and watched films. These views replicate that of Ullman (1996), who limits women's online discussions to chat room conversations and emails.

5.4 ISPs' Opinions about Students' Familiarity with the Internet.

Answering a general question asked about students' familiarity with the Internet, interviewees at a majority of the cafés shared almost the same view that for the basics, some students were familiar but students still had a long way to go in order to be able to use the Internet with more expertise. They were still trying to get used to the Internet technology. However, two respondents from Carrera and CD-ROM who held similar views said that most students were not familiar with the Internet because it was not part of their course work. Only a few students (mostly males) in the sciences were very familiar with the technology because it relates to their course work. Those in the humanities and other areas (mostly females) did not usually bother themselves with the computer technology because it was not part of their course work, the ISPs asserted. These views echo the opinions raised by Davies (1988) and others on gender and communication technology (elaborated in the first chapter of this work).

Some respondents distinguished between males and females in relation to their familiarity with the Internet. Like the interviewee at the Legon Hall Main Internet Café, one respondent at Benx Zola services said that, familiarity with the Internet technology was balanced between male and female students. Both of them were on the same level, still trying to grapple with the technology. However, the other informant at Benx Zola said males were more familiar with the Internet than female students. To him,

For the females, some are scared to touch the computer so they come with guys ... sometimes. Ladies think they can't do it and will not even give it a try. They won't even key in the password when you give it to them. They depend on the men.

A respondent at CD-ROM who shared the immediate opinion said:

The males when they come they are a bit adventurous... But the female students when they come, they even know a little bit but they sit there and later on if you start with them then they go on with their work ... some are nervous, they are afraid that something will go wrong so they won't touch anything, so you have to encourage them. And sometimes when they come, they tell you point blank that they don't want to mess up.

The other respondent at the CD-ROM held a different view from his colleague's but similar to that of the first respondent at Benx Zola. To him, "Many students are afraid of the computer but they have confidence after training". Male and female students, according to him, "are on the same level in terms of familiarity but sometimes, the males don't get involved because they fear. Sometimes, they are even more timid than the females."

Apart from the foregoing differing views, the other people interviewed gave similar responses that generally, male students are more familiar with the Internet technology than females. It can be noted from the above discussion that,

some respondents in the same café held similar views but others held conflicting views with their colleagues on the issue of familiarity with the Internet. Meanwhile the varying views in each cafe were corroborated by other ISPs. This indicates the vast differences in the perceptions of the ISPs and suggests that the ISPs have not paid consistent attention to the attitudes and capacities of their clients. Thus, they cannot be a reliable basis for any scientific evaluation of students' use of the Internet.

5.5 Problems Faced by Students on the Internet.

All the respondents mentioned some of the problems faced by students on the Internet. According to them, students usually encountered technical problems associated with:

-The server,

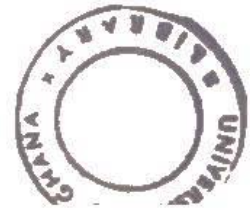
-The search engines,

- Electricity,

-The slowing down of computers

Some of the other problems faced by users were the inability to find sites and the inability to delete mails, etc.

An interviewee at CD-ROM declared that, *'Usually, the young students do not face too many problems with the Internet, but the old ones...what! They come and face a lot of problems because they aren't familiar with Internet."* One of them, at Benx Zola, said *"Some of the females are totally computer illiterate*



Some even feel shy to call for help. Others find it difficult to use the computer."

The general impression created here is that the respondents thought that the male users did not face as much problems as the female users, when using the computer. As an interviewee at Legon Business Center explained:

> *While females call for help when in trouble, male students try to solve their problems on their own. The females have no confidence, they get confused when the computer freezes and they usually fear they may lose their documents.*

All the informants asserted that they offered help to female students most often An observation made on this issue was that almost all the respondents found that those who had problems using the Internet were mostly females. This was irrespective of the earlier assertions made that some female students were more familiar with the Internet than male students. This could be because the interviewees shared the general views about the fact that females are not adventurous enough when it comes to using or solving problems associated with such technologies as the Internet.

The findings presented in this qualitative analysis will be compared with the survey findings of students to bring out their differences and similarities.

5.6 Demographic Characteristics of the Survey Sample.

The survey aspect of this study yielded a 100 per cent response rate. Of the 200 students sampled for the survey, more than three-fifths (66%) were males and almost two-fifths (34%) were females. This was due to the higher number of the male student population resident on the University campus. Ninety percent (90%) of the respondents fell in the 18-25 and 26-35 age groups. Only a tenth of them were between 36-55 years of age. This means that the University has a significantly young population.

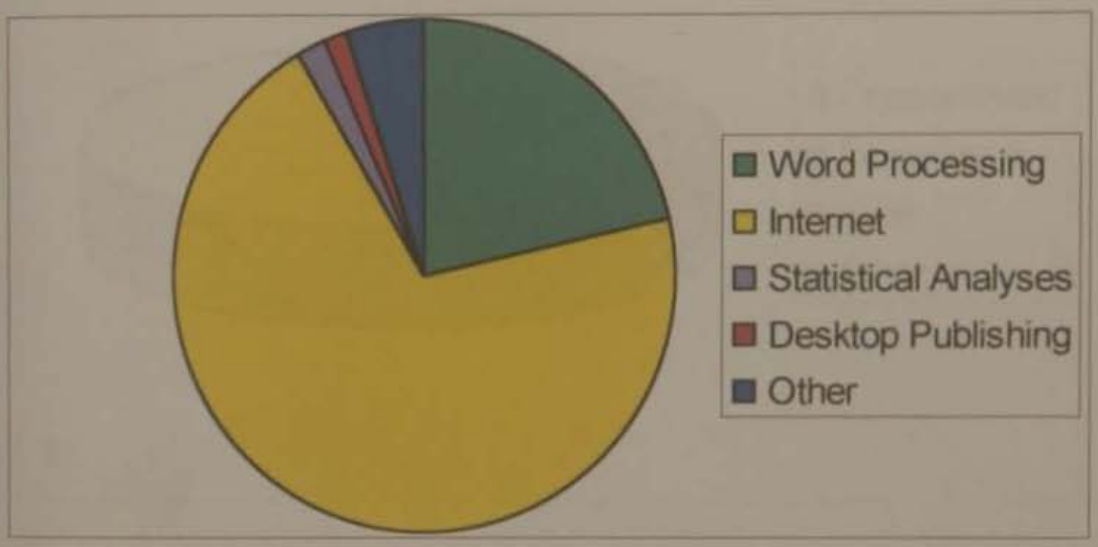
The undergraduates in the sample (85.5%) outnumbered the graduate students (14.5%). A great percentage of the sample (64.5%) was offering courses in the Humanities, with only 35.5% in the sciences and other categories of courses. This reflects the larger population of students that do humanities than other courses in the University.

Christians among the respondents were more than four-fifth (88%). Less than one-fifth of them were affiliated to the African Traditional, Islamic and other forms of religion. This indicates that the University student population is highly Christian. As regards marital status, about 84% of the subjects were single. Only 16% were married.

5.7 Computer Usage by Students.

Asked whether they use the computer, 95% of the respondents answered in the affirmative. Only five per cent said they did not use it. The chart below (see p.85) shows the uses students made of the computer.

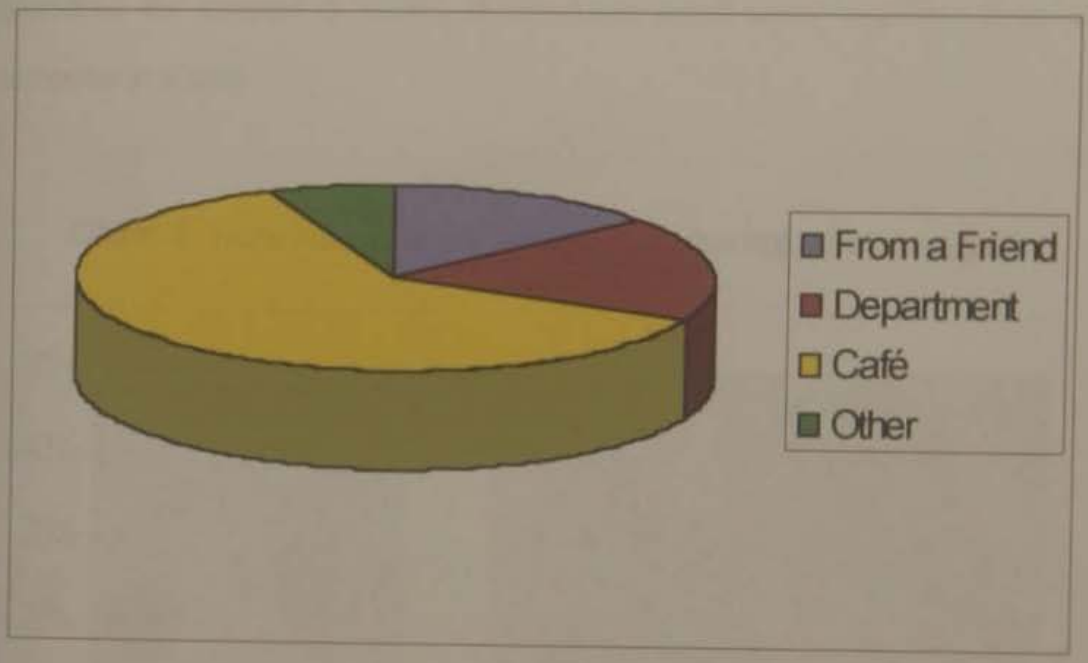
Chart 1: What do you use the computer for?



As shown in the chart, the Internet polled the highest percentage of the uses students made of the computer. Multiple responses were given in answer to the above question because most students use the computer for multi-purposes such as the Internet and word processing, statistical analysis, spreadsheet or desktop publishing. This shows the high rate at which students use the computer and the need for the University to make a great number of computers available for students. This issue becomes more pressing when one considers the fact that just about a tenth (11.5%) of the sample owned personal computers. The rest,

82.5%, had to rely on various sources for access to the computer. Chart 2 gives the distribution of those sources.

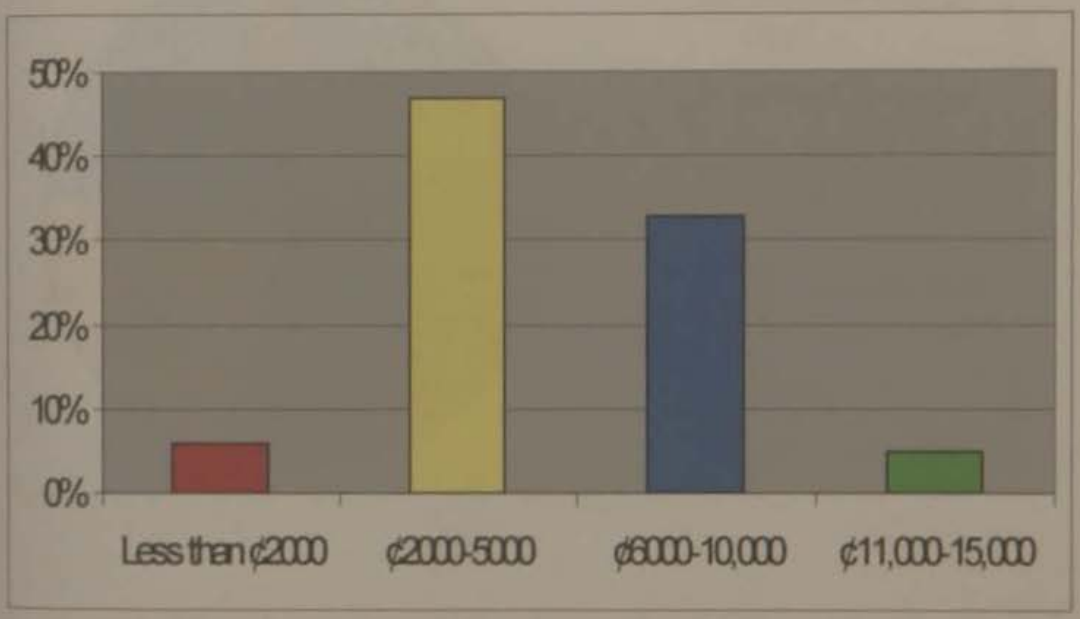
Chart 2: How do you get access to the computer?



In this graph, the café has the highest distribution (59%). Students with computers even had to go to the café sometimes to access the Internet, which only a few of them had on their computers. The fact that a low percentage of students (17.5%) used the computer in their various departments implies that the departments were not adequately equipped to satisfy the student population at the time of this study.

Among those who used the computer in the cafes, only six per cent said they spent less than ¢2000 each time they visited the place. The highest percentage of the sample spent between ¢2000-5000; about 34% spent ¢6000-10,000, while five per cent spent ¢11,000-15,000 on each visit to an Internet café. Chart 3 describes the amount of money respondents spent each time they used the computer in a café.

Chart 3: How much does it cost you during each usage?

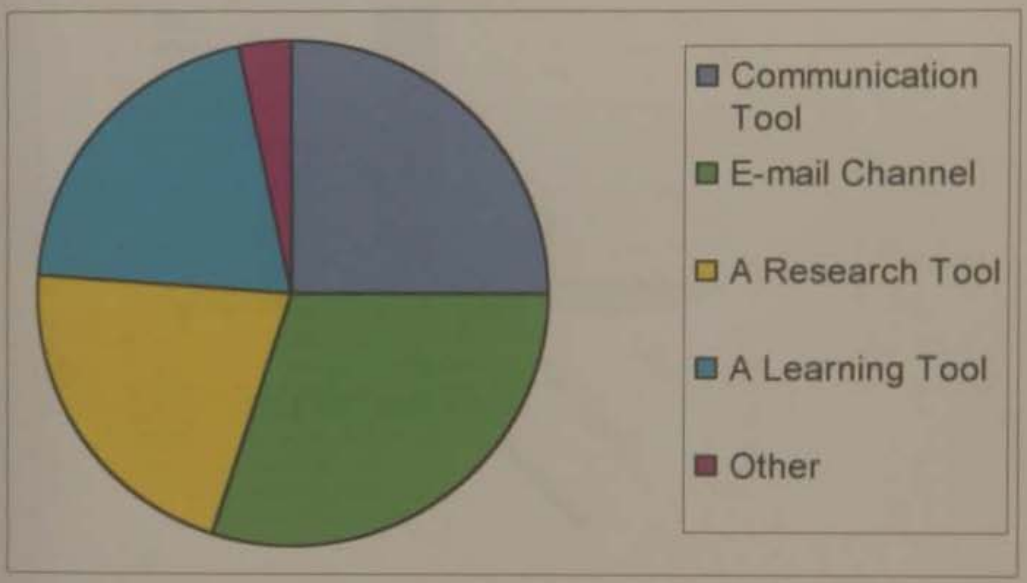


More than half of them (56%) claimed money was a hindrance to their computer usage and appealed to the University authorities to equip their various departments with PCs to relieve them of the expenses. This finding confirms the assertions made by some ISPs that some users did not have much money so they stayed briefly in the cafés to make their searches.

5.8 Internet Awareness.

On the question of Internet awareness, all the respondents affirmed that they were aware of the existence of the Internet and gave multiple responses on their perceptions about what the Internet does. Chart 4 shows the distribution of their responses.

Chart 4: What is your perception about the Internet?

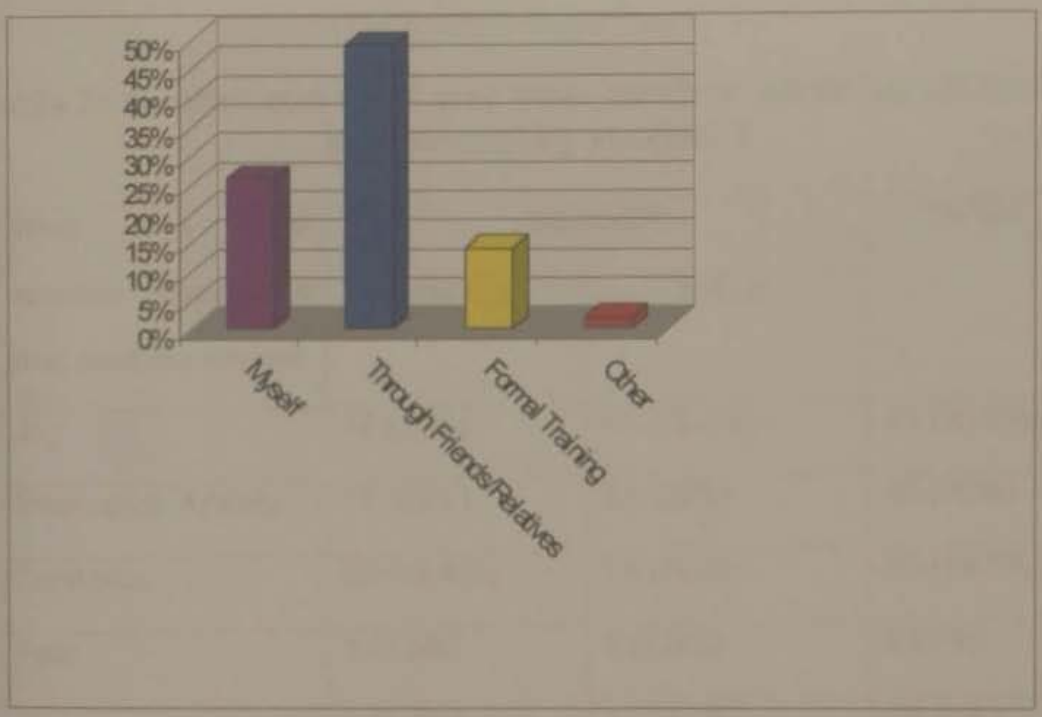


As shown in Chart 4, more than half of the respondents perceived the Internet as a tool for electronic mail, chatting and accessing news. In fact, most of them referred to the Internet as email, indicating their scanty knowledge about the totality of the Internet. This distribution in the chart gives the impression that respondents would be more likely to use the Internet for such purposes as email, chatting and news than they would for browsing, file transfer and entertainment.

5.9 Internet Usage by Students.

Even though all respondents claimed they were aware of the Internet, about a tenth of them (10.5%) were not users of the Internet. The majority of them affirmed that they used the Internet and indicated how they learnt to use it as shown in the graph below .

Chart 5: How Did You Learn to Use the Internet?



From Chart 5, those who learnt to use the Internet through their friends or relatives were almost half (48.5%). Less than a third (26.5%) asserted they learnt it on their own, showing how adventurous they were. Only 14% of the sample learnt to use the Internet through formal training. This could be perhaps because

many students did not have adequate funds to pay for formal computer training and therefore found other means of getting acquainted with the technology.

Respondents expressed their reactions on their first encounter with the Internet. More than half of them (55.5%) were happy on their first visit and anxious for information. The others (44.5%) were confused, nervous or afraid. The cross-tabulation below gives a distribution between male and female users in relation to their reactions.

Table 3: Gender and what was your reaction when you first used the Internet by yourself?

What was your reaction when you first used the Internet	GENDER		TOTAL
	FEMALE	MALE	
Joy	17 (25%)	44 (33.3%)	61 (30.5%)
Information Anxiety	17 (25%)	33 (25%)	50 (25%)
Confusion	20 (29.4%)	19 (14.4%)	39 (19.5%)
Fear	1 (1.5%)	5 (3.8%)	6 (3%)
Nervous	5 (7.4%)	11 (8.3%)	16 (8%)
Other	6(8.8%)	2 (1.5%)	8 (4%)
No Response	2 (2.9%)	18 (13.6%)	21 (10.5%)
TOTAL	**68 (100%)**	**132 (100%)**	**200 (100%)**

From Table 3, more males (33.3%) than females (25%) expressed joy on their first encounter with the technology. More females (29.4%) than males (14.4%) were confused. This explains why fewer females than males were happy on their first usage of the Internet.

In addition, more males appeared nervous and afraid than the females, as shown in the table. This finding refutes the assertions made by some ISPs that most often, it was the female users who appeared nervous and scared when they sat before the Internet. It is not totally true, therefore, that females usually shun such technologies as the Internet because of the fear for using it. Thus, the views of the ISPs were not supported by the survey findings. Respondents patronised the various Internet cafés on campus, as shown in the following frequency table (see p. 85).

Table 4: Where do you access the Internet on campus?

PLACE	FREQUENCY	VALID PERCENT
From Personal Account	4	2.0
CD-ROM	19	9.5
Balme Library Annex	44	22.0
Benx Zola Services	21	10.5
Carrera Cyber Café	19	9.5
Tyme Out Internet Café	38	19.0
Legon Business Centre	8	4
Professional Associates	3	1.5
My Department	13	6.5
Other	10	5.0
NA	21	10.5
TOTAL	200	100

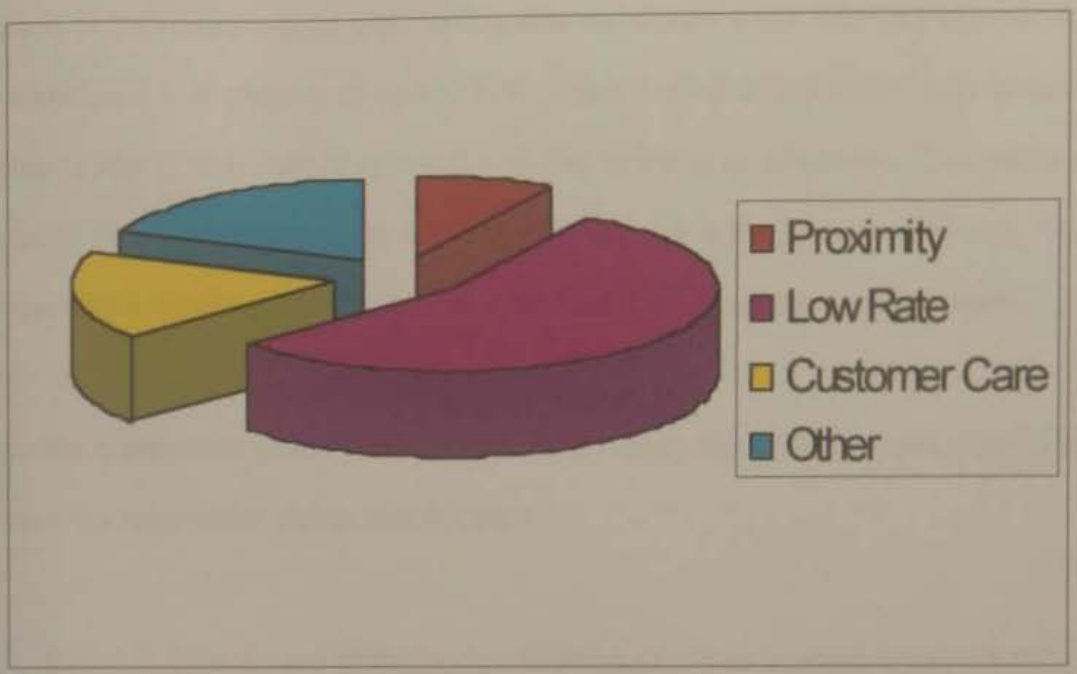
The Balme Library Annex had the highest percentage (22%) probably because it charged a lower rate (¢4,000 per hour), compared to the private business centres where users paid ¢5,000 or more for an hour. Another reason for the high patronage at Balme Library Annex could be that it was very spacious and furnished with the highest number of PCs, of all the cafés on campus. Though CD-ROM (Balme Library main) charged the same amount as its annex, it had a low rate of patronage because it occupied a smaller place (as indicated by Armah, 1996) and did not encourage emails, which students did most often. This

explain why the Balme Library Annex was established to cater for those shortcomings.

The minimal percentage of subjects (3%) who accessed the Internet in their department gives an indication that not all the few departments that were furnished with PCs were hooked onto the net. A personal interview with the patron of the African Virtual University (AVU) Internet café revealed that the University had plans to get all departments on campus hooked on the net but only lecturers would have access to the Internet when this was done. As at the time of this study, the School of Communication Studies (SCS) was hooked on the Internet, and students there could get access to it. The University as at the time did not have adequate funds to provide Internet facilities for students in their various departments. Students in departments with computer laboratories could only use their PCs for other purposes but not for accessing the Internet. They could only access the Internet by going to Internet cafes.

Subjects also gave various reasons for their choice of Internet cafés as indicated in Chart 6 (see p. 87).

Chart 6: What is your reason for your choice of Internet café?

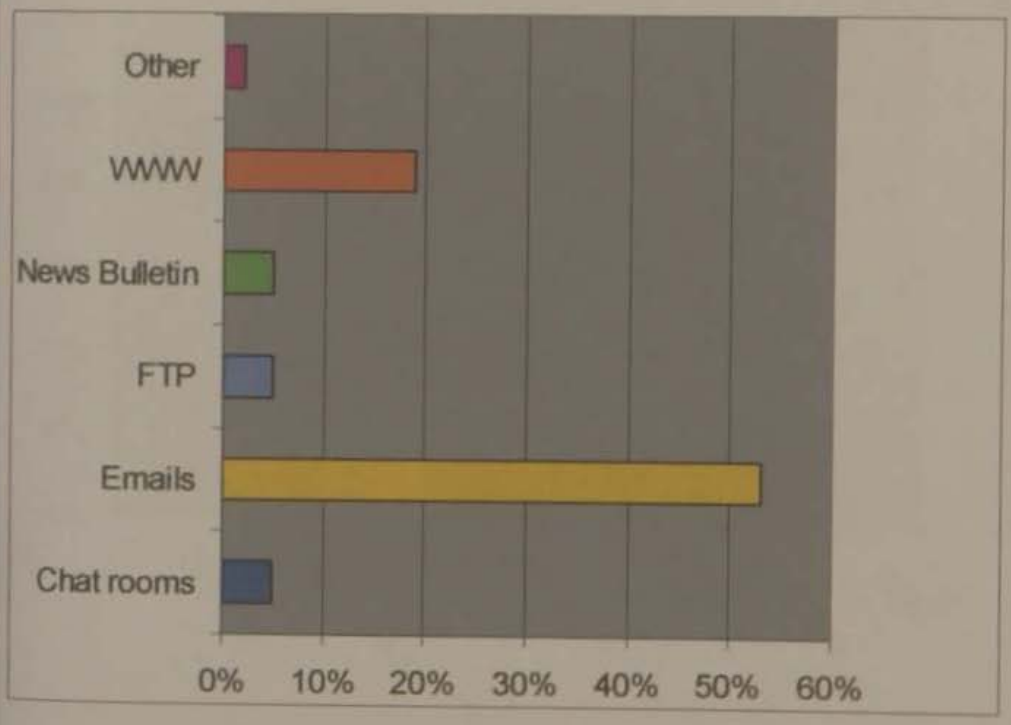


It can be noted from Chart 6 that more students patronised cafes that offered low charges, though others would go to some cafes because of their customer care, proximity and other reasons. The findings here differ from Doku's (2001) discovery in the sense that respondents sampled for this study were more concerned about the low charges than customer care which was the central reason for subjects' choice of café in Doku's research. The simple reason could be that because students on the University campus did not have enough funds for accessing the Internet, their primary concern would be based on cheaper rates. Customer service could only be of secondary concern, at best.

About three-fifths of the sample (61.5%) accessed the Internet often. Less than a tenth (4.5%) used it quite often and a little more than a fifth (23.5%) claimed they rarely used it. A majority of them (81%) used the net in the evening or at dawn. Only a few (7.5%) said they used it in the morning or afternoon. This might be due to the fact that students were usually busy at lectures during the day, or as many ISPs believed, the Internet worked better in the evening and at dawn.

On the question of which Internet application respondents used most often, they gave the responses distributed in Chart 7.

Chart 7: Which one of these applications do you access most often?



The findings show that email was the kind of communication students did most on the Internet. Email being the kind of communication students did most, as indicated in the above chart, supports some ISPs' assertion that students usually come to their cafes for emails. Most of the respondents confirmed that email was the Internet application they used most often. In a similar question (meant to measure consistency), the results did not change much, especially in the case of the email. The following graph gives the distribution of responses to this question.

Chart 8: Which of the following best describes the main reason why you use the Internet?

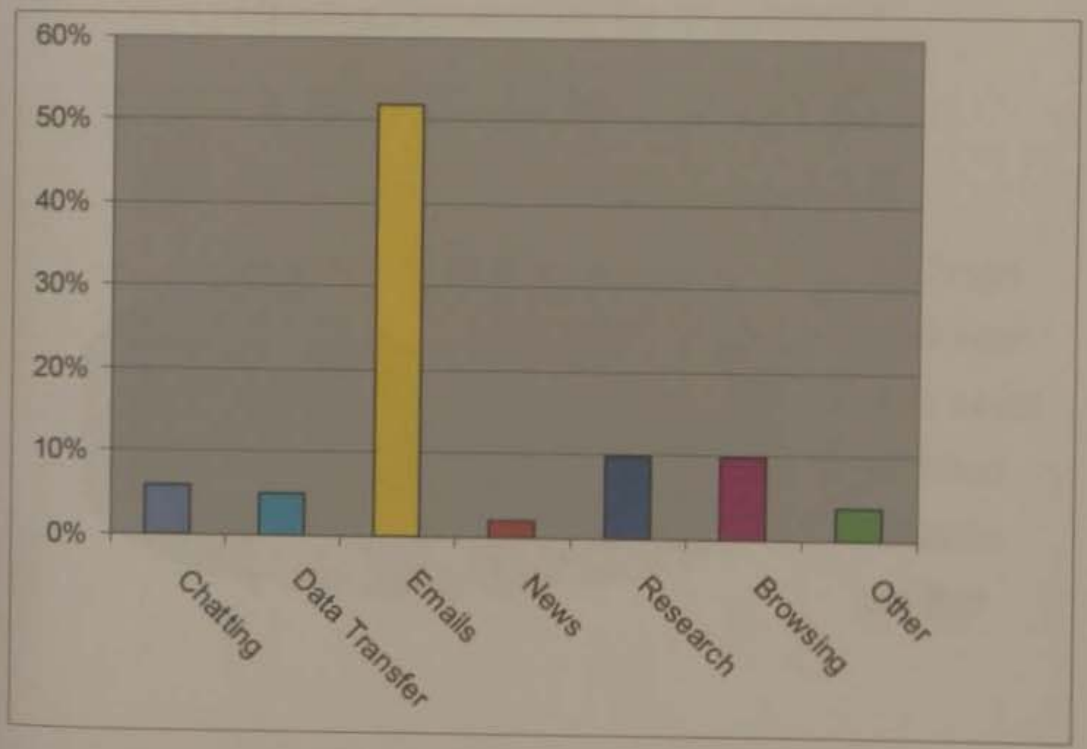
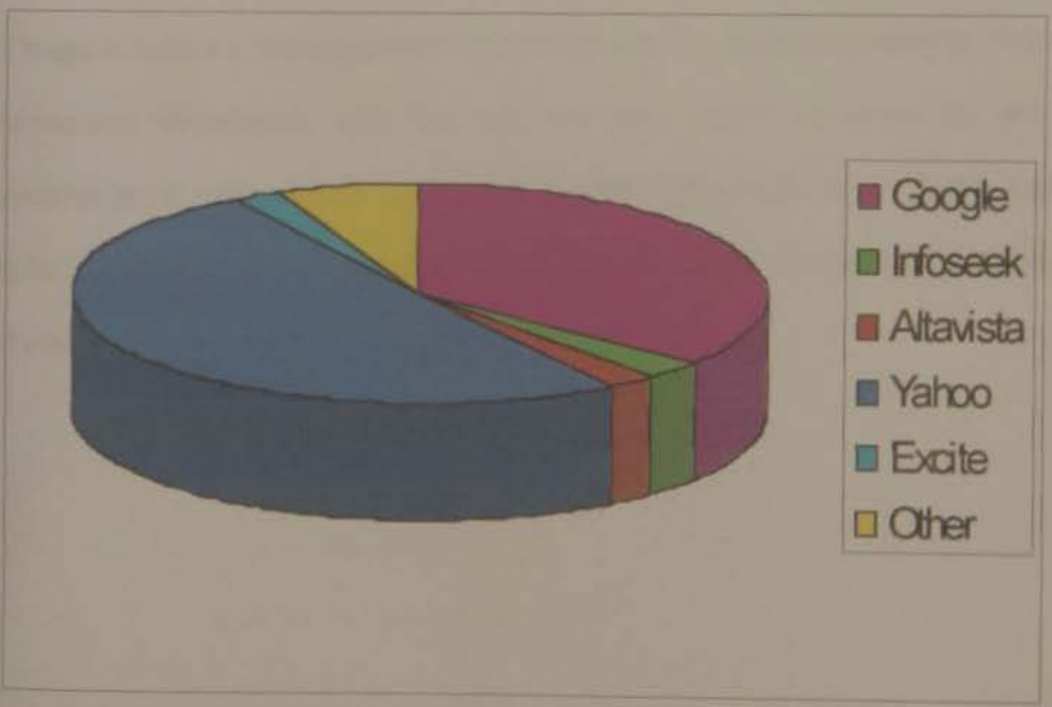


Chart 8 shows that more than half of the respondents (52.5%) asserted that email was their main reason for using the Internet. Each of academic research and browsing was polled by a tenth of the respondents, while less than a tenth of the subjects polled each of the other kinds of communication as their main reason for accessing the Internet. Thus, email happened to be the main reason why most of the respondents accessed.

Respondents chose different search engines they considered most effective in communicating on the Internet. Chart 9 gives the distribution of responses.

Chart 9: Which of the search engines will you consider most effective in searching for information?



From Chart 9, Yahoo has the highest percentage of users because many respondents have it as their email address. The other reasons respondents gave for their choices were varied but most of them claimed their search engines were "very fast", "efficient" and also had "a wide range of information" and "easy access". This finding echoes Morris and Turner's (2001) discovery, where respondents based their perceptions about ease of use and usefulness of the Internet on such factors as search engine options, availability of information at remote sites, and relevance of information to their task.

It was further discovered that the advanced search interfaces usually used by the sample was the World Wide Web (www). More than half of the respondents (56.5%) claimed they used it. Subjects did not appear to be familiar with Gopher, since only 2.5% had ever used it. More than a fifth (28.5%) said they used none of these interfaces, showing their limited knowledge about the Internet. Students' inadequate experience with the Internet was further revealed by the high percentage of respondents (66%) who claimed they used none of the gateway options in searching for information. Table 5 (see p. 92) describes the distribution of responses on gateway usage by the sample.

Table 5: Which of these gateways helps you to obtain information on the net?

INFORMATION GATEWAY	FREQ.	VALID PERCENT
AHDS – Arts &Humanities Data Services	14	7.0
Biz/Ed- Business & Economics Info. Gateway	13	6.5
NOVA – Forestry, Veterinary & Agric Services Info.	4	2.0
SOSIG – Social Science Info. Gateway	13	6.5
None	132	66.0
Other	3	1.5
NA	21	10.5
TOTAL	200	100.0

Less than a fifth of the respondents (23.5%) used the information gateways as indicated in Table 5. The impression created by this finding is that the majority of the respondents use the Internet but have not as yet grappled with the rubrics of the technology.

5.10 Assessment of the Internet by Students.

Almost all users in the sample (88.5%) assessed the Internet as a very useful communication tool. Only one percent disagreed with this fact but gave no reasons Those who considered it useful gave the following reasons:

- It is a fast means of communication
- It is always ready with information

- It is good for communicating with people and sends textual materials very fast
- It helps in academic research
- It is a useful means for entertainment and other purposes.

Similar responses were given to a close-ended question as distributed in the Table 6 below.

Table 6: Which of the following describes the specific ways in which the Internet has been beneficial to you?

BENEFITS OF INTERNET	FREQUENCY	VALID PERCENT
Helps in Updating Lecture Notes	24	12.0
Helps to Chat with People	11	5.5
Fast in Sending / Receiving E-mails	95	47.5
Saves Time in Searching for Info.	9	4.5
Easy in Doing Research	7	3.5
Entertains	1	0.5
All the above	29	14.5
Other	3	1.5
NA	21	10.5
TOTAL	**200**	**100.0**

Unlike Armah's (1996) finding which showed the CD-ROM as having a positive impact mostly on the subjects' academic research, project and teaching, the findings in this study show the Internet as having impacted mostly on email usage (47.5%). Academic research and other benefits were secondary issues to the respondents in this study.

It is pertinent to note however that the above reasons listed in the above table influenced the sample's decision to use the Internet for communication. Both Davis' (1989) Technology Acceptance Model and the Uses and Gratifications Theory apply to this finding. Among other things, the Uses and Gratifications Theory refers to the rewards and satisfactions experienced by audiences, and also helps to explain the motivations behind media use. The Technology Acceptance Model shows the interrelationship among usefulness, ease of use and the actual use of IT.

The reasons given by respondents show the rewards and satisfactions they experience from using the Internet for communication. In this process, they were active because they chose what they wanted to do and which search engines could help them achieve their purpose. For them to be able to identify the Internet as useful and beneficial explains the motivations behind their use of it. It can be deduced that the sample was able to define its needs and expectations and used the Internet to satisfy these expectations.

On the question of TAM, one can again say that the sample was affected by the external variables such as the passage of time, and the technology in vogue (which was the Internet). The Internet was one of the communication technologies in vogue and users had noted the importance of using it. Respondents' perceived usefulness and ease of use of this technology (as

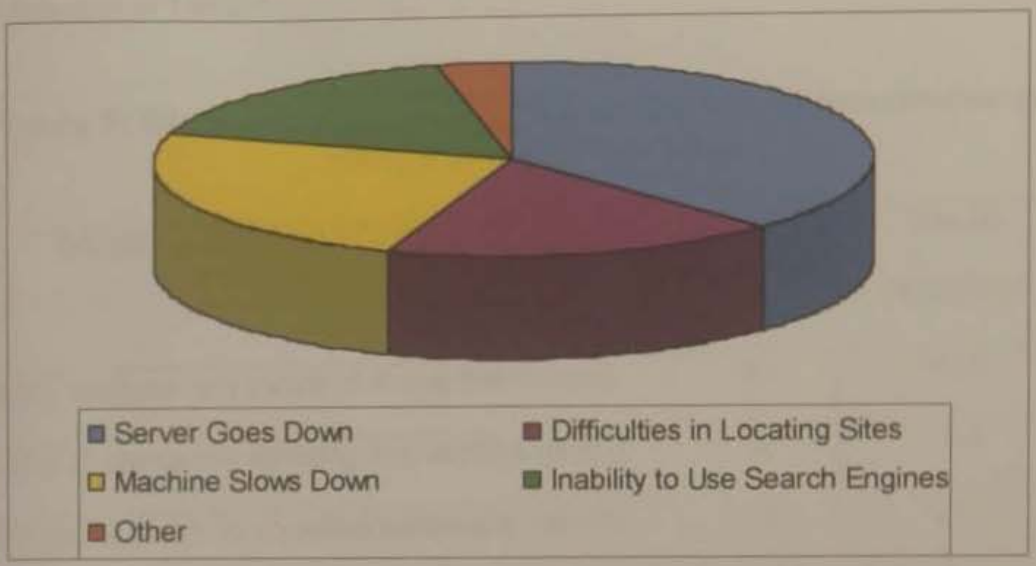
indicated by them) were all motivating factors that moved them to the actual use of the system.

5.11 Students' Familiarity with the Internet Technology.

As regards conversance with the Internet, almost four-fifths of the sample (78%) was either familiar or quite familiar with the technology. Only about a tenth (11%) asserted they were not conversant with it. This finding somehow reflected in their mode of using the net. The majority of them (70.5%) used the technology on their own, while about a fifth (19%) used it either with the help of their friends or with guidelines from the ISPs. This finding refutes the belief that Africans can hardly understand and make use of the concept of information superhighway as implied by Okigbo (1995) and others.

In spite of their familiarity with the Internet, it was discovered that subjects faced various degrees of problems when using the technology. Only a fourth of them (25%) claimed they did not face any problems or hardly faced any difficulties in their use of the net. Chart 10 (see p.96) describes the kinds of problems faced by subjects in their use of the net.

Chart 10: What is the nature of problems you usually face on the Internet?



It can be observed from the graph that more than half of the problems encountered on the Internet (56.8%) were technical problems (associated with the server and speed of the machine). These problems had nothing to do with the ability or know-how of the users. The problems that had to do with the skills of the respondents formed 29.4%, and this is almost equivalent to the percentage of the sample, which claimed to be unfamiliar with the technology. Users' claim to be familiar with the Internet could therefore be valid.

It was also discovered that some subjects who were adventurous enough (20%) solved the problems they encountered themselves. The others (69.5%) usually sought help from friends or ISPs to solve some technical problems.

Asked to state their observations about Internet awareness and usage in the University, the sample gave the following responses shown in the frequency distribution in Table 7.

Table 7: State your observations about Internet awareness and usage in the University.

OBSERVATIONS ABOUT INTERNET	FREQ.	VALID PERCENT
Many students are aware of & use the Internet	81	40.5
Many students are realising the usefulness of it	9	4.5
It helps students to socialise on/outside the net	33	21.5
Students use it for emails more than other things	9	4.5
Some are neither aware of it nor use it	23	11.5
Other	14	7.0
NA	21	10.5
TOTAL	**200**	**100.0**

A reasonable number of the users (40.5%) had realised that Internet awareness and usage on the University campus was on the increase. Another observation made paralleled Davis' (2000) finding on the socialisation aspect of the Internet. Like Davis' sample, some respondents in this study (21.5%) had noted that the Internet created room for familiarisation with people on the net and also in the cafés (that is outside the net).

About a tenth of the sample (11.5%) said some students were not aware of the Internet technology and therefore did not use it. This confirms earlier assertions made by some respondents (10.5%) that they were non-users of the Internet.

5.12 Non-Users of the Internet.

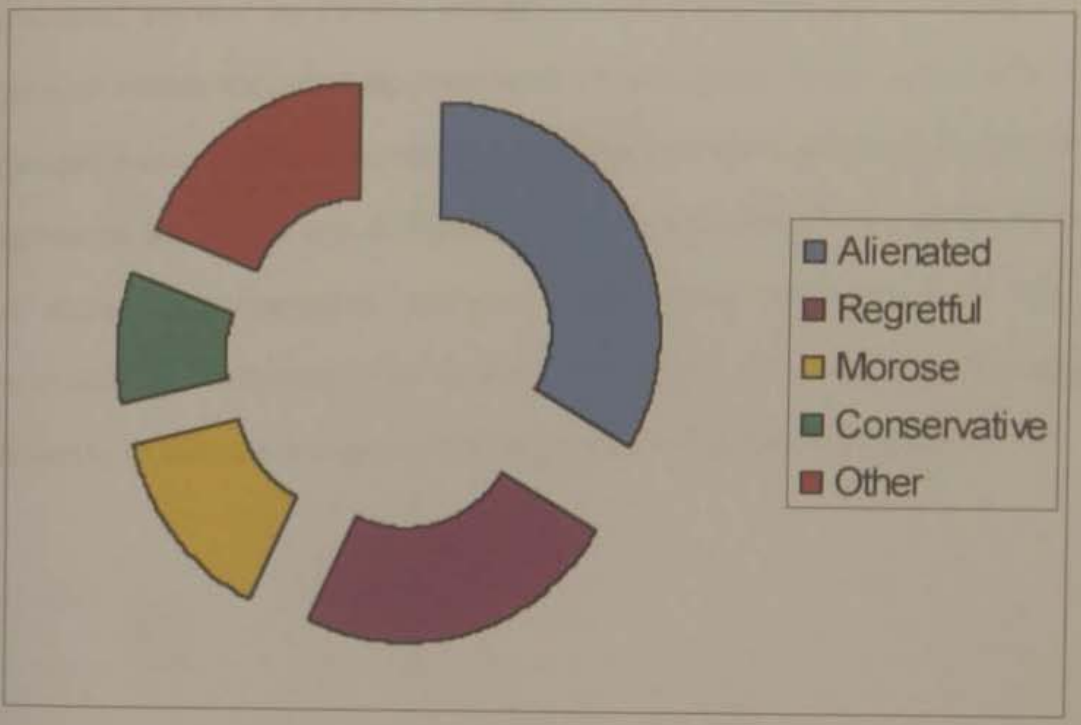
The non-users of the Internet formed about a tenth (10.5%) of the sample. Out of this, there were more males (85.7%) than females (14.3%), showing that the former lacked the interest or the necessary skills for using the technology more than the latter. The non-users explained why they did not use the Internet. Almost half of them (47.6%) said they lacked the basic knowledge for using the computer and Internet while others attributed the reason to lack of funds and access to the Internet. Such students need to be trained and be given access to the Internet. Table 8 describes the distribution of responses on reasons why some students were not using the Internet.

Table 8: Which of the following explains why you don't use the Internet?

REASON	FREQUENCY	VALID PERCENT
Lack of basic knowledge for using it	9	42.8
Inability to use computer	1	4.8
Lack of adequate funds	1	4.8
Lack of access to the Internet	1	4.8
Lack of time	2	9.5
It is unnecessary	6	28.5
Other	1	4.8
TOTAL	**21**	**100.0**

The non-users further expressed their feelings about their failure to use the technology. Their responses are distributed in Chart 11.

Chart 11: How do you feel about your inability / failure to use the Internet?



From the above chart, most of the non-users felt alienated and others felt regretful or morose. Just a few were not using the Internet because they were conservative. Some of them also claimed the Internet was of no use to them. The feelings expressed by the non-users show that they considered themselves being left behind the growing information age. These respondents mentioned some motivating factors that could inspire them to use the net. According to them, they needed:

- free access to computers and the Internet,

- computer and Internet training programmes.
- an understanding of the usefulness of the technology

Bandura's (1982) Self-efficacy theory has various implications for both users and non-users of the Internet. Having judged their capabilities, some of the subjects considered themselves familiar enough to use the technology to execute the course of actions that can help them attain desired goals. Those (non-users) who adjudged themselves incompetent avoided the Internet in addition to any task or experience associated with it. This had lowered their self-efficacy beliefs as they felt alienated, conservative, morose, regretful and left behind this age of information superhighway. This is the more reason why they appealed to the University to train them to get acquainted with the Internet technology.

5.13 Testing of Hypotheses

Four assumptions were made at the beginning of this study. These hypotheses were tested with a t-test, a regression analysis and chi square tests. The level of significance set for testing all hypotheses in this study was 0.05, at 95% level of confidence.

5.13.1 Test One

The researcher wanted to find out if there was a difference between male and female users, in relation to the time they spent accessing the Internet each week.

H_1: There is likely to be a difference between male and female students, in relation to the number of hours they spend using the Internet.

Reason: Male students are likely to be more adventurous. Thus, they may be more likely to spend long hours on the net, exploring to find out more about its various applications.

H_0 There is no difference between male and female students when it comes to the number of hours they spend on the net.

Table 8: Gender and the number of hours students spend using the Internet each week.

ender	N	Mean	Mean Difference	Std. Deviation	Std. Error Mean	F	Sig	T	DF	Sig. 2-tailed
ale	132	3.60	59	3.79	.33	5.316	.022	1 286	197	.201
male	68	3.01		2.61	.32					.200

KEY: *N=Total number of students; Sig. =Significance; DF=Degrees of Freedom; Std. =Standard*

To test for this hypothesis, a t-test was carried out, using a dichotomous variable (Gender) and a dependent variable (On the average, how many hours do you spend on the Internet each week? (See Table 9 for the results of the test). The difference between the means of the two groups (males and females) was 0.59, showing there could be no difference between the two groups. The probability accompanying the t-value was 0.20, which was more than 0.05 (the level of significance). This means that there was no difference between male and female students, regarding the number of hours they spent using the Internet. The null hypothesis (H_0) was therefore accepted and the research hypothesis (H_1), not statistically supported. Thus, males did not spend longer hours on the Internet than females each week.

The results of the above test were supported by a chi square test, which was conducted to determine whether any relationship existed between males and

females, regarding how often they used the Internet for communication. The probability accompanying the chi square value in this test (0.06) was greater than 0.05, the significance level. This showed that there was no relationship between gender and how often students use the Internet. These results confirmed those of the t-test discussed above. Results from both tests counter the assertions made by some ISPs that male students are usually adventurous and spend long hours on the net trying to explore to find out more about it.

5.13.2 Test Two

The study also sought to find out the relationship between gender and the extent of students' familiarity with the Internet.

H_2: There is likely to be a relationship between gender and students' familiarity with the Internet technology

Reason: Male students are more likely to explore the various components and applications of the Internet to get more acquainted with them than the females.

H_0: There is no relationship between gender and students' familiarity with the Internet.

A chi square test was carried out to assess the validity of this hypothesis. The cross tabulation below shows the results of this test.

Table 10: Gender and familiarity with the Internet technology.

Are you familiar with the Internet technology?	GENDER		Total
	Female	Male	
I'm very familiar with it	28(41.2%)	53 (40.2%)	81 (40.5%)
I'm quite familiar with it	30 (44.1%)	46 (34.8%)	76(38%)
I'm not familiar with it	7 (10.3%)	15 (11.4%)	22 (11%)
No Response	3 (4.4%)	18 (13.6%)	21 (10.5%)
TOTAL	**68 (100%)**	**132 (100%)**	**200 (100%)**

$X^2 = 4.710$ df =3 p = 0.19

As indicated in the table, almost the same percentages of males (40.2%) and females (41.2%) claimed they were familiar with the technology. In the same way, almost the same percentages of both sexes – males (11.4%) and females (10.3%) said they were unfamiliar with the Internet. The significance accompanying the chi square value (0.19) was more than 0.05, giving an indication that there was no relationship. The null hypothesis was accepted. Thus, based on the data collected for this study, the research hypothesis was not supported statistically. It can therefore be inferred that being a male or female is not a determining factor to familiarity with the Internet.

Two additional chi square tests were conducted to verify this finding. One was between gender and a dependent variable (Do you face any problems when using the Internet?). The chi square significance of this test (0.21) was higher than 0.05, showing that there was no relationship between the two variables. The other test conducted between gender and the kind of problems students faced on the Internet yielded a chi square significance of 0.49, which was more than 0.05, the level of significance. This test also supported the null hypothesis that among the resident student population from which the sample was drawn, there was no relationship between gender and the kind of problems students faced on the Internet.

The results of the foregoing tests therefore refuted the beliefs of some ISPs that female students are unfamiliar with the Internet technology. It is not wholly valid that females were those who faced problems mostly and sought the help of service providers.

5.13.3 Test Three

H_3: Gender is likely to influence the kinds of Internet applications students often use for communication.

Reason: Females are more conversational and are more likely, than the males, to use applications that will enable them to do online conversation.

H_0: There is no relationship between gender and the kinds of Internet applications accessed by students.

The cross-tabulation between gender and a dependent variable (see Table 11 below) shows the results of a chi square test that was carried out to test for this hypothesis.

Table 11: Gender and the applications of the Internet accessed most often.

Which of these applications do you access most often?	GENDER		Total
	Female	Male	
Chat rooms	10 (14.7%)	9 (6.8%)	19 (9.5%)
E-mails	44 (64.7%)	63 (47 7%)	107 (53.5%)
FTP	3 (4.4%)	8 (6.1%)	11 (5.5%)
News bulletin board	2 (2.9%)	4 (3%)	6 (3%)
World Wide Web	6 (8.8%)	30 (22.7%)	36 (18%)
No response	3 (4.4%)	18 (13.6%)	21 (10.5%)
Total	**68 (100%)**	**132 (100%)**	**200 (100%)**

$X^2 = 14.531$ **df =6** **p = 0.02**

A cursory look at this table shows that more female students (64.7%) than males (47.7%) used the email application for communication. Similarly, more females

(14.7%) went to the chat rooms than males (8.8%). The differences between males and females in their usage of the other applications were not very great, except the World Wide Web, which revealed that males (22.7%) browsed more than female students (8.8%). These give an indication that there could be a relationship between the two variables.

The probability accompanying the chi square value (0.02) is less than the level of significance (0.05). This means that the null hypothesis is rejected. Thus, the research hypothesis, that gender is likely to influence the kinds of applications students often use, is statistically supported. Based on the data collected for this study, one can deduce that gender influenced students' choice of Internet application.

This finding was also buttressed by another chi square test conducted to verify the above findings. This test was between gender and a dependent variable (Which of the following best describes the main reason why you use the Internet?). According to the results of this test, more females (10.3%) than males (5.3%) chatted on the Internet. In the same way, more female students (47.1%) than males (41.7%) did emails. The cross-tabulation further showed that males (21.2%) did academic research more than females (5.9%). In addition, more male students than females did data transfer on the Internet.

The probability accompanying the chi square value in this test was 0.03 which rejected the null hypothesis (that there is no relationship between gender and the kind of communication students do on the Internet) This indicates that there was a relationship between the two variables. The results of this test were supportive of those of the previous test in the sense that gender was likely to influence the kind of communication students did on the Internet, among the resident student population on the University of Ghana campus from which the sample was drawn for this study.

The conclusions drawn from these two tests affirmed the assertions made by Ullman (1996) that "Women's online discussions mainly take the forms of chat room conversations and emails". Furthermore, some ISPs' observations that female students did emails more than males who usually browsed and did academic research were verified by the results of the foregoing tests.

5.13.4 Test Four

This sought to find out if there could be a relationship between demographic characteristics like age, courses of study, the year level of students (independent variables) and how often students use the Internet (dependent variable).

H_4: Demographic characteristics like age, courses offered and the year level of students are likely to influence how often students use the Internet for communication.

Reason: Some factors come to play to influence the number of times students use the Internet.

H_0: There is no relationship between these characteristics and how often students use the Internet.

A regression analysis was conducted to test for this hypothesis. The results of this test have been presented in Table 12.

Table 12: Age, Courses offered, and year Levels with the frequency with which students use the Internet.

Dependent Variable: *If yes, how often do you use the Internet?*

Predictors: *Age, Course offered and Year level.*

Variables in the Equation

Model	B	Standard Error	Beta	t	Sig.
Constant	1.386	.550		2.519	.013
Age	.178	.171	.088	-1.041	.002
Course	4.623	.049	.066	-.928	.011
Level	6 706	.072	.078	928	.220

	Sum of Squares	DF	Mean Square	F	Significance
Regression	10.880	4	2.720	1.363	.012
Residual	389.115	194	1.995		

Table 12 shows that the probability accompanying the F-value in this test is 0.01 indicating that there could be a relationship. The variables in the equation reveal that for 'Age', the significance of 'T' (0.00) is less than 0.05. This means that one's age was the most likely to influence how often one used the Internet for communication, among the resident student population.

The results further showed that the 'Courses' offered was the second most likely to influence the frequency with which students used the Internet, given the significance of 'T' as 0.01. Thus, the course a student offered could determine the number of times he or she used the Internet.

For the year levels of students, the variables in the equation gave the significance of 'T' as 0.22, which was greater than the level of significance (0.05) This shows that there was no relationship between the year levels of students and how often they used the Internet. Thus among the resident student population from which the sample was selected, whether one was a graduate or undergraduate student did not influence the frequency with which the one used the Internet.

5.14 Summary

This chapter has been concerned with the analysis of the data collected for this study. Both qualitative and quantitative methods were used for presenting the findings and comparisons were drawn where necessary. In the next chapter,

conclusions are drawn from these findings and suggestions are made, based on these findings

CHAPTER SIX

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS.

6.0 Introduction.

This study has been concerned with the use of the Internet by resident students of the University of Ghana. Interviews were conducted for some Internet Service Providers (ISPs) to find out their perceptions about students' use of the Internet. Surveys were also administered to a sample of the resident students on their use of the Internet. Both qualitative and quantitative methods were used for data collection and analyses. Narratives, direct quotes, charts, percentages and tables were used to present the findings of this study. This part of the study draws conclusions and makes suggestions, based on the findings of the research.

6.1 Access to the Internet.

A general introduction to the interviews was based on some assertions made by scholars about Africa that the continent lacks the basic facilities and expertise needed for the Internet. The ISPs' views were sought about these issues and most of them opined that Ghana did not have the necessities required (in terms of technological know-how and equipment) for using the Internet. Speaking from their experience in the University, they mentioned that lack of computers and lack of expertise were some of the problems associated with the University in particular and Ghana in general.

As shown in the NCS research, Internet connectivity in Ghana was not evenly distributed among the various regions. The bulk of Internet network was based in Accra. This could be due to the fact that many organisations, which were networked – such as government organisations, private companies, international organisations, media companies and others – were based in Accra. But it could also be true that the government and private investors did not have adequate facilities to get all their regional branches networked on equal basis.

It can be gathered from the data collected for this study that the University lacked enough Internet facilities to meet the demands of all students. Not all the departments were equipped with the Internet as can be noted from the small percentage of the sample who said they accessed the Internet from their departments. In an interview with a lecturer at the Biochemistry Department and Director of the African Virtual University (AVU) Internet café on campus, it was found that theoretically, all the departments on campus were equipped with Internet facilities but these were available to lecturers only. The only department with Internet facilities available to students was the School of Communication Studies (SCS) and this was perhaps because students had to gather information from a wide range of sources to do their write-ups.

Markwei (2001) reported that the academic staff appeared to have more access to the Internet than students. In the present study, students still lacked much access to the Internet. This means that there had not been any significant

changes between the time of Markwei's (2001) study and the time of the current research, with regard to students' access to the Internet in their various departments.

One discovery made was that students in the University used the computer mostly because of the Internet. Even though other departments had computer laboratories, students over there could use them only for purposes like word processing, statistical analyses and desktop publishing. The majority of students preferred going to Internet cafes to access the net because their departments were not hooked on the Internet and therefore did not serve their major purpose for using the computer. Those who could not afford access from cafés might not use the Internet at all. Meanwhile, students needed to be skilful in Internet usage to enable them fit into the growing age of information superhighway.

To the ISPs, not only did inadequate computers and other facilities hinder students' access to the Internet on a larger scale, students' inability to use computers was also a major contributing factor. As one of them put it, "*there are many students out there who know the importance of the Internet and who would like to use it, but for their lack of expertise.*" These views echo Ojedokun (2001) who in a study found that some of the Botswana University students could not use the Internet not only because of inadequate facilities, but also because they lacked the expertise for that. Hofstetter and Sine (1998) have also found out that,

"Technical terms can scare people. Especially when computers are involved, technical terms can make things so hard to understand that people may shy away from learning how to do things that are really quite simple." Because of their lack of expertise, some students might shy away from Internet usage and decide not to be part of the growing information age.

6.2 Internet Awareness and Patronage.

One objective of this study was to determine whether students were aware of the Internet and patronised its usage on the University campus. The high percentage of Internet awareness among the sample (100%) gave a clear indication that students were fully aware of the information superhighway, though not all were users of the technology for various reasons. Those who wanted to use the technology had found various sources to acquire the training for its usage and therefore patronised the various Internet cafes on the University campus.

Students' patronage was rated to be high by the ISPs, although, a majority of the users were said to spend a little time on the Internet. The limited time spent was attributed to the lack of expertise and adequate funds. According to the survey findings, more than half of the sample (56%) considered money as a hindrance to their computer usage. This was consistent with the ISPs' claim that inadequate funds could be the reason why users did not stay on the Internet for long. This might be perhaps because many users depended solely on their students' loan

for their expenditure and therefore were likely to dedicate an insufficient amount for Internet usage.

Lack of funds could also account for the reason why the highest percentage of the students (48.5%) learnt to use the Internet through friends and relatives. Less than a fifth could afford to undergo formal training. Thus, the pace at which all students can become users may slow down because not every student can afford to pay for formal training.

It can further be deduced from the findings that funding Internet access could have an effect on users' choice of Internet café, though other factors such as customer care and proximity also came to play. More users preferred the Balme Library Cyber Café especially because of their low charges. Places like the Legon Business Centre and Professional Associates recorded minimal users (see Table 4) because of their high charges. Users' preference for low charges also superseded their likeness for other factors like customer care and proximity.

The situation in the present study is different from what pertained in Doku's (2001) studies in which customer care had a competitive advantage over other factors. This difference could be attributed to the change in time and space. Internet service providers should therefore note the fact that even though customer care could win more users, low charges is a better condition for gaining the competitive edge over other cafes on the University campus. That is, cafes

with low rates stand a better chance of gaining more customers than those, which are more concerned with customer care and proximity to the various halls of residence.

It was further discovered that students used the Internet most often in the evenings and at dawn. Among the reasons given for this finding was the fact that students often went for lectures during the day and were usually free in the evening and at dawn. While this could be true, it is also valid to deduce that the computers worked better during those times than they did in the day time. Whatever the explanation, accessing the Internet in the evening and at dawn would favour the private cafes at the expense of the University Internet cafes in the sense that almost all the private cafes operated twenty-four (24) hours each day, while the University cafes worked from 8 a.m. to 10 p. m. on week days and up to 12 noon on Saturdays, during this research. The private cafes were therefore more likely to gain a competitive advantage over the University cafes. The University has to employ more people to work at all times in its cafes.

It is pertinent to note that the situation here, in terms of the amount of time spent on the Internet, is also different from what was discovered in Anderson's (2003) study where respondents used the Internet to the degree of becoming "Internet addicts" and reducing their academic, social and recreational activities. Based on this finding, Anderson recommended that "... it may be more effective to develop a countdown timer that tracks the amount of time spent online." While the

distinction here could again be attributed to the difference in time and space, it could also be true that the lack of adequate Internet facilities by the University and lack of adequate funds by students were the major contributing factors that prevented students from staying longer on the Internet.

6.3 Students' Reactions on their Encounter with the Internet.

Finding out about students' reactions during their first encounter with the Internet was another objective of this study. Some of the ISPs identified fear and lack of confidence as some problems that inhibited students (especially females) from using the Internet. Such students needed information and went to the cafes, but they did not have the know-how to use the technology on their own, and not only that they sometimes lacked the confidence for using the Internet on their own, for fear of messing things up. This perception of the ISPs replicate the study by Olatokun and Tiamiyu (2001), who identified information anxiety and computer phobia as some of the variables that affected students and staff of the University of Ibadan.

However, their (the ISPs') observation was inconsistent with the survey finding, which revealed that more males than females appeared nervous and afraid on their first encounter with the Internet. To some extent, one can deduce that the ISPs were being gender bias and could solely not give reliable information when it comes to male/female reactions during Internet usage. It is possible that the ISPs helped some students during their first time of usage. However, it can also

be true that it is not all users who look nervous and afraid when using the net all the time.

6.4 The Kinds of Communication Students do on the Internet.

One other objective this study aimed to find out was the kinds of communication usually done by students on the Internet. As identified by the ISPs, emails and chatting were mostly done by users. Only a few of them did academic research, browsing and accessed music, films and news. This was also obvious in the survey findings. Emails, especially, seemed to be the most important reason why students accessed the Internet. One ISP asserted that "The Internet appears to be synonymous with emails for students".

It is however important to note that the increasing access of email is general to all users of the Internet. This was discovered by Markwei (2001), Jagboro (2003) and Pew Internet and American Life (2003) in their studies. As noted by Jagboro (2003) for instance,

> Email has become a seemingly indispensable part of people's lives, and correspondence by post seems tedious and slow by comparison. Yet, perhaps because email, in removing previous barriers of geography and distance, reduces some of the perceived burdens of the paper and post systems, it is used almost incessantly.

Hofstetter and Sine (1998:6) also opine that

> The most often used protocol is electronic mail, which is also known as email. Every registered user on the Internet has an email address. Email is a great way to communicate, because it avoids the delays caused by playing telephone tags.

Media impact studies have also shown that the individual's decision-making is almost always influenced more by interpersonal communication. Thus, the individual's decision to act tends to be influenced more by opinions shared by close relatives, friends and colleagues. This could be one of the reasons why users accessed the email more than any other Internet application. Email being the kind of communication students did most, has an implication for the Ghana Postal Company in the sense that it could minimise the number of letters posted on campus, compared to the number of emails sent each day. This shows that the Internet was being underutilised by students because other applications such as academic research, data transfer, news and web searches were not commonly accessed.

It is true that the email is a necessary tool which enables students to make contacts that may help them in future (as opined by some ISPs and scholars). But it is also pertinent to make students aware of the importance of using other Internet applications as much as they use the email. Pew (2001) found out that the Internet was replacing the library because many of their respondents

considered it as their main source of information for homework. Pew (2003) again discovered that the Internet became users' main source of news on the Iraq war. Thus, content on the Internet goes beyond email and students of the University of Ghana need to have this in mind as they use the technology.

Evans (1996) asserts "Content created on the Internet ranges from simple email messages to sophisticated documents, sites incorporating sounds, images and words." All these can make students all-round Internet users to enable them access any form of information and also equip them with innovative and up-to-date information that might help them in various ways.

6.5 Use of Search Engines.

Yahoo was also found to be the search engine used mostly by respondents, perhaps because of their regular use of email. Almost every user of the Internet would unhesitatingly rattle his or her email address, usually accompanied by "*yahoo.com*" or "*yahoo.co.uk*". At the time of this research, yahoo appeared to be the most popular subject-oriented search engine. Though users claimed they chose their search engines as a result of speed, efficiency, easy access and availability of information, Yahoo seemed to have other qualities in addition to these. Some respondents asserted that they used Yahoo because it could give information about other search engines. This could also be a determining factor to the increasing use of Yahoo, at the expense of other search engines like Excite, Alta Vista and others.

The advanced search interfaces and information gateways like Gopher, AHDS, NOVA, Biz/Ed and SOSIG were put to minimal use by the respondents. A general overview of students' use of search engines shows the inadequate use students made of the Internet and also indicates that very little or no changes had taken place since Markwei's (2001) research which revealed Yahoo as the most popular search engine among users. This situation demands a strategy for making students get acquainted with the various components of the technology. It has been noted by scholars that almost anything in the world that one wants to know about is retrievable if one develops the necessary skills for using the advanced search syntax. Thus, students need to develop the necessary skills for using all protocols of the Internet, or important information will be hidden from them.

6.6 Assessment of the Internet.

This study also aimed to find out if students assessed the Internet as a useful means of communication. The findings showed that a greater percentage of the survey sample found the Internet as a useful means of communication. The reasons they gave for this assertion was in consonance with the Utility and Likeability sections of Shackel's Acceptability framework. Users found the Internet useful for sending and receiving mails, up-dating their lecture notes as well as for chatting with people, entertainment and for doing academic research. The Utility part of the Acceptability model ensures that the system does what is needed functionally. This is in agreement with the functions the Internet performs

for its users on the University campus. The Likeability section of the paradigm, which determines whether the users of a technology feel the system is suitable, is also in conformity with respondents' assertion that the Internet is "fast in sending/receiving information; "easy in doing research" and "ready with a wide range of information."

Stover (1984) believes that communication need not be technically sophisticated to be successful. Thus, if students got all these benefits from the Internet with the minimal use of the search engines then they were successful in their Internet communication. One must however not lose sight of the fact that if the Internet gave users all these advantages with the little use of the advanced search interfaces and information gateways, they would find the technology even more useful when they put the search interfaces and gateways to maximal use. Through undergraduate and graduate education, students build long-term knowledge, skills and research expertise. The Internet reinforces these processes.

Brabazon (2001) admits

> Over the years, I've learned far more online about how things really work than I learned about how things should work, in theory, in six years of higher education as an undergraduate and graduate student. Cyberspace becomes a library, a university and the fount of knowledge for many users of its time.

Therefore, students must not let all the advantages associated with the Internet elude them due to lack of adequate skills in the use of advanced search engines.

6.7 Familiarity with the Internet.

This study further sought to find out whether male and female users were equally familiar with the Internet. One thing identified in this study was the dissenting views the interviewees had about students' familiarity with the Internet. Some ISPs had observed that most of the students who were not familiar at all with the Internet were females. The findings of the survey however showed that the majority of the respondents were familiar with the Internet as they could use the technology on their own without seeking help from ISPs or friends. There were no differences between males and females in terms of familiarity with the Internet. This finding is suggestive of the fact that users had acquired the knowledge for interacting with the Internet, and is also in accordance with the Usability part of Shackel's (1991) paradigm, which ensures that users can actually use a system or technology successfully. In this regard, the ISPs' assertion was not supported by the survey findings. Therefore, one cannot rely solely on the ISPs to gather data on students' familiarity with the Internet. It is also important to consider both male and female students capable of using any technology and train them for this purpose.

Another conclusion that can be drawn on this point is that since e-mail happened to be the type of communication users did most on the Internet, students might

have adjudged themselves familiar with the technology in terms of doing emails. If this is true, then students were limiting themselves to just a minute aspect of the Internet to consider themselves conversant with it. Perhaps, the majority of the users were not completely aware of the Internet and its components as they claimed. Adele and Milheim (1995) claim that many users are still not aware of the Internet's resources and possibilities. Meanwhile, net users need to know the capabilities of the various components or applications of the Internet to ensure successful usage.

Sine (1998) explains that when users go online and learn to use the net, the initial online experience is designed in a way to provide them with the maximum amount of Internet benefit through a minimum knowledge of technical terms and computing concepts. More knowledge of the inner workings of the net comes in later, when the focus is on ease of use, getting to places (sites) and finding things on the Internet without getting too technical. Thus students need to learn a lot more to get more acquainted with the inner components of the Internet. They must update their knowledge in Internet search to enable them locate information not only with the use of search engines, but also with the use of advanced search interfaces and information gateways.

6.8 Problems Faced on the Internet.

Another objective of this research was to investigate whether students faced any problems during their Internet usage. Some subjects admitted they faced problems using the technology. The problems they named would need very little or no solution at all from the ISPs. For instance, problems associated with the server and the speed of the machines (which were the main difficulties users encountered on the net) might demand very little attention from the Internet Service Providers. It is a credit to users to be able to identify the problems they usually faced on the net. Stover (1984:82) postulates that it is important "to know what various communication means can do ... the advantages and disadvantages of each, and the problems associated with different types of information technology."

Being able to identify the problems encountered when accessing the Internet would help users to devise means for solving such problems in future. As some users claimed, they solved the problems encountered by themselves. It may also be valid to conclude that the "machine slowing down" or the "server going down" could be some of the reasons why most users preferred to use the Internet in the evening and at dawn, when the machines worked better. It is therefore not wholly true when some ISPs assert that students (especially females) always face problems on the Internet and resort to the ISPs' help.

6.9 Observations about Internet Awareness and Usage.

Stating their observations about Internet awareness and usage on campus, a majority of the respondents said many students are aware of and use the technology, while some confirmed students use the Internet mainly for emails. Another observation which the subjects found very important was that, the technology helps students to socialise both on and off line. Thus, beside its usefulness to users, the Internet sustains interpersonal or inter-group communication. Perhaps communication online and offline is one opportunity for users to meet their friends for interaction, which they would otherwise have missed for the sake of busy academic schedules. Ansu-Kyeremeh (1997) shares this view that the Internet revives group communication, or as he puts it:

> That the Internet shares the interactive characteristics of many Indigenous Communication Systems (ICS) means that perhaps, this is an area for fusion between it and the local communication formats. Networking similarly exhibits many of the characteristics of small group interactive communication attributes that are among the strengths of Indigenous Communication Systems.

Such interactive communication attributes, both online and offline, can aid discussions for productive contacts in future.

This is one important reason why the non-users of the technology need to be incorporated into the use of the Internet. As shown in the findings, some

respondents (10.5%) were not users of the Internet, for the simple reason that they lacked the training, expertise, access or funds for using it. This plight of the non-users further shows that much had not been done by the University to incorporate such students into Internet communication, since Markwei's study, which made similar discoveries about them. This group of students seemed cut out from the search for information, being done by the majority of the students, on the Internet. Their feelings of alienation and regret indicated their willingness to be part of the information age, but for the above-mentioned obstacles. Convincing them to acquire the necessary training and access to the Internet will not pose many problems, provided the necessary facilities are available.

A reasonable number of the non-users (38%) either lacked the time for using the technology or found it unnecessary. This indicates that they had not come to appreciate the significance of the Internet in the world of today. Perhaps they were not aware of the fact that many institutions, organisations and companies transact business on the net and therefore, even a slice of knowledge about Internet usage could be beneficial to their future employers. For the sake of such students in the University, there is the need to teach all students to acknowledge the importance of the Internet, as it will help them in their future endeavours. As one ISP put it,

> *The University is regarded as an institution that equips students to fit well into various positions in organisations. Students who graduate from the University are usually considered to have acquired the know-how for using*

modern communication technologies like the Internet. This is the more reason why the University needs to give a critical consideration to students who are not able to access the Internet"

6.10 Theories Derived from Hypotheses Tested

At the beginning of this study, a qualitative research was conducted as a preliminary step for further investigation into students' use of the Internet on the University campus. Interviews were conducted for some Internet Service Providers on campus to find out their perceptions about students' use of the technology. Some of the assertions made by the ISPs obliged the researcher to set certain hypotheses, which were tested for in the survey research in order to support or reject the assumptions made. The theories developed from the qualitative aspect of this research are as follows:

- Male students use the Internet more often and stay longer on the net than female students.
- Male students are more familiar with the Internet than female students who usually face a lot of problems in using the technology.
- Female students usually access the Internet to check their e-mails, while male students, being more adventurous, access other applications of the Internet more often.
- Younger students access the Internet more often because they are more curious and more interested in the technology than older students.

- The courses that students offer influence their familiarity with the Internet; that is, students from the Science Faculty are more familiar with the technology, as a result of their frequent use of it.

These assertions formed the bases for the hypotheses that were tested for in the survey research. The first test (a t-test for difference) sought to find out if there could be any difference between male and female students, in relation to the number of hours they spent on the Internet each week. The results of the test showed no difference between the two groups. These results were confirmed by a chi-square test, which showed that no relationship existed between male and female students, regarding how often they accessed the Internet. The implication then is that, among the resident student population on the University of Ghana campus, from which the sample was drawn, there was no difference between males and females when it comes to how long they stay on the Internet. This therefore refuted the claim by some ISPs that male students stayed longer on the Internet than female students. Thus, the Internet Service Providers on campus cannot be the most reliable source in seeking information of this nature on resident students of the University.

Results of the second test (a chi square test) refuted the assumption that there could be a relationship between gender and students' familiarity with the Internet technology. Male students did not appear to be more familiar with the technology than female students, as some ISPs believed. This shows that the ISPs'

perception was not supported by the survey results. The conclusion that can be drawn from this test is that, among the population from which the sample was drawn for this study, gender did not influence the extent of familiarity with the Internet. Female students should therefore not be shun from Internet usage on the grounds that they face a lot of problems when accessing the net and always call for help.

The results of a measure of association (another chi square test) revealed that there was a relationship between gender and the kinds of Internet applications students often used for communication. This could be attributed to the fact that the females accessed the emails and chat rooms more than any other Internet protocol. Males would prefer browsing, research and data transfer to the other applications. Based on this test, it can be inferred that whether one is a male or female influenced one's choice of Internet application, among the resident students on the University of Ghana campus from which the sample was selected. A critical consideration needs to be given to this issue to encourage students to use all the Internet applications that will be most beneficial to them, or they will always put the technology to minimal use.

In addition to the above tests, a regression analysis was done to find out the extent to which age, year levels of students and courses offered (independent variables/predictors) could determine a change in the frequency with which students used the Internet (a dependent variable). It was realised from the results

of this test that age appeared to be the most likely variable to influence how often students used the Internet, while the courses offered was the second most likely variable to determine a change in the dependent variable. On the other hand, the year levels of students did not determine a change in the dependent variable (how often students use the Internet for communication).

Various inferences can be drawn from the results of this test. With regard to age, one can infer from the results that younger students were more likely to be curious and excited about the Internet technology (than the older ones) and thus, would tend to use it more often to make contacts. This means that various means need to be devised to incorporate the older students into the use of the technology, so that they will not assume the Internet is only meant for younger students.

In relation to the courses offered, students who do professional and research courses might need to make a lot of contacts and do research. In this regard, they might be more likely to use the Internet more often for communication. Thus, Internet usage must be made a requirement for the completion of every course in the University to encourage all students to use the technology.

At the beginning of this study, one assumption was that graduate students might tend to use the Internet more often (than undergraduate students), since most of their courses are research-oriented. The results of the regression analysis

however refuted this assumption. This could be attributed to the fact that students used the Internet for emails more than they did for academic research and other purposes. This to a large extent explains why the year levels of students did not influence how often they used the Internet.

6.11 Limitations.

There were a number of obstacles that set in the way of the researcher. These included the following:

1. The researcher could not probe into users' online manners, in cases as sending emails. That is, there was not enough time to find out whether users adhered to the standard writing styles and forms when sending messages online or ignored these writing manners.

2. It was difficult getting ISPs to interview, as a result of their busy schedules with their clients. Future researchers who will like to administer interviews should take note of this and find ways of combating it.

6.12 Recommendations

The findings of this study have revealed some of the inadequacies of both the students and the University that need to be addressed. The following recommendations are therefore suggested:

1. The University should try to ensure that all faculties and departments have adequate computers and are networked for both lecturers and students. This, it is envisaged, would create a more encouraging environment for a majority of the students to get access to the Internet without necessarily going to the cafes.

2. In view of the huge resources available on the Internet and its usefulness to learning, teaching and research, it would be necessary for the various libraries in the University to provide guaranteed access to the Internet as a way of enhancing their books and journals collections.

3. Sponsorship must be sought from donor agencies and organisations to help equip the various departments with Internet facilities for students, if the University cannot take up the responsibility all by itself.

4. The academic board should make computing part and parcel of all courses offered in the University.

5. Students must be encouraged to become more acquainted with the Internet and its components, making computing and Internet courses compulsory in their various departments. IT usage must be intensified for students to enable them solve the petty problems that might arise when using the technology.

6. While the University prepares for the above-mentioned provisions, it could give each student free access to the Balme Library Annex Cyber Café for a number of hours per semester. This will encourage students to make use of the Internet without necessarily thinking about cost. By way of encouraging students' use of the Internet, the University of Cape Coast gives each student six (6) hours of free access to the Internet per semester.

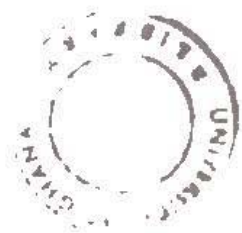
7. The establishment of more private communication centres providing Internet services must be encouraged on the University campus. This in a way can help to beat down the charges for Internet usage as a result of keen competition among the Internet Cafes.

8. A study must be conducted to find out if students oblige to the writing styles online or send all kinds of messages without any adherence to writing manners.

9. Another study can be conducted to compare students' perceptions about the access to information from the library and the Internet.

6.13 Summary

This chapter has been used to sum up the whole study. Conclusions were drawn based on the findings made and suggestions were also given for future development.



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APPENDICES

APPENDIX 1: SOME BASIC INTERNET APPLICATIONS

Some of the Internet services, which are commonly used, are electronic mail, the World Wide Web, Internet chat, and file transfer protocol. This section provides short notes on these and other Internet applications.

Electronic Mail.

This is one of the very first applications of the Internet. It is usually called email and it refers to composing, sending and receiving information via the Internet. The email is one of the reasons why the Internet has countless users It remains one of the fastest ways of sending information

Internet Chat

Chat provides a way for people all over the world, with similar interests, to communicate on the Internet. Internet chat is live, interactive and organised into rooms for dialogue There are thousands of chat rooms on the net including Yahoo Chat, BBC Chat, About.Com, Ghanachat, Cnnchat and Excite Chat. Communication in chat rooms cuts across all spheres of life. Topics such as government, politics, business, finance, entertainment, sports, religion and education are covered by various chat rooms.

File Transfer Protocol (FTP).

The FTP enables people to transport files (like data files and programme files) from one computer to another. This Internet service (the FTP) gives people access to millions of public and private files.

Gopher

Gopher is a play on words. It enables users to find information by navigating through a menu of menus to locate what they want. Its function on the Internet is to help users to search for things by navigating through a hierarchy of menus to locate and download texts, pictures, audio clips and videos. Thus, Gopher is a protocol for organising information hierarchically on the Internet.

Gopher was invented in 1991 at the University of Minnesota, home of the Golden Gophers. It spread quickly to most parts of the world after its invention and enabled the average user to navigate. But a few years later, it was eclipsed by the World Wide Web

World Wide Web.

The World Wide Web (hereafter called the web) is a software invention browser that enables people to explore the Internet very easily. Basically, the web is an enormous (and growing) collection of computer files (called web pages) that link to one another. Using a programme called web browser, these files can be displayed on a monitor (screen). The web pages are found on computers all over

the world and contain hyperlinks. A hyperlink refers to a word or group of words, a picture or part of a picture, which helps to search for the location of web pages. The web is not the entire Internet; rather, it is a subset of it.

When it was released in 1991, the web was purely text-based. In 1993, the National Centre for Supercomputer Applications (NCSA) in the United States released Mosaic, a graphical user interface that made the web extremely easy to use. In addition to text, Mosaic allowed web pages to contain pictures, with links to audio and video as well. This led to the web's becoming the most popular service on the Internet.

In 1994, Netscape Communications Corporation was started by some of Mosaic's developers, and over the next few years, a programme called Netscape Navigator became the most popular web browser. Microsoft also created a web browser called Microsoft Internet Explorer, which is now exported as part of Windows.

Surfing the Net

In telecommunications, the term surfing means to browse, by going from place to place in search of information of interest. Just as channel surfing occurs on television when a viewer changes channels continually to find a programme of interest to watch, so does surfing occur on the Internet. On the net, surfing refers to using a programme called a browser to move from one site to another in

search of information of interest to the user. Once a computer is hooked onto the Internet, a user can surf, using a web browser. Netscape Navigator and Microsoft Internet Explorer are some of the web browsers. A user can start a browser by double-clicking on its icon.

Every place a user can go on the web has an address known as Uniform Resource Locator (URL). Most often the resources are hypertext documents, but they can also be pictures, sounds, movies and animations. URLs can also provide newsgroups, chat rooms, search engines, audio and video streams.

Search Engines

Search engines help users to look for something specific on the Internet. They rely on computer programmes called spiders or robots to crawl the web and log the words on each page. With a search engine, keywords related to a topic are typed into a search "box". The search engine scans its database and returns a file with links to websites containing the word or words specified. Since the databases are large, search engines often return thousands of results.

Subject-oriented search engines use a combination of human beings and robots (or spiders) that search the web continually, organising what is found into hierarchical index of topics When a user conducts a subject-oriented search, the search engine searches this index and provides a list of items related to the topic

under research. To retrieve an item, a user needs to click it with a mouse. Search engines include Yahoo, Google, Alta Vista, Infoseek, Excite, etc.

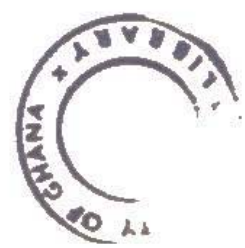
Domains and Sub-domains of the Internet

Every computer on the Internet has an Internet Protocol (IP) address. An IP address consists of four numbers separated by periods. The numbers range from zero (0) to 255, the smallest being 0.0.0.0, and the biggest, 255.255.255.255 Internet Protocol numbers can be difficult to remember, and to make it easy and memorable, a Domain Name System (DNS) was invented to permit the use of alphabetic characters instead of numbers. Domain names have the following format hostname.subdomain.top-level-domain

Top level domain normally consists of one of the following:

- .edu - educational
- .com - commercial
- .gov - government
- .mil - military
- .net - network support centres
- .org - organisations.

The top-level domains could otherwise be country codes 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. In an example like www.scs.gh, the top-level domain *gh* indicates that the server is located in Ghana; the sub domain *scs*



shows that the server is on the School of Communication Studies (SCS) network and the host name www identifies it as the SCS World Wide Web server

In 1997, the Internet International Ad Hoc committee (IAHC) announced seven new top-level-domain names as follows.

- .firm - for businesses or firms.
- .stores - for businesses offering goods to purchase
- .web - for entities emphasising activities related to the web
- .arts - for activities emphasising cultural and entertainment activities
- .rec - for entities emphasising recreational activities
- .info - for entities providing information services
- .nom - for those wishing individual or personal nomenclature.

The foregoing Internet applications and search engines are not exhaustive. There are other Internet services which include Usenet, Telnet and Listserv. These services are available in Ghana but not all of them are widely used.

APPENDIX 2 : THE INTERNET IN GHANA.

	INTERNET SUBSCRIBERS BY CATEGORIES	
	CATEGORY	NO. OF SUBS.
1	MINING	22
2	GOVT (DEPT/ORGANS)	39
3	DIP CORP	12
4	CO./CORPS	111
5	INTL ORG'S	10
6	NGOs	31
7	MEDIA	10
8	EDU /RESEARCH INST.	18
9	PRIVATE	71
	TOTAL	323

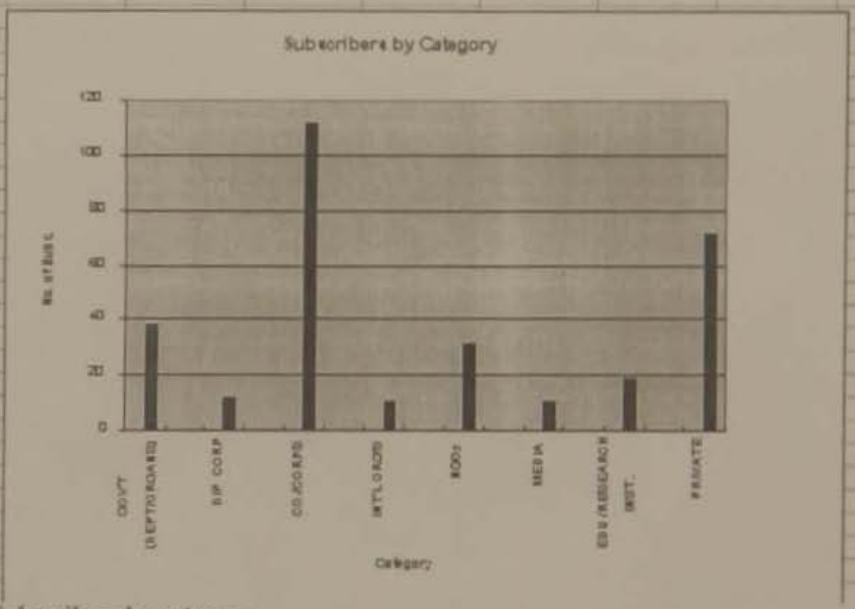


Figure 3. Subscribers by category.

The cross-section includes university professors, government officials, individuals, universities, international agencies, embassies, corporations, and NGOs.

	INTERNET SUBSCRIPTION BY REGIONS	
	REGION	NO. OF SUBS
1	GREATER ACCRA	297
2	ASHANTI	10
3	BRONG AHAFO	3
4	WESTERN	5
5	NORTHERN	4
6	CENTRAL	2
7	TOGO	2
	TOTAL	323

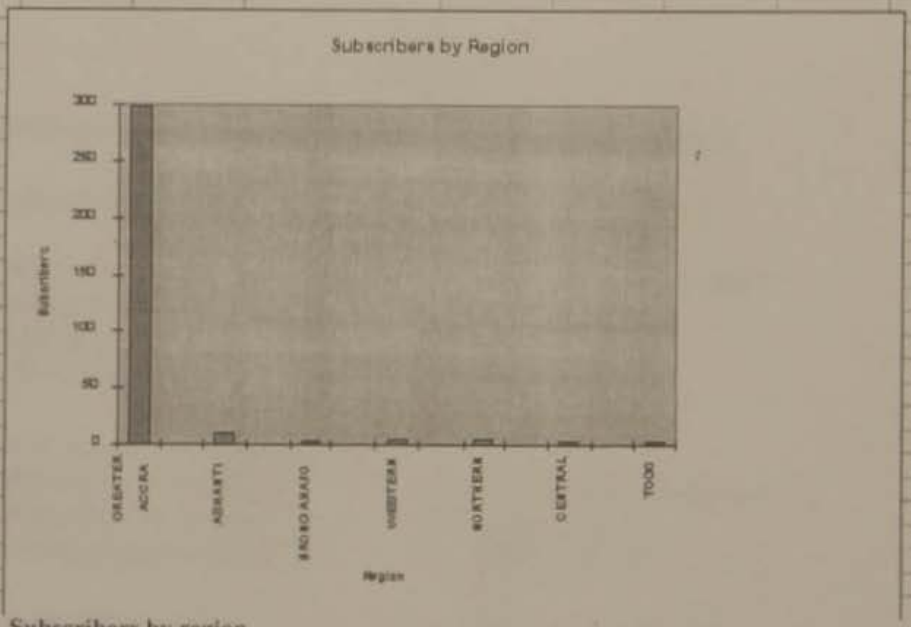


Figure 5. Subscribers by region.
Figure 6. Peak connectivity time.

Figure 6 shows the average peak times of connectivity to the network as being between 16:00 and 18:00 local time (GMT) and also indicates the average number of users on the network at various times in the day.

FROM NETWORK COMPUTER SYSTEMS, ACCRA.

APPENDIX 3: QUESTIONNAIRE

Dear Respondent,
This is an attempt to measure the extent to which students use the Internet on the University of Ghana campus. The research is being undertaken by **Elizier Taiba Boateng,** a student of the University of Ghana, Legon, to fulfil a requirement for the award of M. Phil. in Communication Studies.

You were randomly selected to answer the following questions on students' use of the Internet on campus. Your answers will be treated in the strictest confidence. The research will be meaningful only if you give me honest and truthful answers.

Thank you very much for agreeing to take part in the study.

PART A

I GENERAL QUESTIONS ABOUT COMPUTER USAGE

1. Do you use a computer? 1. Yes [ ] 2 No [ ]

2. If yes, how long do you spend using the computer every week?
   1. Less than 1 hr [ ]
   2. 1-5 hrs [ ]
   3. 6-10 hrs [ ]
   4. 11-15 hrs [ ]
   5. 16-20 hrs [ ]
   6. Other (specify).....

3. What do you use the computer for?
   1. Word processing [ ]
   2. Statistical analysis [ ]
   3. Desktop publishing [ ]
   4. Accessing the Internet [ ]
   5. Spreadsheet [ ]
   6. Other (specify).....

4. Do you own a computer? 1 Yes [ ] 2. No [ ]

5. If no, how do you get access to the computer?
   1. I use a friend's computer [ ].
   2. I use it at the department [ ].
   3. I use it in a café [ ].
   4. Other (specify).....

6. If you use it in a café, how much does it cost you during each usage?

(Please state).....

7. Is money a hindrance to your access to computers?
   1. Yes [ ] 2 No [ ]

8. If yes, how do you think this problem can be solved? (Please state)
   .....

II INTERNET AWARENESS

9. Are you aware of the Internet? 1. Yes [ ] 2. No [ ]

10. What is your perception about the Internet?
    1. A communication channel (for chatting, accessing news, etc) [ ]
    2. A channel for sending and receiving mails [ ]
    3. A research tool [ ]
    4. A learning tool [ ]
    5. Other (specify).....

11 Which of these Internet services are you aware of?
    1. Chat rooms [ ]
    2. E-mail [ ]
    3. FTP (file transfer from one computer to another) [ ]
    4. WWW (World Wide Web) [ ]
    5. News bulletin board [ ]
    6. Other (specify).....

III INTERNET USAGE

12. Do you use the Internet? 1. Yes [ ] 2. No [ ]

(If yes, complete this part and Part C; if no, complete Parts B & C)

13. If yes, how often do you use the Internet?
    1. Very often [ ] 2. Often [ ] 3. Quite often [ ]
    4. Rarely [ ] 5. Other (specify).....

14. At what time do you usually use the Internet?
    1 Dawn [ ] 2. Morning [ ] 3. Afternoon [ ]
    4. Evening [ ] 5. Midnight [ ] 6 Other (specify).....

15. How did you learn to use the Internet?
    1. By myself [ ] 3. Formal training [ ]
    2. Through a friend/relative [ ] 4. Other (specify).....

16. What was your reaction when you first used the Internet by yourself?
    1. Confusion [ ]
    2. Fear [ ]
    3. Information anxiety [ ]
    4. Disappointment [ ]
    5. Regret [ ]
    6. Joy [ ]
    7. Other (specify).....

17 Where do you access the Internet on campus?
    1. From Personal account [ ]
    2. CD-ROM (Balme Library Main) [ ]
    3. Balme Library Annex Cyber Café [ ]
    4. Benx Zola Services (Akuafo Hall Annex) [ ]
    5. Carrera Cyber Café (Akuafo Main) [ ]
    6. Legon Hall Main Internet Café (Tyme Out) [ ]
    7. Legon Business Services Centre [ ]
    8. Professional Associates (Legon Annex A) [ ]
    9. My department
    10. Other (specify).....

18 What are your reasons for your choice of Internet café?
    1. Proximity [ ]
    2. Low / Affordable rate [ ]
    3. Customer care [ ]
    4. Other (specify).....

19 Which of the following Internet applications do you access?
    1 Chat rooms [ ]
    2 E-mail [ ]
    3 FTP (for downloading information) [ ]
    4 News bulletin board [ ]
    5. Browsing [ ]
    6. Other (specify).....

20 Which **one** of the applications do you use most often? **(select only one)**
    1 Chat rooms [ ]
    2 E-mail [ ]
    3 FTP (for downloading information) [ ]
    4 News bulletin board [ ]
    5. Browsing [ ]
    6. Other (specify).....

21. On the average, how many hours do you spend on the Internet each week? (Please state number of hours).....

22. Which of the following **best** describes the **main** reason why you use the Internet?

1. Chat room discussions [ ]
2. Data transfer [ ]
3. Sending / receiving mails [ ]
4. News [ ]
5. Academic Research [ ]
6. Film / music [ ]
7. Browsing [ ]
8. Other (specify)

23. Which of the following search engines do you use?

1. Goggle [ ]
2. Infoseek [ ]
3. Alta Vista [ ]
4. Yahoo [ ]
5. Excite [ ]
6. Other (specify).....

24. Which of the search engines will you consider most effective in seeking information?

1. Goggle [ ]
2. Infoseek [ ]
3. Alta Vista [ ]
4. Yahoo [ ]
5. Excite [ ]
6. Other (specify).

25. Why? (Give reasons).....

.....

26. Which of these advanced search interfaces do you use?

1. Gopher [ ]
2. www [ ]
3. None [ ]
4. Other (specify).....

27 Which of these information gateways helps you to obtain information?

1. AHDS (Arts & Humanities Data Service) [ ]
2. Biz / Ed (Business & Economics Information Gateway) [ ]
3. NOVA(Forestry, Veterinary & Agric. Services Information Gateway) [ ]
4. SOSIG (Social Science Information Gateway) [ ]
5. None [ ]
6. Other (specify).

IV ASSESSMENT OF THE INTERNET BY STUDENTS.

28 Will you say the Internet is useful to you?

1. Yes [ ]
2. No [ ]

29. Why? (Give reasons).....

.....

30. Which of the following describe (s) the specific way(s) in which the Internet is beneficial to you?

1. It helps me to update my lecture notes [ ]
2. I receive / send information regularly from/to people [ ]
3. It helps me to chat with relatives and friends [ ]
4. It saves time (in searching for information) [ ]
5. I find it easy doing research with it [ ]
6. It entertains me with music and films [ ]
7. All the above [ ]
8. Other (specify).....

V FAMILIARITY WITH THE INTERNET

31. Are you familiar with the Internet technology?

1. I am very familiar with it [ ]
2. I am familiar with it [ ]
3. I am quite familiar with it [ ]
4. I am not familiar with it [ ]
5. I am not familiar with it at all [ ]
6. Other (specify).....

32. Which of the following best describes the way you use the Internet?

1. I always use it on my own [ ]
2. I use it with the help of a colleague [ ]
3. I use it with guidelines from service providers in the café [ ]
4. Other (specify).....

33. Do you face any problems when using the Internet?

1. I always face problems [ ]
2. I sometimes face problems [ ]
3. I hardly face problems [ ]
4. I don't face any problems [ ]
5. Can't tell [ ]

34. If you do, what is the nature of the problems?

1. The server goes down [ ]
2. Difficulties in locating the sites for information [ ]
4. Technical problems [ ]
5. Inability to use various search engines [ ]
6. Other (specify).....

35. How do you feel when you face problems using the Internet?

1. Anger [ ]
2. Frustration [ ]
3. Disappointment [ ]
4. Confusion [ ]
5. Regret [ ]
6. Other (specify).....

36. How do you solve the problems you encounter?
    1. I solve them myself [ ]
    2. I seek the help of friends [ ]
    3. I seek the assistance of service providers [ ]
    4. Other (specify) .....

37. State your observations about Internet awareness and usage in the University.

.....

.....

PART B

VI NON-USERS OF THE INTERNET

38 Which of the following explains why you don't use the computer?
    1. I don't have the basic knowledge for using it [ ]
    2. I can't use a computer [ ]
    3. I don't have time to use it [ ]
    4. I don't have access to the Internet [ ]
    5. I don't have money to pay for the services [ ]
    6. I don't think it's necessary [ ]
    7. Other (specify).....

39 How do you feel about your inability / failure to use the Internet?
    1 Alienated [ ]
    2 Regret [ ]
    3 Morose [ ]
    4. Conservative [ ]
    5. Other (specify) .....

40 What can motivate you to use the Internet?
    1 If I acquire the necessary training [ ]
    2. If I get access to the Internet [ ]
    3. If I realise it's necessary [ ]
    4 Nothing [ ]
    5 Other (specify).....

PART C

VII DEMOGRAPHIC CHARACTERISTICS

D1. Gender 1. Female [ ] 2 Male [ ]

D2 Which of the following categories of courses are you offering?

1. Arts [ ]
2. Agriculture [ ]
3. Medical Sciences [ ]
4. Science [ ]
5. Home Economics [ ]
6. Social Studies / Humanities [ ]
7. Other (specify) .....

D3. Level

1. 100 [ ]
2. 200 [ ]
3. 300 [ ]
4. 400 [ ]
5. 500 [ ]
6. 600 [ ]
7. 700 [ ]
8. Other (specify).....

D4. Hall of residence

1. Akuafo [ ]
2. Commonwealth [ ]
3. Legon [ ]
4. Sarbah [ ]
5. Volta [ ]
6. Legon Annex C [ ]
7. Valco Hostel [ ]

D5. Age

1. Below 18[ ]
2. 18-25 [ ]
3. 26-35 [ ]
4. 36-45 [ ]
5. 46-55 [ ]
6. Above 55 [ ]

D6. What is your religion?

1. African Traditional [ ]
2. Christianity [ ]
3. Islam [ ]
4 None [ ]
5. Other (specify).....

D7. Marital Status

1. Married [ ]
2. Separated [ ]
3. Widowed [ ]
4. Single [ ]
5. Divorced [ ]

APPENDIX 4: CODING GUIDE FOR QUESTIONNAIRE.

NOTES:
-Code **all** questions (close and open-ended) that are not answered as **zero (0)**.
-For questions which have more than one response, code all the responses (except where specific instructions are given to **choose only one** option).

Q6

1. Less than ¢2,000
2. ¢2,000 - ¢5,000
3. ¢6,000 - ¢10,000
4. ¢11,000 and above.

Q8

1. Reduce/subsidise rates or charges to increase usage.
2. University should make more computers available to students.
3. Computer training should be free and compulsory for all students.
4. If I get my own computer / start working.
5. I don't know / can't do anything about it.
6. Other.

Q23

1. It has a wide range of information.
2. It is fast and has easy access.
3. It is very efficient / it hardly fails
4. It is the one I always use to communicate
5. Other.

Q27

1. It is fast / it saves time.
2. It always has ready information.
3. It is good for communicating with friends and relatives
4. It helps in academic research.
5. Other.

Q35

1. Many students are aware of, and use the Internet
2. Many students are realising the usefulness of the Internet.
3. It helps students to communicate and socialise on and outside the net.
4. Some students use it for e-mails more than other things.
5. Some students are not aware of it; some too do not know how to use it (such students are willing to study how to use the Internet).
6. Other.

APPENDIX 5: INTERVIEW GUIDE.

THE PERCEPTION OF INTERNET SERVICE PROVIDERS IN THE UNIVERSITY OF GHANA ON STUDENTS' USE OF THE INTERNET.

General Introduction.

This interview is meant to seek your views on the use of the Internet. What are your views on the status of Ghana (and Africa) with regard to Internet usage? (Probe for further opinions on facilities, etc. if necessary).

SECTION A: Students' Patronage.

1. Do students often come here to access the Internet?
2. How often do students patronise this café?
3. How will you describe students' patronage (turn-out in terms of males and females)?
4. At what times do students come here most?
5. On the average, how long do students stay on the Internet during their visits?
6. How much do they usually spend to access the Internet?

SECTION B: Communication on the Internet.

7. What are some of the uses students put the Internet to? (Probe).
8. Which of them do they use most frequently?
9. Can you describe male and female students in relation to the kind of communication they do on the net?

SECTION C: Significance of the Internet.

10. Do you think the Internet is beneficial to students?
11. In what ways will you say the net benefits students? (Probe for further explanation).

SECTION D: Students' Familiarity with the Internet.

12. Do students use the Internet on their own during their visits?
13. Will you say students are familiar enough with the Internet?
14. How will you distinguish between male and female students in relation to their familiarity with the Internet? (Follow up if necessary).

SECTION E: Likely Problems Faced by Students.

15. Tell me about some of the problems students face in using the Internet. (Probe).
16. How do they solve such problems?

Conclusion.

Do you have any other observations about students' Internet usage to talk about?

Thanks for sparing me your time.

APPENDIX 6: INTERNET CAFES CHOSEN FOR THE INTERVIEWS

NAME OF CYBER CAFÉ	*NUMBER OF PERSONS INTERVIEWED*
CD-ROM (Balme Library Main)	2
Balme Library Annex	2
Tyme Out Internet Café	1
Legon Business Centre	1
Professional Associates	2
Carrera Cyber Café	2
Benx Zola Services	2