# PROVISION AND UTILIZATION OF ELECTRONIC INFORMATION RESOURCES BY UNDERGRADUATE STUDENTS IN FEDERAL UNIVERSITIES IN SOUTH-SOUTH ZONE OF NIGERIA

**BY**

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**BEING A DISSERTATION SUBMITTED TO THE DEPARTMENT OF LIBRARY AND INFORMATION SCIENCES, BAYERO UNIVERSITY KANO, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE IN MASTERS OF LIBRARY AND INFORMATION SCIENCE.**

**JANUARY, 2016**

**APPROVAL PAGE**

This dissertation has been read and approved as meeting the requirements of the Department of Library and Information Sciences, Bayero University Kano, for the award of Masters in Library and Information Science (MLIS).

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## CERTIFICATION

I certify that this research was carried out by Omokwe Onyinyechi Victoria and it is a product of my effort under the close supervision ofDr Bappah.Magaji Abubakar. All sources used in this research have been duly acknowledged.

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## DEDICATION

This dissertation is dedicated first to God Almighty, who has kept me throughout these years and has given me the grace to complete this programme.

I also dedicate this dissertation to each and every member of my family.

## ACKNOWLEDGEMENTS

I sincerely thank God Almighty for his love and mercy over me granting me the grace to successfully complete this programme. It is also with great pleasure and a thing of utmost importance to use this medium to express my profound gratitude to all those who contributed in no small measure to the execution and success of this programme. To them, I quickly say God bless you in Jesus name, Amen.

In particular, I will love to say a big thank you to my lovely parents Pastor and Pastor (Mrs) Samuel Nwabueze who through thick and thin have been there for me. I say may God bless you richly for your prayers, your love, your contributions both financially and otherwise, your time, your care and a host of other things which are too numerous to mention.

My sincere gratitude goes to my able supervisor, Dr Bappah.Magaji Abubakar for his tremendous effort in guiding me throughout the period of this research. He is indeed a man of integrity, a man with a good heart. Words are not enough, but in all, I say may God bless you Sir.

I am also very grateful to all my lecturers and I say a very big thank you to all of them who gave and shared selflessly out of their wealth of knowledge and whose ideas and suggestions have been very useful and have contributed tremendously to the outcome of this dissertation. They are late Prof. Andrew Leo, Prof.Lukman I. Diso, Dr. Y.I .Harande, Dr Binta L. Farouk, Dr. M.A.Kamba, Dr. A.A. Maidabino, Dr S.M. Gwarzo, Dr K.I. Sa'id, Mal Dauda Yakasai, Mal Ahmed Muhammed and all other lecturers in the Department of Library and Information Sciences.

Furthermore, I will love to say a big thank you to each and every member of my family; my elder brother and wife, Barr and Barr (Mrs) Godspower Omokwe for their moral and financial support throughout this programme. My sister, Adaku Omokwe, my younger brother, Ifeanyi Omokwe , my late sister, Peace Omokwe, my nieces and nephew; Melody, Awesome, Blossom and Chuddy, my inlaw, Mr lucky and the Aderibigbe's family. God bless you all.

I will not fail to thank my friends and course mates who in one way or the other have contributedto the success of this project; Mario Odeh, Ufuoma Okojevoh, Anent Agiyaye, Jennifer Akpotu, Umoh Bassey, Ebele, Amina Yusuf, Alliyah, Sadiq Abubakar, Semira, Kabir Jiga, Kabir Ubale, Abdullahi, Kemi Moses, Victoria Sokari, Mustapha, Afi Andu, Mr Enobong, Phedocy, Mariam and lastly a very dear friend who supported, encouraged and stood by me throughout, who was always there to give me a helping hand at the times of need. No other person than Oluwagbemiga Aderibigbe. I pray that you will never lack help in your time of need. Amen! God bless you all.

## TABLE OF CONTENTS

## CHAPTER FOUR
## DATA PRESENTATION AND ANALYSIS



## CHAPTER FIVE
## SUMMARY, CONCLUSION AND RECOMMENDATIONS

**LIST OF FIGURES AND TABLES**

## ABSTRACT

This study investigates the Provision and Utilization of Electronic Information Resources by Undergraduate Students in Federal Universities in South-South Zone of Nigeria. The study used a quantitative methodology using survey research applying the cross-sectional design to collect data. All the Six (6) Federal Universities in the south-south zone were used as the secondary population of the study. A total of 398 copies of the questionnaire were distributed among students in the six (6) federal universities in south-south zone and 372 copies of the questionnaire representing 93.53% were returned and found usable. Interview was conducted on the automation librarians in the university libraries. The data collected were analyzed using descriptive and thematic analysis. Findings showed that the universities studied provided quite a number of electronic information resources; and the electronic information resources provided were relevant to the needs of the undergraduate students but were fairly accessible. Also, majority of the undergraduate students did not utilize e-resources because they were not aware of it. Equally, they lacked knowledge of how to search for electronic information resources and no help available to assist them in using the e-resources. The few that utilized it made use of jstor and hinari mostly to review literatures for research work and for their assignments. It was also found that the extent to which electronic information resources were used among students was not too high. Challenges such as improper funding, lack of competent and skilled personnel in the area of e-library operations, epileptic power supply, low patronage, poor expansion of bandwidth were common among the libraries. The study recommended among others the need for undergraduate students to be taught about advanced search strategies and the use of controlled vocabularies to make electronic search process much easier in order to improve utilization as well as the need foruser training programme, anytime a new database or software is acquired to equip the students with the necessaryskillsneededforitseffectiveutilization.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Information is an indispensable and essential ingredient in today's social, economic, industrial, political and technological development. Information is gradually transforming into a factor of production as a result of its importance to national integration and socio-economic development. It is very apparent today, that without information, no meaningful development can be achieved. Information is the pivot on which the survival of the society rests. It remains the major ingredient in taking decision and assists in reducing the degree of uncertainty. Daniel (2007), stated that most powerful and developed nations of the world today are what they are by the virtue of the information they possess and utilize.According to Olatokunbo and Asari (2011), information is as old as man and it is very vital in the sense that without information there cannot be communication. Librarians are the custodians of this information and it is their duty to make available this information and ensure that it is easily accessible to users for optimum utilization.

It is with regards to the importance of information that, academic libraries exist to support the teaching, learning and research activities of their parent institutions. They make provision for information resources in both print and electronic formats. Academic libraries, according to Issa (2003), reflect the development of the colleges and universities of which they are a part, by providing collections and services to meet the instructional programmes of their parent institutions. The technology embrace has led to the proliferation of electronically available information resources. These resources include: CD-ROM databases, electronic mails, Online Public Access Catalogue (OPAC), internet browsing, etc.

Electronic information resources have gradually become major resources in every university library; the emergence of electronic resources has tremendously transformed information handling and management in academic libraries in particular. Electronic resources are information resources provided in electronic form and they date back to the mid 1960 with the introduction of machine readable catalogue (MARC) ,which was followed by online public access catalogue (OPAC). In the late 1960, a bibliographic database was developed, followed by Cd-rom databases. In the late 1980s, online databases and web based (internet) databases were developed.

The turn of the 21st century also saw the introduction of electronic serials and electronic books. In this development time line of electronic resources, the internet is the most popular form of ICT available today and it has made the greatest impact on access for library users worldwide. Electronic information resources include resources available on the internet such as e-book, e-journals, e-magazine, online databases, Cd-rom databases, emails, e-catalogues and other computer based electronic networks, among others. Electronic information resources are invaluable research tools that complement the print and their advantages include access to information that might be restricted to the user due to geographical location or finance, access to more current information and provision of extensive links to additional resources related content. Electronic information resources are divided into three categories: the online e-resources, the offline electronic resources and the institution repositories.

These electronic information resources are very significant because they provide more current and up to date information and they are very useful in finding information not yet available in book format. In addition, one can access documents from outside the library and access multiple files at the same time.Nevertheless, the

opportunity brought about by electronic information resources has in recent years exerted pressure on the educational institutions and their libraries, the pressure on the institution, is the provision of the necessary infrastructure and the actual access to these resources. The provision of these electronic information resources for proper utilization to enhance knowledge and societal development is very crucial. Library services ought to take paramount position in our social, political and academic life. This epoch of technological development is characterized by speed and precision in the production, transfer, access and use of knowledge. In fact, for any industry and group to navigate well in this increasingly complex age, information provision and usage are essential.

The provision of electronic information resources to Nigerians is a positive step towards making information widely available to the people to access and use to develop the country because no institution can still rely on only traditional printed resources to perform effectively and efficiently. Therefore, academic libraries should be at the forefront of providing adequate electronic resources to ensure its maximum delivering and accessibility to users, although, provision of these e-resources is also usually quite expensive. According to Oduwole and Idowu (2004), the insufficient funds for effective running of the universities and most especially their libraries, has adversely affected adequate provision of electronic resources due to their great expense.

Utilization is the process in which information is being used, it is the maximum usage of information and it is very important because it is expected that when information on electronic information resources are provided by academic institutions, students should utilize them to encourage more provision of e-resources. Through the use of electronic resources, researchers and students now have access to

global information resources, particularly the internet for their scholarly work. To utilize the growing range of electronic resources, students must acquire and practice the skills necessary to exploit them. Therefore, it is expected that educators comfortable with using electronic resources may encourage students to do same and thus contribute to their computer and information literacy. Although, one obstacle to the use of electronic resources is that they are not seen to be straight forward (Oduh, 2009). Nevertheless, access to electronic resources in higher institutions is rapidly increasing and the growth of information in electronic format forces students to learn how to find, select and use a wide variety of resources.

However, it is pertinent to note that, students may not have been exposed to library resources or not be aware of which resources a library might have or how to make use of them, it is therefore of interest to try and understand the category of students who explore library resources and others that might not. Valentine (1999), observed that undergraduates look for the fastest way that will lead to satisfactory result when doing a research, going for electronic information sources first. However, not all students take this route. Since university undergraduate students are a unique population and rely on recent and timely information, electronic resources are now used more often than print resources. Therefore, there is a great need to study the provision and utilization of electronic resources among undergraduate students. Thus, this research focuses on the provision and utilization of electronic information resources by undergraduate students in Federal Universities in South–South Zone of Nigeria. The main objective of the research is to determine the types of electronic information resources provided as well as the extent of utilization of those resources by undergraduate students in Federal Universities in South-South. Findings from this research will go a long way in assisting library administrations in university libraries to plan for effective provision of electronic information resources, as well as

overcoming the attendant challenges associated with the provision of electronic information resources.

## 1.2Statementof the Problem

The purpose of an academic library is to collect, organize, preserve and provide access to knowledge and information. Thus, academic libraries provide the students with access to the information they need to do their assignments and projects etc that are relevant to their courses of study. In other words, the library helps to supplement and enhance their classroom experiences, learn skills in locating their sources of information, and to develop good reading and study habits through the provision of information resources in both print and electronic format needed for teaching, research, practice and training activities in the university. The information resources and services made available in the library must be capable of supporting research activities among students and faculty members.

For libraries to play their supporting roles properly they have to provide adequate, relevant and current information resources including electronic information resources and also devise means by which the e-resources can be utilized optimally by the users. It is however observed that, most times libraries are possibly faced with the challenges which hinder the effective and adequate provision of electronic information resources; this could in turn affect the effective utilization of electronic information resources. According to Olatokunbo and Asiri (2011), the cost incurred in acquiring and maintaining both the human and material resources required in providing electronic information resources are enormous, it is in view of this, that it is necessary to ensure maximum utilization of the available information resources.

Furthermore, accessibility to electronic information resources is very important in any academic institution and the library which is the heart of a university ought to provide access to various resources; prints, non-print and digital. But, most

libraries are faced with the problem of easy access, and maximum utilization may not take place without easy access toelectronic information resources.

However, the problem of ineffective electronic resource utilization by undergraduate students in Nigeria may be due to lack of knowledge on how to access the e-resources because they give little or no attention to libraries and use of e-resources right from the onset. Majority of these students come to tertiary institutions, ignorant of what electronic information resources are and how they can be utilized. This is supported by Zaki (1997), who points out that poor library utilization background by students in using the library facilities has led them to carry this problem with them to higher institutions. The author also observes that the poor library use experiences brought by the pre-tertiary students have led to under-utilization of library facilities including electronic information resources and also their inability to attend various library orientation programmes organized by the library for all freshers. Walsh (2007), noted that orientation was the commonly used technique of increasing library patronage and electronic resource utilization.

Electronic information resources are associated with numerous benefits which include; ease of use, high speed, ability to search for multiple files at the same time, ability to access documents from outside the library and it provides more current and up to date information, etc. Tella et.al (2007), established that the use of electronic information resources positively influences the academic performance of students. However, through literatures and personal observations, it is revealed that electronic information resources are grossly under-utilized, despite these enormous benefits,they are still poorly utilized. Furthermore, inspite of the fact that the library is the supportive input of any academic institution for teaching, learning, and research, it is observed by the researcher that management of various academic institutions are likely not providing adequate electronic resources for their institutions and also in some places

where these resources are available, they are not put into maximum use for obvious reasons.

Despite the numerous values or importance of electronic resources as highlighted by various scholars, based on the review of the related literature for the study, little or no researches are available that concentrated on the provision and utilization of electronic information resources by undergraduate students in South-South Zone of Nigeria. Many of the studies focused more on the area of information provision and utilization oflibrary resources not specific to e-resources. The need to fill the gap in knowledge concerning the above problems propelled the researcher into conducting this study. It is against this background therefore, that this study is considered desirable.

### 1.3 Research Questions

This study was guided by the following research questions:

1. What types of electronic information resources are provided for undergraduate students in Federal Universities under study?
2. To what extent are the electronic information resources accessible to the undergraduate students in Federal Universities under study?
3. What types of electronic information resources are utilized by the undergraduate students in Federal Universities under study?
4. To what extent are the electronic information resources utilized by undergraduate students in Federal Universities under study?
5. What are the challenges associated with the provision and utilization of electronic information resources for undergraduate students in Federal Universities under study?
6. What are the likely solutions to the identified challenges?

## 1.4 Research Objectives

This study aimed at finding out the following:

1. To ascertain the types of electronic information resources provided for undergraduate students in Federal Universities under study
2. To determine the extent of accessibility of electronic information resources by undergraduate students in Federal Universities under study.
3. To determine the types of electronic information resources utilized by undergraduate students in Federal Universities under study.
4. To determine the extent to which the electronic information resources are utilized by undergraduate students in Federal Universities under study.
5. To identify the challenges associated with the provision and utilization of electronic information resources by undergraduate students in Federal Universities under study.
6. To suggest possible ways of addressing the identified challenges.

## 1.5Statement of Hypothesis

Hypothesis is a proposed explanation for a phenomenon. It is a tentative statement about the difference or relationship between two or more variables. The idea of a hypothesis is that there is no pre-determined outcome. It should also be noted that, hypothesis can be stated in either Null (Ho) or Alternative (Hi).Based on the objective of the study, the tentative statement to be stated in the course of this research is stated in null (Ho) form. They are stated as follows;

**$H_{o1}$:** There is no statistical significant relationship between the demographic characteristics of undergraduate students and the utilization of electronic information resources in the universities understudy.

**$H_{o2}$:** There is no statistical significant relationship between accessibility and utilization of electronic information resources.

## 1.6 Significance of the Study

Libraries are primary resources for conducting research and the significance of any studydepends largely on the objectives and findings. The provision of adequate library and information resources and services is the rationale of any library.This study on the provision and utilization of electronic information resources by undergraduate students in Federal Universities in South-South Zone of Nigeria would be of significant value in many ways.

Firstly, the findings of this study could assist the management of the universities as well as their libraries to reshape their service and information system delivery especially as it affects e-resources. Secondly, this study will help library administrators in planning for effective provision of their electronic information resources and also understand the challenges associated with the provision and utilization of electronic information resources by the users. Thirdly, this study would be beneficial to academics, researchers, students and professionals interested in the area of study or who will further build on the area. Generally, this study would serve as addition to existing body of knowledge in the area of electronic information resources as they are applied to the provision and utilization of electronic information resources by undergraduate students, which will hopefully serve as a spring board for more researches in the area.

## 1.7Scope and Limitations of the Study

This study focuses on the provision and utilization of electronic information resources by undergraduate students in Federal Universities in South-south Zone of Nigeria to which the findings are expected to be generalized.

In terms of its coverage, the studycovered all the Federal Universities in South-South Zone of Nigeria. In addition, the study also covered all the undergraduate students of Federal Universities in South-South Zone. In terms of subject's coverage, the study covers

only the provision and utilization of electronic information resources by undergraduate students in Federal Universities in South- South Zone of Nigeria.

As part of the limitations, the use of electronic information resources in cyber-cafes or commercial business centers is not covered in this study, reason for it is based on the fact that university libraries are established to provide free discipline-oriented electronic information resources specifically targeted at satisfying the overall academic needs of the university hence, non use or under-utilization will not be attributed to financial cost of use. Furthermore, due to geographical spread, the researcher did not involve the State Universities in the zone and also, the study did not include print resources in its report. The scope of this study is therefore limited to only Federal Universities in South-South Zone, and only undergraduate students.

### 1.8Definition of Research Concepts

The following terms are defined as they are to be used in this study.

**Information Provision:** This means making variety of electronic resources available in the library. It is the act of providing and supplying something for use. It is also the supply of fundamental assets that can enhance the activities or services of any given establishment.

**Accessibility:** Accessibility is the degree to which electronic information resources are accessible or useable by the undergraduate students in the surveyed federal universities.

**Information Utilization**: This means the effective and efficient use of information in the library. Utilization also entails the maximum use of information for optimum satisfaction.

**Electronic Information Resources:** Electronic information resources are information resources provided in electronic form in the surveyed universities and these includes resources available on the internet, such as e-books, e-journals, online databases, CD-ROM databases and other computer based electronic networks. Bavakenthy (2003), defined electronic resources as resources in which information is stored electronically and accessed through electronic systems& networks.

**Undergraduate Students:** These are students who receive training leading to the award of first degree in the universities. They are college-level students who have not received a bachelor degree and they are also university students who are yet to receive a first degree.

**Federal Universities:** Federal universities are universities that are under the national government and are related to the central government of the federation where various degrees are awarded.

**South-South Zone:** The South-South Zone here refers to the extreme south of the country. The geo-political zone consists of six states; Akwa Ibom, Bayelsa, Edo, Delta, Rivers and Cross Rivers. It is a tropical region known for heavy rainfall. Major occupations are agriculture and the extraction of raw materials, such as limestone, gold, crude oil etc. It has one of the highest crude oil deposits in the world.

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# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

It is worthy of note that there are substantial body of literatures produced on the utilization of electronic information resources by students both within and outside Nigeria. However, not much has been produced on Provision and Utilization of Electronic Information Resources by Undergraduate Students in Federal Universities in South-South Zone of Nigeria. Despite this however, an attempt was made to review what was available in this regard under the following sub-headings:

2.2 Concept and Significance of Electronic Information Resources

2.3 Types of Electronic Information Resources provided in Academic Libraries

2.4 Accessibility of Electronic Information Resources.

2.5 Utilization of Electronic Information Resources.

2.6 Challenges faced with the Provision and Utilization of Electronic Information Resources.

2.7 Theoretical and Conceptual Framework of the Study.

2.8 Summary of the Review and Uniqueness of the Study.

## 2.2 Concept and Significance of Electronic Information Resources

According to Vastshta (2010), the information arena today witnesses an explosive situation with the advances in technology, not only the definition of resources embedding information has changed but also the concept of information resources has changed completely due to rapid and widespread development in technology. According to him, information resources were considered a physical entity but now these have evolved from traditional print documents to electronically stored information. Vastshta (2010), further noted that, in most simple words, when we process data and convert it

into meaningful and useful form, it becomes information, when this information is fetched in electronic form; it is called electronic information resources (EIR). According to Agaba (2005), the shift from printed forms of information resources to electronic information resources should lead to better quality including efficient and effective research if used by academic staff and students. According to Sharma (2009), print medium is increasingly giving way to the electronic form of materials.

Bavakenthy, Veeran and Salih (2003), in discussing the concept, viewed that electronic information resources are resources in which information is stored electronically and are accessible through electronic systems and networks. In this context, the term primarily denotes “any electronic product that delivers collection of data be it in text, numerical, graphical or time based as a commercially available resources. Sadeh and Ellingsen (2005), also asserted that electronic information resources is a package of e-journals or a database of abstracts and indexes that include the full text of some or all articles referenced by the indexes. They also added that for electronic information resources, the interface through which it is offered should be considered because these elements are intricately linked, even though they can be licensed separately. Dadzie (2008), was of the opinion that, electronic information resources are invaluable research tool that complement the print-based resources in a traditional library setting. Similarly, Sabouri et.al (2010), also defined electronic information resources as invaluable research tools which compliment print based resources in any traditional library; they provide access to information that might be restricted to the users because of geographical location or finances.

Electronic information resources have made it possible for scholars at different location on the globe to exchange ideas on various fields of study and also allow students to communicate both within and across international borders (Luambano and Nawe, 2004). In view of IFLA (2010), an electronic resource consists of materials that are computer controlled including materials that required the use of a peripheral (e.g. a

CD-ROM player) attached to a computer; the item may or may not be used in the interactive mode. Graham (2003), is of the view that electronic resources are the mines of information that are explored through modern ICT devices, refined and redesigned and more often stored in the cyber space in the most concrete and compact form and can be accessed simultaneously from infinite points by a great numbers of audience. He went further to say that the phrase "electronic information resources" has broadly be defined as information accessed by a computer which may be useful as bibliographic guides to potential sources but, they infrequently appear as cited references in their own right.

Similarly, Swain and Panda (2009), posited that, electronic information resources is that kind of document in digital formats which are made available to library users through a computer- based information retrieval system. They further noted that the internet is said to be the right and the most extensively used channel to catch hold of the majority of electronic information resources through different search engines (e.g. googles, Alta vista, mtn, yahoo etc) and web Opac and of course some offline databases in CD/DVD formats that can even be accessed without the help of the internet. Electronic information resources serve as a motivating factor to student as it provide them opportunity to transmit, acquire or download, process and disseminate information on a subject of interest (Ray and Day, 2000). Electronic information resources are more convenient and less intimidating than the library, while they don't replace the library they are a good compliment (Isah, 2010).

Ani (2005), stated that "the transmission from print to electronic medium apart from resulting in a growth of electronic information has provided users with new tools and applications for information seeking and retrieval. Student believe that electronic information resources has improved the quality of their papers by allowing them to spend less time in the research phrase and more time in the writing phrase . Electronic information resources also result in student obtaining more resources, a

diversity of resources and more up-to-date resources (Araminde and Bello, 2010). Electronic information resources can only be accessed through computers. The importance of this is that, for a library to render e-resources services, it must have computer facilities and the infrastructures to support such. These includes consistent electricity, air conditioned room or hall, computer literate staff and library users, maintenance culture, fund for subscription etc but we all know that some challenges are posed by all these requirements in present day Nigeria (Idowu and Oduwole, 2011). Wills (2009), stated that, some electronic information resources are available for free for developing countries, such e-resources includes African digital library, science direct, Jstor, licensing digital information, national archives of Nigeria and oxford university press.

Luban (2000), carried out a research on the experiences of graduate students teaching undergraduates where they were to rate the effect of electronic resources on the student academic work. He observed that electronic resources had positive influences on the number of sources found and quality of the student's written works. He further noted that, the drawback observed in the study is the indiscriminate use of the internet. Similarly, studies that centered on how the adoption of electronic information resources has affected academic information behavior revealed that faculty make fewer visits to the library and read more than in the print era across a broader number of journals. Most academics, report using generic databases to locate information, while a few rely on smaller discipline and specific databases (Brennam, Hurd, Blecic and Weller, 2002). Corroborating this, Dilek-Kayaoglu (2008) in a research on use of electronic resources by faculty at Istanbul University, also revealed that majority of respondents supported the transition from print to electronic resources.

Electronic information resources have many functions and benefits which can be of immense use to students in schools and particularly more so in research institutions. Once a user is connected to the internet, such user can link up with any part

of the world for whatever purpose the user has in mind (Osunrinde, Adekiya and Adyemo, 2002). Benefit of using electronic information resources includes: Information being available 24/7, the ability to work from any location, the information being available all in one place, the diversity of resources provided and the availability of resources (Omekwu, 2001). Dadzie (2008), identified some advantages of electronic information resources over print based resources which includes: access to information that might be restricted to the users due to geographical location or finances, access to more current information and provision of extensive links to additional resource related contents. Ray and Day (2000), also identified some advantages of electronic resources over traditional print-based sources. According to them, electronic information sources are often faster than consulting indexes especially when searching retrospectively and they are more straight forward when using combination of keywords. Secondly, they open up possibility of searching multiple files at the same time. On the other hand, the Disadvantages of electronic information resources according to Ekwelem et. al (2009), are that electronic information resources provide too much information in which you have to sort from the vast amount of information to find what is useful. It is also easy to get distracted or lost on a tangent and also very hard to determine when to quit searching for information in order to start writing. However, the issue of transition from acquiring print to acquiring electronic information resources requires managerial ability as the need to adapt the internal organization to a new situation ( Gronvall, 2009).

According to Moulton (2005), the significance of electronic information resources arises because it is long lasting and it is important for businesses and individual computer users to realize that electronic information resources remain available for possible forensic recovering and managing the information is through a co-operate policy which addresses the retentions of electronic information. Bigin and Pandan (2011), similarly stated that electronic resources have become very important these days as they are up-to-date, multi-dimensional and directional in nature and also

can be accessed as well as used anywhere, crossing all geographical boundaries and such resources add value to all sphere of human activities. Betty (2011), identified some importance of e-resources to include the following:

i) e-resources provide access to literary thousands of magazines and newspapers far more than the library could possibly subscribe to.

ii) e-resources are important because you can use e-resources to find articles on a particular subject from many different publications at the same time without having to searcheach publication separately.

iii) e-resources are useful for finding information not yet available in books, or obtaining up-to-date information on current events or issues.

iv) e-resources are very important because they provide us with authoritative, accurate, current, objective reference materials not readily available through a search engine like Google.

Furthermore, e-resources are free to users who have a BPL (Boston public library) card,because with that you can access them from any computer with internet access 24 hours a day, 7days a week and you do not have to wait for the library to open to access them.

Similarly, Thanuskodi (2011), stated that electronic information resources are significant because they offer enormous benefits such as providing users with faster and more convenient 24hours desktop access from home and college campus or library, as well as special features such as hypo-text links related information graphic, audio, video and animation. These resources also offer benefits to the libraries because they do not take up valuable space on library shelves and they cannot be stolen or destroyed. According to Okiki and Asiru (2011), electronic information sources are products of information and communication technologies and they have been found relevant to the

learning and research process in universities. Langlois (2008), submitted that new information technologies and particularly the internet are drastically transforming access to information and it's changing the learning and research process, how we search, discover, teach and learn. Madhusdhan (2007), stated that the internet which is part of an e-resources has nowadays become an important component in academic institutions as it plays a pivotal role in meeting the information and communication need of institution, it makes it possible to access a wide range of information such as up-to-date research reports, from anywhere in the world. It also enables scholars and academic institutions to disseminate information to a wider range of audience around the globe through having websites and a way to search them and organize the output.

While writing on the significance of the internet, Omagbemi and Akintola (2004), noted that "students offering correspondence courses all over Africa have the benefits of using the e-mail and worldwide web to obtain advice and reading materials from their tutors. Ilo and Ifijeh (2010), further stated that electronic resources are very important because they now have the most significant impact on library services, operations and on the professional activities of librarians. Their strength of impact is due to their multi-faceted nature since they simultaneously fulfills three important roles in library services, which according to them are:

i. They are resources that can be consulted and used like any other reference tools.
ii. They are more dynamic and far-reaching than any other resource used in a library setting.
iii. Finally, they provide a medium of communication that has extended the potential of librarian's Interaction beyond the physical library to users, colleagues and other professional activities and relationship with library users.

Amer and Iman (2008), in their study "interaction and impact of electronic information resources on Qatar University Faculty", posited that electronic information resources

are very significant and important for faculty members and sometimes more so for students. Nwizu (2008), stated that e-resources are important to students because the use of it has broken the barriers of time, distance and location which impede the growth of formal education. Similarly, Adeyemi (2004), emphasizes that students use electronic resources to complete major assignment. E-resources are also very significant because they can be used for distance learning because distance learning relies in technology. An electronic resource is also significant because it offers today's students different opportunities from the predecessor (Ray and Day, 2008). Electronic resources also facilitate access to international information resources via the internet as well as the timely dissemination of both local and international research output (Okello-Obura and Magara, 2008).

In conclusion, it is evident from the foregoing discussion that e-resources are of enormous importance in the 21st century library services and it shouldn't be overlooked. Also, From the foregoing discussion above, so many authors have discussed on the types, benefits or significances of electronic information resources but have failed to highlight the lapses of academic libraries on the need of educating the students on the importance, benefits n significance these electronic information resources offers. Efforts should be made by academic libraries in Nigeria to imbibe the culture of making electronic information resources available to students and orientating or teaching the students the benefits of these resources.

## 2.3 Types of Electronic Information Resources Provided in AcademicLibraries

Library has been a collection of information material for ages and print media have been the bulk of the library resources. However, the advent of information technology in the early 1990's has led to the emergence and continuous exponential growth of digitally or electronically borne information resources (parker, 2007).The library exists for the acquisition of knowledge for their clienteles and they have as their major function the acquisition of information in both print and electronic format. Academic libraries

provides various electronic resources which consist of e-books, e-journals, e-articles, e-newspapers, e-thesis, e-dissertation, e-databases and Cd-rom etc which are likely to be the alternative to the print media. Dhanavandan (2012), stated that e-resources are one of the emerging environment in library and information communication especially in the competitive services. According to him, Emerald, Ebsco-host, Scopus are some of the examples of online databases and all updated information resources are published in these e-resources.

Electronic resources are the electronic representation of information; these are available in various forms like e-books, online journals, magazines, e-learning, tutors and online test. Because of the effective presentation with multimedia tools, these e-resources have become the source of information (Dadzie, 2005). According to Bothmann and Holmbig (2010),electronic resources includes CD-ROM, e-journals, e-text or electronic books, locally loaded databases, websites and abstracting and indexing databases such as Medline. They further stated that, electronic resources also includes products that aid in resource access for patron such as the A-Z lists, open URL servers, federated search engines and resources that provide full text context such as publishers 'electronic journal content, journal content platforms such as project Muse or Jstor and content aggregators such as Ebsco host, academic search premier and proxy servers or other authentication tools (Bothmann and Holmbig, 2010).

According to Bavakenthy, Veeran and Salih (2003), e-resources is a broad term that include a variety of publishing models, including Opac, CD-ROMs, Online Databases, e-journals, e-books, internet resources, print–on demand (POD), email publishing, wireless publishing, electronic links and web publishing etc. Tsakonas et.al (2006), posited that electronic resources are resources available on the internet and it includes e-books, e-journals, online databases, CD-ROM databases and other computer based electronic networks among others. Sharma (2009), identified electronic resources to include e-journal, e-newspapers, data archives, e-manuscripts, maps, e-books, e-

magazines, e-thesis, e-mail, research reports and bibliographic databases. Ibrahim (2004) added that library websites, online catalogues, and online reference works constitutes e-resources while Aramide and Bolarinwa (2010), mentioned A-V resources, instructional audio tapes, instructional video tapes, Vcd/dvd, radio, television, multimedia projectors, e-databases, e.g. Jstor, Eric, e-documents, internet/email facility, Cd-roms, computers, telephone facility, GSM/landlines), VSAT, printers, and digital cameras as the tapes of e-resources that are in existence. Electronic resources delivers the collections of information as full text databases, e-journal, e-discussion, e-news, data archives, emails, online chatting etc, which can be called an e-resources (Naidu, 2007). Electronic information sources are a wide range of products going from electronic periodicals to Cdroms, from mailing list to databases, all of them having a common feature of being used and sometimes modified by a computer (Thanuskodi, 2011).

According Handasan and Khan (2009), there are two types of e-resources: Data (information in the form of numbers, letters, graphics, images and sound or a combination therefore) and Programs (Instruction or routine for performing certain tasks including the processing of data and programs (e.g. Online services, interactive multimedia). Sheema (2012), also stated that, electronic information resources are replacing non e-resources and are appearing as new types of discovery tools. He asserted that generally, there are two types of electronic information resources, the first type is direct access resources, he said these direct access resources are the basic types of electronic information resources and can be used at any time, and it is divided into two (2) sub-types namely static e-resources and the dynamic e-resources.the static e-resources, contains fixed information and never change form for example, databases available in cd form and dynamic e-resources which also contain fixed information but can change its outward form for example, multimedia Cd-rom. The second type of electronic information resources is the Living e-document. The living e-document according to him, change their outward appearance and their embedded information (e.g.

information on the web). These are the server and client based information resources, these are also called remote access resource or online resources because the location of the server is somewhere else.

Sheema (2012) further categorized electronic information resources into two; namely subscribed electronic information resources and free electronic information resources. The subscribed electronic information resources (SEIR) are accessed through the payment of subscription fees to the publisher or owner, as well as, free electronic information resources (FEIR) in which resources are freely available on the internet and can be divided into sub-categories like Open access journals/free journals, information available at institutional repositories, organizational/individual's websites and individual blogs/professional discussion forums.

According to Khan and Ahmed (2009), electronic journals are simply serial publications in which the end products are made in digit formats and online, whose contents may or may not be peer reviewed. Ellis and Oldman (2005), stated that electronic journals relatively provide efficient access to information and thus, they are easy to distribute to library patrons than traditional point. In the financial stringent environment of higher education system, electronic journals have become medium which is cheaper than the traditional printed journals. According to Rowlands (2006), electronic journals takes two different forms: journals that are published in print forms, available in digital form and electronic journals which do not necessary need a publisher and which can be managed by an editor and the scholarly community. Online databases are a collection of electronic information sources (e-journals/e-books) by publishers from various fields and disciplines and the most effective way to provide access to electronic books/journals in university libraries is through subscription to online databases which can be accessed through the internet (Afolabi, 2007).

It is importance to note that some of these databases are provided free of charge to libraries like Nari, Agora. Others requires subscription fee such as emerald databases and Blackwell5synergy among others. Access to these databases provides researchers and students with thousands of scholarly articles in their fields of specialization or research (Fatoki, 2004). Cd-rom databases allow users access to relevant databases without robust internet connectivity in libraries. It is therefore cost effective than online databases as information could be accessed offline without paying for telecommunication fees (Afolabi, 2007). Majid and Tan (2002), opined that Cd-rom databases are important tools for identifying the bibliographic details of potentially useful documents and ensures easy access to large volumes of literature for research. They also emphasized that the amazing technological advancements have opened new horizon for information creation, duplication, storage, access, distribution and presentation.

Mallinath (2006), stated that the advent of dvd-rom databases with its Gb of high data storage capacity has made it possible to include more multimedia elements like video and sound and to integrate many reference source on a single disc. The other features like higher quality of sound and video, higher rate of data transfer, data security etc, are making dvd more viable option than Cd-rom. He further posited that some DVD reference sources include Britannica dvd 99, encyclopedia -2000, Grolier multimedia encyclopedia etc. New mode of teaching, learning, and accessing information has emerged as a result of internet and worldwide web (Darkwa, 2007). Electronic information storage format includes Cd-rom disc as well as internet resources and they include online indexes, electronic books and texts, electronic journals, electronic catalogues (library catalogues), reference sources, statistical sources, sound recordings, image databases (art, map, medical etc). With the advent of the internet, researchers and academic staff have recognized the capability of information and communication technologies as efficient means to share results and get around barriers by full transfer of

intellectual property rights from the author to the publisher. It is also a means of improving the slow turn-over of traditional publishing (Correia and Neto, 2006).

A study conducted by Payette and Rieger, (2008), at Cornell University on the awareness of the different types of e-resources provided by the library and available to both faculty and student, found that 65 percent of the faculty and 88 percent of the students surveyed were ignorant of the wide array of electronic resources available to them. Faculty relied only on one or two databases they were familiar with and over looked the variety of tools offered by the library through the web-based gateway. Undergraduate students, on the other hand, cited internet search engines as effective tools in identifying information resources for their papers and speeches. This is accordance with findings of other studies that indicated student over reliance on the web. Crawford and Daye (2000), found that most of the students were using search engines and relatively fewer of them were making use of online databases such as medline or psyclit.

Majid and Tan (2002), reported that most of the computer engineering undergraduate students they investigated were considering print sources more useful for their study related needs than electronic ones. Internet was ranked as the most important and bibliographic databases as the least important source. When asked to indicate how often they had used different electronic resources during the previous six months, nearly half of the respondents responded that they were using the library catalog quite frequently. On the contrary, “the use of databases, electronic journals and other electronic information sources was surprisingly low. Dadzie (2005) found that the vast majority of students and faculty she surveyed preferred for their searches with search engines like Google and yahoo, while very few of them were making use of the Opac and of the scholarly databases the library subscribe to.Academic libraries all over the world make available a wide variety of electronic information resources for use by the undergraduates, postgraduates, researchers and staff in their respective institutions.

These electronic information source forms an essential part of the reference services provided by academic libraries. The cost incurred in acquiring and maintaining both the material and human resources required to provide electronic information resources are enormous and it is in view of this that it is necessary to ensure maximum utilization of the resources (Okiki and Asuru, 2011).

Provision is the act of providing and supplying something for use (Dictionary .com, 2006). There must be provision of electronic information resources before utilization can take place. University libraries provide resources for knowledge acquisition, recreation, personal interest and interpersonal relationship of users (academic staff, non-academic staff, students and library personnel) and although libraries have change significantly over time, their cultural roles have remained essentially the same. Libraries are still responsible for acquiring and providing access to books, periodicals and other media that will meet the educational, recreational and information needs of their users (Obiyan, 2011). The philosophy of librarianship is based on library services and provision of relevant resources including electronic resources to users. However, the paradigm shift in the academic library services, the advent of information and communication technology (ICTs) has dramatically changed the role and position of libraries as well as the resources they provide (Okon, 2005).

Kigongo-bukenya (2002), opined that the global trend is now characterized with the fundamental shift from traditional information environment to an electronic environment where emphasis is placed more on the provision of electronic resources such as e-books, e-journals as well as online databases. He went further to say that, the provision of electronic information resources and accessing these e-resources should be very smooth with minimum constraint to save users time since university academic programmes are tight and student are always overwhelmed with the number of units they have to cover project to write. Ellis and Oldman (2005), noted that through the provision of e-resources researchers and students now have access to global information source

particularly the internet for their scholarly work. Ehikhamenor (2003), noted that, over the past decade, most libraries in Nigeria have been experiencing much difficulty providing materials to the users on account of the alarming rate of inflation of the prices of books and journals as well as depreciation value of the Nigerian economy.

According to most scholars, such as Kyrilla (2011), Borgman (2000), Price and Richards (2000), universities invest substantially in providing scholars with the digital literatures they need for their work with the idea that improved access to electronic resources which lead to increased scholarly productivity and the number and variety of different sort of e-resources provided by the library ranging from journals, references to databases are increasingly accessible from scholars desktop. Based on this, Vakkari (2008), noted that the easier and better access to literatures provided by the library, the better it facilitates school work because the transformation of the physical library to virtual library saves time since one can access publications from ones desktop.

In essence, the extent of publication provided combined with easier access may improve students ability to keep abreast in their fields and perhaps inspire new ideas and eventually enhance the quality of their works. Rosenberg (2008), stated that a keyway to understand and improve the provision of e-resources by libraries is through monitoring and evaluation. According to him, it is not a simple task and there is no single methodology that will provide all the answers needed. He further said there is no consensus of what should be considered as an acceptable number of downloads for a university of a certain size and access to a certain number of e-resources. Providers of e-resources use all sort of different mechanism to deliver information needed in a common library system. Webb(2007), in his book “providing effective library services for research “highlighted that the effective academic library are gateways to academic knowledge through their own collection and by facilitating access to material. Therefore in line with its core purpose, providing effective library services could support the research activities of researchers. A recent report from the research information network (RIN), confirmed

that researchers visit to the university libraries are dwindling as a result of enhanced provision of e-resources which can be accessed from homes or offices. This was confirmed by Brown & Swan (2007) that as a result of enhanced provision of e-resources which can be accessed from home and offices, researchers, professionals and students visit to university libraries are dwindling. With the increasing expenditure and growing reliance on electronic information provision, there is an obvious necessity to acquire as much information about the use of the resources as possible.

In a study conducted by Salaam (2007) on student's preference of e-resources conducted at the University of Agriculture, Abeokuta. The research which used observation found that majority of the respondents are not satisfied with the provision of enough e-resources in their respective subject followed by coverage of e-resources not suited to their research area. In a study conducted by Okiy (2005), to examine the effect of funding in Nigerian Universities. The study found that funding is one of the primary economic elements and it's very important in the provision of library resources including electronic information resources. The study also found that, low level of funding of university libraries had led to the deterioration in the quality of library collection. The researcher then recommended that government which is the sole finances of the libraries should see to it that it is adequately funded.

Provision must be in compliance with the campus wide policy on acceptable use of information technology resource and related standards. In other words, access and use of electronic resources provided by the university libraries are governed by license agreement negotiated between the university libraries and publishers or third parties. In general, these legally binding contracts allow students, staff and authorized users to access these resources for non-commercial, educational, scholarly and research purposes (Yang, 2009). Users of library-licensed electronic resources must comply with the terms of agreement and be aware that publishers may monitor the use of electronic resources to ensure that the terms of their licensing agreements are enforced because breach of

licenses may lead a publisher/vendor to turn off the university's access without warning (Karla, 2007). Geogia, Patricia and Karen (2000), in their work licensing electronic resources; they mentioned that the copy right Act of 1976, include provision of educational use of copyrighted materials and the principle of copyright laws are applicable in the emerging electronic environment and it's equally very important in the provision of information resources including electronic information resources. University libraries collect a variety of materials for preservation and use by the library patrons, these resources include not only traditional print on paper media like books, journals, newspapers, but also audio visual materials like records, audio and video databases, Cd-rom etc. In addition, to maintaining collections within library buildings, libraries often feature telecommunication links that provide users with access to information at remote sites (Halsey,2006).

In conclusion, it can be seen from above, that library resources including electronic resources cannot be effectively utilized without adequate provision which needs to be made easily accessibility to library users. Although not all academic institutions provide adequate and relevant electronic information resources and even in places where it is provided it is not put into maximum use. Furthermore,academic libraries exist for the acquisition of knowledge and they have as their major function the provision of adequate information resources including electronic information resources and it's their duty to ensure that these electronic information resources are made available using the right strategy so that it can be optimally utilized by students.

### 2.4 Accessibilityof Electronic InformationResources in Academic Libraries

The university library is an indispensable tool in every tertiary institution. It is the heart of a university or college that provides access to various resources: print, non-print and digital. However, the advents of ICTs have expanded the scope of these services and the tools of information delivery. Today, we have e-library and virtual library which

provide access to electronic resources (Idowu and Oduwole, 2011). Aguolu (2002)noted that, availability of information does not necessarily implies its accessibility because the source may be available but access to it may be prevented for one reason or the other. Seth and parida (2006), Ugwu(2008), Nnadozie and Nnadozie (2008) also cautioned that availability of information resources and services including electronic resources does not automatically translate to information accessibility. The significance of electronic resources to users of academic libraries would be pointless without effective and efficient accessibility and use (Odunewu and Omagbemi, 2008). Iyaro (2004), in his study identified accessibility as one of the pre-requisite of information use. Ugah (2008), opined that the more accessible information source are , the more likely they are to be used and readers tend to use information sources that require the least effort to access.

Bamigboye and Agboola (2011) cited in Oketunji (2001), stated that the internet gives us access to a vast wealth of knowledge and access to tools that facilitates research, this shows the importance of accessibility of information resources including electronic resources. Ugah (2008), studied the relationship between accessibility and library use by undergraduates in Nigeria and noted that the problem of Nigerian students is not the question of wanting to use the university library but whether or not the university library can provide for their needs and whether there is access to what is provided.

Morse and Clintworth (2000), compared the use of a matched set of biomedical literature available to users both in print and on the web. The study result showed that for journal volumes, users accessed the electronic versions more than ten times as often as the print versions during the six-month study period. The results further revealed similar usage in the print and electronic data. In the context of developing countries, Okello-Obura and Magara (2008), investigated electronic information access at the East African School of Library and Information Sciences, Makerere University, Uganda. In that study, they found that users derived a lot of benefits from electronic

resources gaining access to a wider range of information and improved academic performance as a result of access to quality information.

In Nigeria, Oduwale and Akpati (2003), investigated the accessibility and retrieval of electronic information at the University of Agriculture library, Abeokuta, Nigeria. The study revealed that electronic information cuts across all members of the university community that it was to a greater extent easy to use because of its accessibility and were satisfied with their search outputs. However, certain constraint identified included insufficient number of terminals available for use despite high demand and inadequate electricity supply. Jagboro (2003), had also emphasized the emerging reliance and attitude of users to electronic resources in a study she conducted in some Nigerian Universities. In that study, it was found that 45.2percent of respondent's accessed electronic resources from cyber–cafes, which was due to the proximity of cyber-cafes to user facilities. Ajuwon (2003), also carried out a study on the use of ICT's by health science students at the University College Hospital Ibadan. The study found that 57percent of the student sampled could not use computer to access e-resources, that the use of the databases was poor, due to lack of access to computers, insufficient training and the high cost of provision. In a similar study by Oyediran-tidings (2004), at Yaba College of Technology Lagos, low use of the libraries electronic resources by students were observed, this was attributed to expressed accessibility problems.

Madhusudan (2010), in his article titled "The use of electronic resources by research scholars of Kuruksheroa University" concluded that electronic resources had become an integral part of information needs of research scholars there. Further, he found that e-resources can be good substitute for conventional resources, if the access is fast and more computer terminals are installed to provide fast access to e-resources. Kaur and Verma (2009), conducted a study on the use of electronic information sources in Thaper University and found that maximum number of users were accessing e-

resources for different purposes. The impact of e-resources was visible from the decrease in numbers of printed journals in comparison to increase number of electronic journals.

Verma (2008), in his study on “Use and impact of electronic resourcesin Indian Institute of Technology, Delhi, found that the usage of e-resources was increasing due to awareness among the users about the library electronic resources and services owing to an easy access available at various places in the institute. Furthermore, users were accessing these resources at hostels and departments more as compared to the library. As noted by Tsakonas and Papatheodorou (2006), digital libraries, e-journals platforms, portals, e-print and other web based information systems provide services supporting users to perform intense work tasks that requires complex interaction activities, this implies that library users cannot access e-resources without adequate computer skills.

Furthermore, Macwhinnie (2003) and Thachill (2008), argued that students sometimes lack technical and research skills and so do not find the best and appropriate information tempting them to use whatever information they can find first, fast and full text. Ray and Day (2000), suggested that the skills required to access the maximum potential of electronic resources are much greater than those required for searching printed sources. These skills according to them, includes knowledge of the structure of the databases and the instruction which must be input into the computer by the searcher as well as an understanding of the ways in which the instructions are linked to one another. Ehikhamenor (2003), stated that areas where libraries can improve access and use of library resources to library users includes improved academic liaison in combining library and information technology support, open access IT area with personal or helpline supports from IT staff.

In conclusion, all the studies reviewed above are conducted on the assumption that accessibility of electronic resources is highly desirable in that it leads to increased productivity of work, learning, teaching and research. Without access there can't be utilization. Therefore, easy accessibility is very important for maximum utilization to take place. Although not all academic institutions make these electronic information resources accessible which make utilization difficult. Therefore, it is necessary for academic institutions to develop various strategies in ensuring maximum utilization of electronic information resources.

## 2.5Utilization of Electronic Information Resources

Utilization of electronic information resources has to do with the effective and efficient use of electronic resources in the library. The shift from printed forms of information resources to electronic information materials /resources means that both academic staff and students must utilize these resources for better quality, efficient and effective research more than ever (Agaba, 2005). According to Kehinde (2012), students have access to up-to-date information on various subjects and also assist in developing thinking and learning skills with the use of electronic information resources. Peled and Rasty (1995) cited in Owolabi (2012), stated that the introduction of electronic resources into academic environment particularly universities is almost predictably followed by rapid growth in awareness by students and academics. Rosenberg (2010), further noted that students can use electronic resources to search unlimited numbers of people virtually simultaneously, to search multiple files at the same time, ability to save, print and repeat searches more frequently updating and ability to access from outside the library.

Studies on usage of electronic resources such as library Opac, e-books, and subject gateway project have revealed difference in use. Affirming this assertion, Chisenga (2007), maintained that the use of the internet give users a wide range of

opportunities on the creation, processing, transmission and dissemination of information. Electronic information resources greatly increases access to information and its implication must be carefully planned to ensure optimal use of space and time (Adeleke, 2005).

Many studies have been conducted to determine the utilization of electronicinformation resources. For instance, Manda (2008), studied the use of electronic resources by students in Tanzania. His study found that the use was low due to inadequate end-users training, slow connectivity, limited access to PCs, poor search skills and budget cuts. Smith (2007), looked at South Africa, finding out that lack of bandwidth was a major problem and the range of electronic resources in the respondent field of interest is fairly limited. Swan and Brown (2006), conducted a study on the delivery of business information to end users: users' perception and need in England. His study reported that in the academic situation, a huge proportion of respondent had access to electronic resources provided by the library, yet usage figures for the media was quite low, co-operate respondent indicated that they were not confident of their abilities to use these media effectively and anecdotal evidence suggests that academic end users feel similar.

In a study carried out by Idayat and Olusola (2011),on the use of electronic resources by agricultural science students in Nigerian universities, the findings showed that undergraduate students do not use most of the library skill information resources including electronic resource because of lack of basic knowledge and awareness of the resources. Khan (2008), in his article entitled "use of journals by research scholars at Aligarh Muslim University and Banaras Hindu University" revealed that most of the research scholars are aware of the availability of e-resources and largely use them for reference purpose in their research work, they fully agreed that with the usage of e-resources, the quality of research improves with enrichment of appurtenant contents and materials leading to high quality manuscript.

Similarly, Waldman (2003), reported high usage of library Opac by students at City University of New York. Bar –llan (2003), stated that age plays an important role in usage; the younger they are, the more they use electronic sources. It has also been reported by Busselle (2009); Teo, (2010) and Cheorg (2002) that men are heavier users of the internet and they make use of a complicated service. Ashcrofta and Watts (2004), also mentioned the potential advantages of e-books to include easy access, speedy publication space, saving and low cost. Various studies have also been carried out on the utilization of electronic information resources by students of institution of higher learning. Most of these studies reported high usage of internet resources (De-Vincente et.al, 2004; Falk, 2003). High usage of e-resources is attributed to a number of factors including the freely available access, the ease of use, its currency and the ability to find and retrieve information effectively is a transformable skill useful for future life and for enabling the positive and successful use of electronic resources for students whilst at university (Teller et.al, 2007).

According to Levey (2011), information access is not necessarily the problem but careful utilization is, this is because students do not always understand which information resources are most appropriate for their need. Therefore, users need skills to make comparisons between paper and electronic resources. Ojo and Akande (2005) gathered that students use internet sources and email, through the use of computers more than other sources. Other electronic resource used by students includes CD-ROMs, e-journals, e-books etc. General users opinion towards the utilization of electronic resources in particular CD-ROM, has been positive with students enjoying using these sources and finding relatively few problems while using them (Ray and Day, 2000). In a study conducted at Oakland University by Mile (2008), into students' satisfaction with CD-ROM stated that student uses CD-ROM more often than other types of electronic resources. Ali (2005), conducted a survey at the University of Delhi India, with the aim of determining the level of student's usage

of electronic information resources. The study found out that 83 percent of students surveyed felt that using the electronic information resources saved their time and also they find it relatively easy to use. However, two-third of those surveyed stated that if the e-resourceswere busy, they would wait for it to become free rather than use the print tool.

Furthermore, the study of Mulla (2012), on the use of e-resources by faculty members in HKBK College of Engineering, Bengaluru, India was carried out with 60 faculty members; Questionnaire was used as instrument for data collection. The findings revealed that out of 60 respondents, 16 faculty members use the e-resources 'once a week', followed by 15 who used it 'daily', whereas 18.33 percent use it 'occasionally' and only 5percent never used the electronic resource in the library. Edem and ofre (2010), in their study on reading and internet use activities of undergraduate students of the University of Calabar, Nigeria, adopted a descriptive survey design. Arandom sampling technique was used to administer 200 copies of a designed questionnaire to the undergraduate students who used the university library during April 2009, 133 questionnaires were returned. The study revealed that 57.1 percent of the students responded that they use the internet occasionally; followed by weekly,21.1percent and bi-weekly, 12 percent responses as against reading of printed materials. 63.2percent of the respondent admitted that they do on a daily basis.

However, Shuling (2007), analyzed the use of electronic resources in Shaanxi University of Science and Technology with the aim of determining student's awareness and use of electronic resources, the study found that nearly 80percent of the respondents knew little about electronic resources making utilization of electronic resources very poor. Similarly, Dadzie (2005), investigated the use of electronic resources by students and faculty of Asheshi University Ghana, to determine the level of use, and problem faced in using e-resources. The study found that 85percent of the

respondents used the internet to access information and the respondents mainly accessed the information in the library by browsing the shelves.

In another related study conducted by Ibrahim (2004), to measure the use of e-resources and detected factors that determine effective and frequent use, findings showed that the frequency of use of e-resources was significantly low for most types of e-resources. The least frequently used e-resource were e-book, the online catalogue and bibliographic databases. For comparison, online reference works, e-journals, and full text articles were found to be more popular, even though they fell below the anticipated frequency in the survey's set mean.

However, Omotayo (2010), Thanuskodi (2010) Sharma (2009), Borrego (2007), have all reported that e-journals are the most used among the arrays of available electronic resources. Madhusdhan (2008), carried out a study on the use of electronic resources by teachers, students and research scholars of university and research organizations, in Delhi. The study reported that, seventy eight percent of the respondents felt that the use of UGC infornet, e-journals has created high dependency value on their research work and they needed current articles alert services and electronic document supply services. In the context of developing countries, Okello-Obura and Magara (2008), investigated electronic information access and utilization at the East African School of Library and Information Sciences. The study revealed that students derived a lot of benefits from electronic resources gaining access to a wide range of information and improved academic performance as a result of access to quality information.

Ojo and Akande (2005), in another related study, surveyed students access and usage of electronic information resource at the University College Hospital (UCH) Ibadan, Nigeria. Their study revealed that the level of usage of electronic information resources was not high. A major problem however, identified by the study were lack

of information retrieval skill for exploiting electronic resources thus making the level of usage of electronic resources of medical students very low. Attitude towards a particular phenomenon can enhance or mar human approach to such phenomenon. Positive attitudes are widely recognized as a necessary consideration for effective use and integration of information technology in teaching and learning (Christensen, 2006). Attitudes have also been found to affect perception and hence rate the adoption and extent of utilization of electronic resources (Agaraval and Prasad, 2007; Payo 2000).

Madhusudan (2010), in his article titled "Use of Electronic Resources by research scholars of Kurukshetra University concluded that electronic resources had become an integral part of information needs of research scholars there. He further stated that e-resource can be good substitute for conventional resource, if the access is fast, and more computers terminals are installed to provide fast access to e-resources.Pujar (2008), in his study on 'the use of internet by research scholars at Shivaji University, Kolhapur', found that the research scholars of Shivaji University, Kolhapur" use the internet for their research and communication purposes. However, awareness about internet resources and training in the use of e-resources needs to be provided by libraries.

In another dimension, Case (2004), has reported that "between 1994/1995 and 2001/2002, expenditures on various types of e-resources for the typical university research library in UK has grown to almost four hundred (400) percent while the overall library materials expenditures have grown only sixty-one (61) percent. Trends in electronic information services (JUSTEIS) were a three-year research project funded by the joint information system committee (JISC) "On the provision and use of electronic information systems within higher education in the UK. The aim of the project was to gather information on information systems of students in a number of UK universities. The finding suggested increased use of search engines, emails and

OPACs by both undergraduates and postgraduates, and lower use of databases and e-journals (Armstrong, et.al, 2001). Tenopir (2003), identified eight other major research studies carried out between 1995 and 2003 in UK and the United States on the use of electronic resources. Among other things, these projects indicated that subject area and status of the individuals are significant factors affecting the use of digital resources. Aside from the large projects engaged to the investigation of large populations in different disciplines and institutions, a number of small scale studies have been conducted to access the level of use in specific settings.

Back in the 1990's, Adams and Bonk (1995), conducted a survey on faculty use of electronic information technologies and resources at the four University centers of the State University of New York. The campus library online catalog and the abstract /index databases loaded on it was found to be the most widely used resources. All other resources, including electronic journals were used rather infrequently. Respondents perceived, lack of information about available resources and lack of training as the main barriers to the use electronic resources.

The under-utilization of electronic resources has been highlighted by Rehman and Ramzy (2004), who studied the Health Care Professionals at Health Science Center of Kuwait University and found that medline was the most heavily used source, followed by electronic journals. The expensive, specialized databases offered by the library received minimal use. The most frequently mentioned reasons for non-use were lack of time and lack of skills necessary to perform successful searches. In addition, some of the respondents felt that print resources met their needs better than electronic one. Mawindon and Hoskins (2008) also noted that "only a few electronic resources were actually used by the students" who preferred websites over the scholarly academic databases and e-journals of the electronic resources consulted, online journals seemed to be most common. Users, in particular undergraduate students use electronic resources for diverse purposes as illustrated above**.**

In conclusion, all the studies reviewed above reveals the high and low patronage of electronic information resources bringing to our notice the various hindrances leading to underutilization and the need for easy accessibility to bring about maximum utilization. Although not all academic libraries are aware of the facts recorded. Therefore, it is necessary that they undertake effective measures leading to the maximum utilization of electronic information resources.

## 2.6 Challenges Associated With the Provision and Utilization ofElectronic InformationResources in Academic Libraries

Rosenberg (2005), observed that a wide range of e-resources were accessible in many libraries, but generally libraries had little capacity to maintain subscription. However, one of the major problems of inadequate provision of e-resources is due to poor funding/building allocation. In view of that Okiy (2005), asserted that, finance is very crucial to any human endeavors and, so library cannot be an exception. She further posited that funds are needed in conducting the survey, procurement of materials and equipment. However, according to her, it is a common knowledge that libraries in Nigeria, in general are grossly underfunded. Aduwa-Ogugbaen and Iyamu (2005), stated that there must be proper and adequate funding and financing of education by government with international bodies. The university face enormous challenges, the amount of information that libraries need to acquire, continue to increase and the resources available are still insufficient. Academic libraries face a number of problems relating to the new media that are yet to be resolved. Subscriptions to materials in electronic resources forms are more expensive than subscription to materials in traditional printed form. In some cases, not only an additional monitoring payment to acquire e-resources, there are other considerable additional expenses in providing staff and infrastructure to acquire the electronic resources (Thanuskodi, 2011).

However, despite the availability of these resources and their benefits to university education, their effective uses are being hampered by varying factors. These

factors include poor funding of universities, high cost of information technology (IT) equipment, high rate of foreign exchange, poor telecommunication infrastructure and so on (Fatoki,2004; Adeoti-Adekeye, 2007). A study carried out in Qatar University, Doha by Amer and Iman (2008), showed that the main problems that students faced in utilizing e-resources provided by the university were language barrier, poor search skills and lack of assistance in dealing with e-resources, because electronic publishing in Arabic is not yet as common as in English and other European languages.

Dulaym (2004), in his study entitled, "the growth of electronic journals in academic libraries in Saudi Arabia", found that some of the problems that hindered the utilization of electronic information resources were due to lack of extensive awareness among the users and inadequate availability of terminals. Ibrahim (2004), also identified some challenges to effective utilization of e-resources as lack of awareness of electronic resources provided by the library; ineffective communication channels and language barrier. According to Bar-Ilan and Fink (2005), a major challenge in the use of e-resources is the understanding of appropriate search terms to be used when searching and it is important that libraries and information center package programme that will specifically take care of this problem.

Oduwole and Akpati (2003), carried out a study on "use of electronic information resources at the University of Agriculture Library Abeokuta, Nigeria. Their study identified lack of ICT and power supply voltage as constraints to the use of e-resource. In the same vein, Watts and Ibegbulam (2006), surveyed some of the barriers to the use of electronic information resources available at the Medical Library College of Medicine, University of Nigeria, Nsukka. Their findings indicated that lack of adequate ICT (Information and communication technology), infrastructure and affordable online access, absence of in depth ICT skills and information searching skills among library staff and students and cost of using the cyber cafes were barriers to the

use of electronic resources. According to Ray (2000), limited time and lack of effective information retrieval skills are the main problems in using the electronic resources.

Similarly, a study carried out in East African School of Library and Information Science Makerere University by Kigongo-Bukenya (2002), mentioned inadequate facilities as one of the biggest problem users face in utilizing and accessing e-resources leading to congestions. Jacobson (2001), said that one of the obstacles to the use of library resources especially electronic resources is that they are not seen as being straightforward in contrast to an internet search engine, where a single keyword search will usually result in thousands of hits, no matter what the topic is. Whitmire (2001), drew attention to library users, he said that the more a patron uses the library, the more familiar he becomes with its resources including its electronic resources. He further posited that, patron utilizes the services of the library because the library is quite and a convenient place to study, a place to study and make photocopies, a place to research or meeting point. The implications according to him are that there is a great tendency that people are not aware of the library resources at all or available library services and therefore must encounter problems to use them.

According to Lillian and Dick (2010), in their article entitled "A comprehensive analysis on the use of electronic resources by undergraduates at two Kenyan Universities". A study was carried out on the use of electronic resources in academic libraries in Kenya as well as in other countries in sub-Sahara Africa; it resulted in the identification of two important categories of barriers, the first category comprises of, physical barriers to the use of electronic resources, these barriers includes inadequate infrastructure network such as the intranet and the internet, lack of nature-language content and software, power outrages and restricted access to ICT facilities, especially the internet, the second category comprises of personal barriers to the use of electronic resources and it was identified as users:

1. Not knowing what information is needed or available.
2. Not knowing where to look, meaning that they may have a question or problem but do not know where to turn for help
3. Not knowing what sources of information exist; many are pleasantly surprised when guided to existing electronic resources by their libraries.
4. Lacking the confidence or technical skills required to use computers in the case of on line information searching.
5. Becoming discouraged by long delays when trying to access information resources, especially if the network connection is slow.

Waldman (2003), at the City University of New York, the findings revealed lack of retrieval skills as a barrier to e-resource utilization. Ya'u (2003), noted, however, that poor ICT infrastructure, inadequate ICT skills and the financial implication of connectivity and access to electronic database are a hindrance to the use of electronic resources. Ogunsola (2004), identified shortage of manpower, erratic power supply and lack of spare parts as the major problems Nigeria libraries face in utilizing e-resources. Ashcroft and Watts (2004), noted that in recent years, in Nigeria there have been shortage of technology literate staff in university libraries, including, lack of skilled human resources to install and manage technology and networks for electronic resources, there is also lack of collaboration amongst the information agencies that should coalesce to share the cost of electronic resources.

In regards to the aforementioned challenges, Lazonder (2000), encourages libraries and proffered that for them to overcome challenges they must breast up and see how they can simplify services delivery in libraries by borrowing from the internet which eases its use. For instance, a brief introduction is sufficient for hyper-text users to be able to apply minimal search systems to find information and also the introduction of open access catalogue (OPAC) should be encouraged and maintained including all other access points to library resources. According Dai (2000), there is a need for a library

consortium that will ensure collective acquisition of e-resources. This will enable financially weak university libraries to contribute to a general pool that would ensure the utilization of jointly acquired ICT facilities as a means of gaining easy access for the users. A consortium with the collective strength of resources of various institutions available to it is in a better position to resolve the problems of managing, organizing and archiving the electronic resources. Nock (2004), also suggested that libraries should ensure that they have sufficient signs showing direction that can facilitates navigation even without the aid of a librarian as guide. Unuoha (2010), encourages publicity of library services including the use of e-resources saying that the services are sure aids to achieving success of all educational pursuit. This will further stimulate the library to acquire and provide various currents, timely and accurate information resources including electronic resources to ease access. Popoola (2009), mentioned that orientation programme can help measure and monitor progress of patrons' capability to utilize the library resources including electronic resources and its services.

From the above assertion, we can see that provision and utilization of electronic information resources has their various challenges which serve as a barrier to actual usage of electronic information resources. Therefore, it is the duty of the academic library to breast up and see how these challenges can be curtailed to the bearest minimum so that electronic information resources can be adequately utilized without any barrier. Although, from the foregoing discussions, various authors identified the challenges involved in providing and utilizing electronic information resources but failed to highlight the dangers involved by academic libraries in not providing electronic information resources and students not utilizing the electronic information resources.

## 2.7 Theoretical Framework

This study examines the Provision and Utilization of Electronic Information Resources by Undergraduate Students in Federal Universities in South-South Zone of Nigeria. Therefore, the theory related to this study is the technology acceptance model (TAM). The technology acceptance model is a well-known model. However, a thorough literature search has revealed that little or no researches concerning provision and utilization of electronic information resources by undergraduates in Federal Universities in South-South Zone of Nigeria has been conducted using the technology acceptance model as the theoretical assumption. Thus, this is set to investigate provision and utilization of electronic information resources by undergraduates in Federal Universities in South-South zone of Nigeria applying this model.

### 2.7.1 Technology Acceptance Model (TAM)

Based on fishbein and Azjen,s theory of reasoned action (TRA), Davis ( 1989), proposed the technology acceptance model (TAM). According to Davis, technology acceptance model (TAM), is an information system theory that models how users come to accept and use a technology. He further stated that, TAM model which deals with perception suggests that when users are presented with a new technology, two important factors influence their decision about how and when they will use it, these factors are: Perceived Usefulness(PU) and Perceived Ease of Use (PEOU). According to him, perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. While perceived ease of use, is the degree to which a person believes that using a particular system would be free from effort. He further submitted that, perceived usefulness and perceived ease of use both affect people's intention to use, thereby contribute to either usage or non-usage. He indicated that usefulness was more significantly affected by usage than ease of use and that perceived usefulness had a stronger correlation with user's acceptance of a technology. Therefore, the usefulness of the electronic information resources provided by academic libraries,

which are made easy to use talking about been easily accessible, will affect people's intention to use the resources.

The importance of technology acceptance theory as a precursor to the use of technology has attracted much attention from researchers and practitioners (Venkatesh, Morris,Davis and Davis, 2003). The technology acceptance model (TAM) has been widely studied and accepted as a valid model in predicting individual acceptance of model across various information technologies and their users (Adams, 1992; Chin and Todd, 1995; Segar and Grover, 1993). According to Davis (1986), TAM explains the relationship between psychological variables such as beliefs, attitudes, behavioral intention and actual system usage. In the same vein, TAM explains the relationship between provision and utilization of electronic information resources because the usefulness of the electronic information resources provided will bring about the actual use of the resources. The theoretical basis of the model TAM was fishbein and Ajzen,s theory of reasoned action (TRA) and the goal of TAM is to provide an explanation of the determinants of computer acceptance that is general and capable of explaining users' behavours across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis,1989). According to Fishbein and Ajzen (1975), theory of reasoned action (TRA), is a widely studied model from social psychology which is concerned with the determinants of consciously intended behaviours and a person's performance of a specified behaviour is determined by his or her behavioral intention (BI) also the performance of the behaviour and behavioral intention is determined by the persons attitude and subjective norms (SN) concerning the behaviour in question.

Therefore, according to Davis (1989), TAM uses TRA as a theoretical basis for specifying causal linkages between two key set of construct;

- Perceived usefulness (PU) and Perceived ease of use (PEOU).

- Users attitude (A), behavioral intention (BI), and actual computer usage behaviour.

He further said that, both PU and PEOU predicts attitude towards using the system which is defined as the users desirability of his or her using the system. Also user's attitude and perceived usefulness influences the individual's behavioral intention to use the system. Therefore, actual use of the system is predicted by behavioral intention. In the same vein the usefulness of the electronic information resources provided which are made easily accessible i.e (ease of use) will influence the behavioural intention of the student which will lead to the actual use of the system. Venkatesh and Davis (2000), stated that technology acceptance model represents an important theoretical contribution towards understanding information system usage and information system acceptance behaviour. They further stated that, social influences in information technology acceptance and usage represents an important area for better understanding of real world application of TAM.

**Empirical Studies**

TAM is one of the most widely used models in information system adoption research. TAM has been applied to a wide range of applications and user past decades. Researchers have replicated Davis (1989) study and supported its validity and reliability in explaining and predicting use of various information systems. TAM has been validated through testing with a number of technologies and cultures (Davis, 1989; Davis, 1993; Igbaria, Schiffman & weickowski, 1994; Dishaw & Strong, 1999, Straub, 1997). Ramayah and Chin (2010), used the refined TAM to study the various factors influencing personal computer acceptance by small and medium sized companies. Whereas, Ndubisi, jantan and Richardson (2001), tested TAM's validity among Malaysian entrepreneurs and found that among entrepreneurs, information technology usage were influenced directly by perceived usefulness and indirectly by perceived ease of use. A study was also conducted by Jackson, Chow and Leitch (1997), aimed at

identifying if there was any impact of situational involvedness, intrinsic involvement prior use and argument of change on TAM. They found that there was a direct impact of situational involvement on behavioral intention and, they also found that intrinsic involvement plays a significant role in shaping perception.

Igbariam et.al (1997), studied the effect of internal computing support, internal training, management support, external computing support and training on TAM. They found that perceived ease of use was a dominant factor in explaining perceived usefulness and system use but perceived usefulness has a stronger effect on use. Chen et.al (2009) synthesized the essence of technology readiness, technology acceptance model and theory of planned behaviour to propose an integrated model for understanding customers continued use of self-service technologies. Chau (1996), tried to find if implementation gap and transitional support have any effect on software acceptance by using TAM model, they concluded that ease of use has a greater impact on software acceptance. Yet, another study was initiated by Agarval & Parad (1999), to find if factors such as role of technology, tenure in workforce, level of education, prior similar experience and training participation influences TAM. The study suggested that there was nothing inherent in individual differences that strongly determine acceptance, several individual variables like level of education, prior similar experiences and training participation has significant influence on TAM.

Recently, TAM has been applied to the electronic business domain (Gefen and Straub, 2000; Lim and Lai, 1999). Stern et.al. (2008) proposed a revised technology acceptance model to investigate the consumers' acceptance of online auctions. Technology Acceptance model has been applied in various information technology system area. Serenko et.al (2007) modified technology acceptance model to assess users' acceptance of interface agents in daily work applications. Muller-seitz et al (2009) use the technology acceptance model with security concern to understand customer's acceptance of radio frequency identification (RFID). This study therefore

examines the influence of TAM on provision and utilization of electronic information resources by undergraduate students in Federal Universities in South-South Zone of Nigeria.

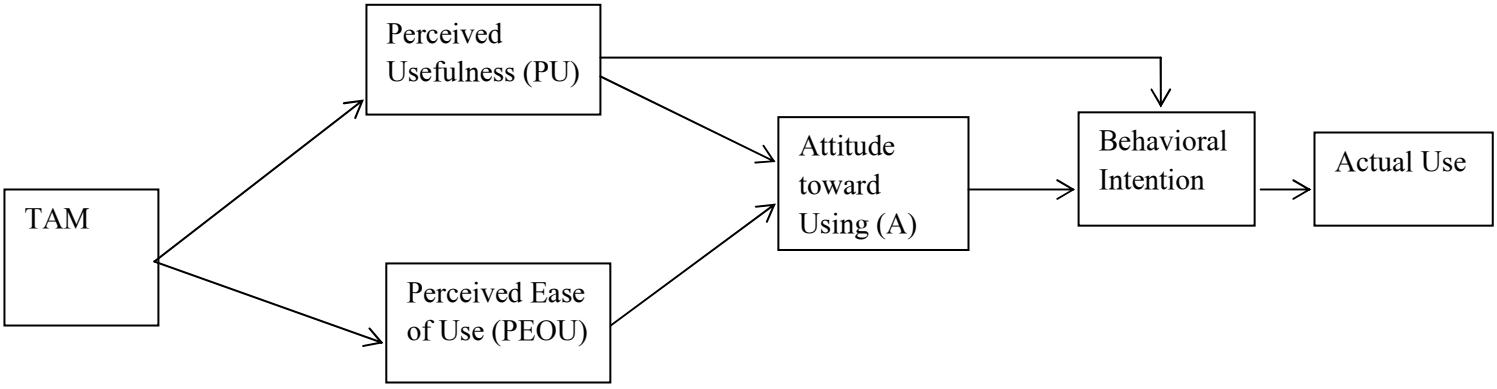


**Figure 1**: **Technology Acceptance Model, based on Davis et.al (1989).**

**Criticism**

However, it is worth noting that the technology acceptance model (TAM), has been widely criticized despite its frequent use, leading the original proposers to attempt to redefine it several times. The criticism of TAM as a 'Theory' includes, it's questionable heuristic value, limited explanatory and predictive power, triviality and lack of any practical value (Chuttur, 2009). Benbasat and Barki (2007), observed that TAM has diverted researcher's attention away from other important research issues and has created an illusion of progress in knowledge accumulation. Furthermore, they stated that, the independent attempts by several researchers to expand TAM in order to adapt it to the constantly changing IT environments have led to a state of theoretical chaos and confusion.

According to Bagozzi (2007), although, TAM represents an important theoretical contribution towards understanding information system usage and acceptance, the model with its original emphasis on the design of system characteristics does not account for social influences in the adoption and utilization of new information system. In addition, Davis and Davis et.al (1989), observed that the conceptualization of

subjective norm based on the theory of reasoned action has theoretical and psychometric problem. Specifically, they observed that it is difficult to distinguish if usage behaviour is caused by the influence of referents on one's intent or by one's own attitude. Lee et.al. (2003), stated that methodology is one of the main criticism for studies on TAM model. They further said that several studies on TAM make use of students as subjects or participants in controlled environment and therefore, results obtained from these studies cannot be generalized to the real world. As many researchers argue, students may have different motivations such as obtaining grades, rewards and so on. Legris et.al (2003), claimed that TAM accounts for only forty percent of a technological system use.

**Strengths**

In respect to its strength however, despite its criticism, the technology acceptance model has been applied in various fields. With a significant lending support to TAM, the model has emerged as a powerful one with which practitioners can predict information technology acceptance and usage behaviour (Venkatesh and Davis, 1996). In addition to that, Mathieson (1991), also stated that TAM has a high predictive power in explaining information technology acceptance behaviour across various contexts. Another major strength is that it provides factors which lead to information system acceptance and provide room for extraneous and elaboration better than other competing models (Taylor & Todd, 2001). When information technology professionals foster users beliefs in ease of use and usefulness of the focal information technology, adoption and usage are likely to occur (Venkatesh, 2000).

Therefore, based on the effectiveness of this model in terms of its applicability and acceptance the researcher is convinced beyond any reasonable doubt to choose this model. Also, because of its flexibility in applying its theory to different domains, including that of information technology, and also because it provides room for extraneous and elaboration better than other competing models. Furthermore, due to the fact that, it is an information system theory that models how users come to accept and

use a technology, and in technology acceptance model technology use depends on ease of use and usefulness of the system.

Finally, technology acceptance model is a valid model in predicting individual's acceptance of information technology across various contexts. According to Davis (1989), perceived usefulness and perceived ease of use both affects people's intention to use. Therefore, the usefulness and ease of use of e-resources in a library will determine people's intention to utilize the e-resources.

### 2.7.2 Conceptual Framework

The conceptual framework for this study was adapted from technology acceptance model (TAM), propounded by Davis et.al (1989). The initial model was re-arranged and modified to suit this study. The original model which contains variables like, TAM, perceived usefulness, perceived ease of use, attitude towards using, behavioral intention and actual use were removed and replaced with the constructs that formed part of the conceptual framework e.g types of electronic information resources, provision, access to electronic information resources, utilization and challenges of electronic information resources.

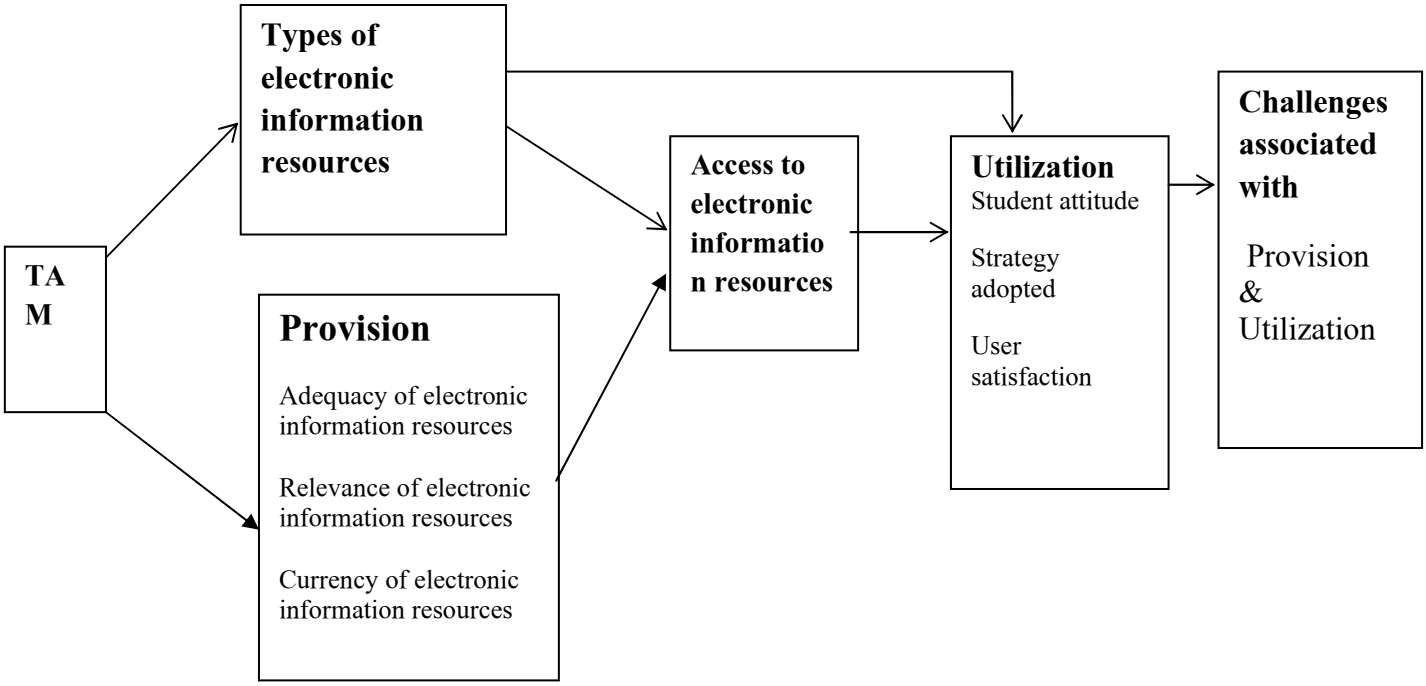


**Figure 2**: **Conceptual framework of the study. Adapted from Davis et al (1989).**

The conceptual model provided in Fig.2 shows the process by which the study was carried out. It is pertinent to note that university libraries are the focus of the model taking into consideration the provision and utilization of electronic information resources by undergraduate students. The model illustrates how the variables in the study correlate with each other on the one hand and on the other hand through the use of arrows, how provision and utilization which are the dependent variables relate with the independent variable specifically. The model also demonstrates how adequacy, relevance and currency of electronic information resources enhance provision in university libraries in Nigeria. The model further relates to how access to electronic information resources, student attitude and strategies adopted can influence utilization of electronic information resources. In other words, the provision of adequate, relevant and current electronic information resources which are made easily accessible, with positive attitude by the undergraduate students and good strategies adopted by the library management can influence the effective utilization of these resources by the undergraduate students. However, it is important to note that after the utilization of these electronic information resources, comes the challenges associated with it.

Electronic information resources in this study are defined as the electronic representation of information. They are invaluable research tools that complement the print-based resources in a traditional library setting. They can also be seen as information stored electronically and are accessible through electronic systems and networks. Electronic information resources have made it possible for scholars at different locations on the globe to exchange ideas on various fields of study and also allow students to communicate both within and across international borders (Luambano and Nawa, 2004). Electronic resources are valuable tools for study, learning and research and they provide many advantages over the traditional print based resources. They contain current information because they are updated frequently, they offer advanced search capabilities, they offer flexibility in the storage of the results and they enable access to information without the restriction of time and location.

Types of electronic information resources in this study is defined, as the various electronic information resources in their different forms which includes online databases, Cd-rom's, Opacs, internet resources, e-databases in which we have the Jstor, Eric, Hinary, Aluka, Emerald, Ebsco host, The Observatory, Science direct etc which are provided to be maximally utilized by the undergraduate students.Therefore, it is expected that these electronic information resources are utilized by undergraduate students in the various academic degrees because this would increase the variety of resources available for students which can be accessed anytime and anywhere.

Provision is defined as the supply of fundamental assets that can enhance the activities or services of any given establishment. According to this study, it is the adequate supply of electronic information resources that can influence the use of academic libraries as well as user's satisfaction. Provision of financial, human and material resources (e-resources) is vital for an organizational effectiveness particularly in a library system. Lack of provision of such resources however can sometimes affect a library from satisfying the goal of its parent institution especially if the information

needs of the users are not adequately met. It is increasingly an important function of academic libraries today to provide information in electronic format including indexes, full text articles, complete journals and web resources while serious space constraint are one reason for electronic resource provision, the main driver is the advantages that e-resources have over-print in giving more effective support for research. The effort of the parent institution in sustaining their goals through a functional library can also result to a struggle for more effective provision of adequate and relevant electronic resources for effective use by undergraduate student of university libraries. Therefore, without any doubt, the provision of adequate, relevant, and current electronic information resources can also encourage their effective use.

Effective utilization of electronic information resources can only take place when there is easy accessibility to these resources. Thus, access to relevant electronic information resources is very necessary. Aguolu (2002), noted that availability of information does not necessarily implies its accessibility because the source may be available but access to it may be prevented for one reason or the other. Similarly, Ugah (2008), opined, that the more accessible information source are , the more likely they are to be used and readers tend to use information sources that require the least effort to access. Therefore, access to these electronic information resources should be very smooth and adequate to save the users' time.

Utilization in this study can be defined as the extent to which undergraduates patronize and benefit from the available electronic information resources of the library. In this context, use is meant to describe the extent to which the library are exploited or utilized by undergraduate student. Provision of adequate resources with proper access to these electronic resources, positive attitude of the undergraduate student and good strategy adopted can bring about maximum utilization of these resources which can therefore lead to user satisfaction. Adeleke (2005), asserted that library must not only provide the resources but also ensure effective use of the resources by its clienteles. The

success of e-resource utilization in the library depends not only on how well it works but also on how well it is received by its intended users, which is reflected in users attitude towards it and predictive of their behaviour. Positive attitude contribute to its success while negative attitude only detracts from the merit of the system because it translates into its low use or non-use. Swain and panda (2009), stated that for better planning, it is vital to have knowledge on the attitudes of users towards e-resources.

Furthermore, adopting the right strategy for e-resource utilization can lead to maximum utilization of electronic information resources by undergraduate student which can as well lead to user satisfaction. Academic libraries exist to satisfy users. User's satisfaction refers to how users are judged by the services provided by the university library. It refers to whether users of university library get the desired electronic information resources expected to be provided by the university library. Hence, user satisfaction is a determinant of any effective library service. In another perspective, user satisfaction in university libraries can as well motivate or encourage the library management to provide more electronic information resources and services for the sustainability of the libraries.

University libraries are faced with enormous challenges in providing adequate electronic information resources as well as in the utilization of these resources by students. These challenges are normally identified by student after utilizing these electronic information resources. These challenges normally prevent effective utilization by the undergraduate student and as such university libraries must breast up and see how these challenges can be minimized by simplifying service delivery in libraries and encourage publicity of library's electronic information resources and services.

In conclusion, according to the model, the provision of adequate, relevant and current electronic information resources which are made easily accessible with a good strategy adopted by the academic management and the right attitude by the student can

lead to maximum utilization of these resources by undergraduates. This may, possibly lead to users' satisfaction. However, the challenges associated with utilizing these resources are identified after utilization.

## 2.8 Summaryof the Review and Uniqueness of the Study

The study is aimed at examining the provision and utilization of electronic information resources by undergraduate students in federal universities in south-south zone.Information is not just raw data rather, its data that are collected and summarized to produce an output that is interpreted as information by the users. The university library exist to enhance the acquisition of knowledge by their clienteles and to achieve this, the library has as their major function the provision of information resources, ensuring its accessibility to users which will bring about its use because the more accessible information resources are, the more likely they are to be used and readers tends to use information resources that requires the least effort to access.

The review of related literature has shown that electronic information resources have increasingly become an invaluable asset in education, research, teaching and learning, these consist of materials that are computer-controlled and they are mines of information that are explored through modern ICT devices. Electronic resources are electronic representation of information. They are in various forms and types. The types include e-books, e-journals, online databases, CD-ROM databases, e-discussion, e-magazine, OPAC, internet resources, emails and other computer–based electronic networks. E-resources are also categorized into subscribed electronic information resources (SEIR) in which some subscriptions fees are paid to publisher/owner in order for one to access it and we also have free electronic information resources (FEIR) in which resources are freely available on the internet. Several literatures such as Bavakenthy et.al (2003), have indicated that electronic information resources are resources in which information is stored electronically and are accessible through electronic systems and networks. In this context, the term primarily denotes "any

electronic product that delivers collection of data be it in text, numerical, graphical or time based as a commercially available resources.

The transition from print to electronic medium have provided users with new tools for information seeking and retrieval and it has also made it possible for scholars at different locations on the globe to exchange ideas on various fields of study and allow students communicate both within and across border. Electronic information resources are important because is long lasting and it provides access to literally thousands of literatures, you can also find articles on a particular subject from many different publications at the same time. Thanuskodi (2011), has pointed out that, electronic information resources are important because they offer enormous benefits such as providing users with faster and more convenient 24hours desktop access from home and college campus or library, as well as special features such as hypo-text links related information graphic, audio, video and animation. These resources also offer benefits to the libraries because they do not take up valuable space on library shelves and they cannot be stolen or destroyed. In a nutshell, e-resources are important because it offers enormous benefit such as providing authoritative, accurate, current and objective reference materials not readily available through the use of search engines like google.

The literature also established the fact that, libraries are responsible for acquiring and providing access to books, periodicals and other media that meet the educational and information needs of their users and the philosophy of librarianship is based on the provision of relevant resources to the users. Odunewu and Omagbemi (2008), opined that the significance of electronic resources to users of academic libraries would be pointless without effective and efficient accessibility and use. With the paradigm shift from traditional information environment to an electronic environment, emphasis is placed on the provision of e-resource which has been highlighted by the literature review. Therefore the provision and accessibility of these e-resources should be very smooth and adequate to save the user's time because utilization can only take

place when there is adequate provision of e-resources. According to Kehinde (2012), students have access to up-to-date information on various subjects and also assist in developing thinking and learning skills with the use of electronic information resources. Also, high usage of e-resources are attributed to a number of factors which include freely available access, ease of use and its currency while underutilization of e-resources according to researchers are; ignorance in the library, lack of proper user instruction programmes, lack of adequate facility and infrastructures etc. therefore users' needs skills to make comparison between paper, CD-ROM and electronic resources in general.

In addition the literature review indicated that, the university faces enormous challenges in providing adequate e-resources and also in the utilization of these resources by the students. According to Fatoki, (2004); Adeoti-Adekeye, (1997), despite the availability of these resources and their benefits to university education, their effective uses are being hampered by varying factors. These factors include poor funding of universities, high cost of information technology (IT) equipment, high rate of foreign exchange, poor telecommunication infrastructure and so on. The university library maybe faced with the problems of proper and adequate funding in providing the e-resources. while effective utilization of the e-resources may be hampered by language barriers, poor search skills, lack of extensive awareness among users, inadequate availability of terminals, lack of proper training, frequent computer breakdown, erratic power supply etc, therefore, university libraries must breast up and see how they can simplify services delivery in libraries, encourage publicity of library services including the use of e-resources.

The study further reviewed relevant theories that best analyze the major variables of this study. Based on the above, this study is unique in the following ways: studies of this nature have not to the best of the researcher's knowledge been carried out on Federal Universities in South-South Zone of Nigeria, many of the studies carried out focused more on the area of information provision and utilization of library resourcesnot

specific to e-resources as regards Federal Universities in South-South Zone. Therefore, this study is the first of its kind which covers the nature of electronic resources, its provision and utilization by undergraduates in the Federal Universities under study. The study is also unique in its approach to in-depth study of all the major variables of the study. The use of technology acceptance model by Davis (1989), and the adaption of TAM as the conceptual framework as opined by Davis et.al (1989), have also added to the beauty and uniqueness of the study. The technology acceptance model reveals all the variables in this study and gives vivid explanations and insight into understanding of the study. The variables in this model also relate to the core values of librarianship, as such, the report of this study is hoped to assist the management of the Universities as well as their libraries to reshape their service delivery as regards e-resources. Furthermore, this study is unique in the area of the methodology used, most of the previous studies conducted or reviewed made use of quantitative methodology but this study made use of quantitative methodology with some qualitative elements. Also, most of the previous studies had fewer numbers of respondents, while this present study had respondents across six institutions. Most of the studies reviewed merely concentrated on only one or two institutions while the present study concentrated on six institutions. Most of the studies reviewed made use of questionnaire as their instrument but this study made use of both questionnaire and interview as their instrument for collecting data. Based on the above, therefore, it is believed that the study will be the first of its kind to cover the South-South Zone, and also the outcome of the study will present a contribution to knowledge in the area and hopefully minimize the gap identified.

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# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter deals with the methodology employed in carrying out this study. It specifically comprises of the following sub-headings: research design, population of the study, preliminary survey and its result, sampling techniques and sample size of the respondents, subjects for the study, instrument for data collection, reliability and validity of the instrument, administration of research instruments and the data analysis techniques.According to Howell (2013), research methodology defines what the activity of a research is, how to proceed, how to measure progress and what constitutes success.

In general, there are three major types of research models; the quantitative research methodology, the qualitative research methodology and the mixed research methodology. The nature of this study is quantitative, with some qualitative elements. Accordingly, the quantitative methodology (positivist) was considered most appropriate for the conduct of this study, reasons being that, quantitative research methodology is beneficial for a large amount of data, it describes variables, it examines relationships among variables, and it also determines cause and effect interaction between variables. Quantitative research methodology relies mostly on numerical data unlike the qualitative research methodology that relies on narrative data.Quantitative research methodology uses a number that can be quantified, employs strategies of inquiry such as experiment and survey, and uses method of reduction, observations and test of theories (Kamba, 2009). Despite the differences between the twomethodologies (quantitative and qualitative), there has been a growing emphasis on combining the two approaches in a single study which is called methodological triangulation. Methodological triangulation has been described by Denzin in Babbie and Mouton(2001), as the use of two or more methodologies of data collection procedures within a single study.

### 3.2 Research Design

For the purpose of gathering data relevant to this study, survey research design applying cross-sectional survey was used. According to Denscombe (2008: 27) survey methods are easily associated with large–scale research covering many people and events. Denscombe also added that survey methods are not necessarily cheap but, relative to strategies such as experiments and ethnography. Graziano and Raulin (2007) affirmed that survey research does not just seek the current status of population characteristics but also tries to discover relationship among variables.

Therefore, cross sectional survey design adopting the statewide study or national survey which is a type of cross-sectional survey was preferred for this study because it gives room for extensive gathering of data. However, the choice of cross-sectional survey by the researcher was due to the advantages identified by Leedy and Ellis (2005) that "obviously, cross- sectional studies are easier to conduct than the longitudinal design because the researcher can collect all the needed data at a single time. Craig and Charles (2008), also added that, cross-sectional survey collects data across different segments of the population at a particular time and shows the status of those segments. These and many more reasons are crucial to the present research work which informs the choice of the cross-sectional research design as the most appropriate for this study.

### 3.3 Population of the Study

Population according to Mugo (2010) is defined as a group of individuals, persons, objects, or items from which samples are taken for measurement. In addition, population is the larger group to which all the people of like interest belong. Therefore, the population of this study consists of all the undergraduate students in the six (6) Federal Universities in South-South Zone of Nigeria as well as the automation librarians in each of the libraries.

From the preliminary study conducted, there are six Federal Universities in the South-South Zone, with a total population of 31,247 registered undergraduate students and 6

automation librarians (see the table below). Therefore, the population was based on the federal universities presented below. This has produced a total of 31,247 registered undergraduate students and 6 automation librarians as population for the study. The table below gives the breakdown of the six federal universities in south-south zone of Nigeria including their location and year of establishment.

Table 3.1 Research Population

| S/N | Name Of The University | Year Of Establishment | Number Of Automation Librarian | Registered Undergraduate Students | E-Resource Availability | Types of e-resources subscribed to |
|---|---|---|---|---|---|---|
| 1 | Federal University of Petroleum Resources, Effurun | 2007 | 1 | 1,550 |  | Ebsco Host,Jstor and NUC NationalVirtual Library |
| 2 | University of Benin | 1970 | 1 | 7,852 |  | Agora,Bio-one,Hinari,Jstor, Lexis/Nexis,Oare |
| 3 | Federal University Otuoke, Bayelsa State | 2011 | 1 | 345 |  | Agora,Ebsco Host,Jstor,OARE |
| 4 | University of PortHarcourt ,Choba River State | 1975 | 1 | 10,000 |  | Agora,Aluka,Bio-one,Ebsco Host,Hinari,Jstor,Lyell Collection,OARE,The Observatory,Proquest |
| 5 | University of Uyo | 1991 | 1 | 4500 |  | AcademicSearchPremier,Agora,Ebscohost,EthnicNewsWatch,Hinari,Jstor,LyellCollection,WorldLibrary.Net,Disestia. |
| 6 | University of Calabar | 1975 | 1 | 7,000 |  | Agora,Aluka,Dpac,Dper,Ebrary,Emerald,EthnicNewswatch,Hinari,Jstor,Lexis/Nexis,LiteratureResourceCenter,Lyell Collection,OARE,Ods,Psycinfo,The Observatory ,Eganary |
| **TOTAL** | | | **6** | **31,247** | | |

### 3.4 Preliminary Study

A preliminary study was carried out on the six (6) Federal Universities in South-South Zone of Nigeria and this study was conducted from 6th August, 2013 to 20th January, 2014.A preliminary study questionnaire was designed and used as an instrument to obtain the

following information from the universities under study. The preliminary survey sought for the following information:

a) The number of automation librarians in each University library under study.
b) The population of registered undergraduate students in each University library under study.
c) If each of the University libraries under study subscribe to electronic information resources.
d) And finally, what types of electronic information resources does each University library subscribe to. The result of the preliminary study is in (appendix II)

### 3.5 Sampling Techniques and Sample Size

Table 3.2: Federal Universities Sampled for the Study

| S/N | UNIVERSITIES | LOCATION | STATUS | YEAR OF ESTABLISHMENT |
|---|---|---|---|---|
| 1 | Federal University of Petroleum Resources, Effurun | Effurun | Federal university | 2007 |
| 2 | Federal University of Otuoke, Bayelsa | Yenegoa | Federal university | 2011 |
| 3 | University of Calabar | Calabar | Federal university | 1975 |
| 4 | University of Benin | Benin | Federal university | 1987 |
| 5 | University of PortHarcourt | PortHarcourt | Federal university | 1976 |
| 6 | University of Uyo | Uyo | Federal university | 1991 |

Based on the result of the preliminary study conducted, all the six Federal University Libraries were selected for this study because, the researcher found the secondary population, manageable and convenient. According to Brown (2013), if a population is small, and convenient for the researcher, it is possible to adopt everything. Similarly, according to kerlinger (1991),when a small population is acquired, adopting

everything is possible. Therefore, since all the six (6) federal universities are selected as population of the study and the number is not high, no sampling is required.

Furthermore, to get an appropriate primary sample for the study, the simple random sampling was used to select undergraduate students from departments and faculties of the universities under study. According to Craig and Charles (2008), simple random sampling, is done in such a way that each individual in the total population has an equal chance of being selected and it is the best way to obtain a representative sample. Kamba (2009), also stated that in simple random sampling, every individual has an equal chance of being selected.

### 3.5.1 Sample Size

Since all the universities were used for this study, the sample size for this study was selected from all the federal universities in south-south zone of Nigeria. The sample size of the study is considered adequate because in quantitative research methodology, the larger the sample size, the better it would represent the population and better are the result of the findings. In view of these, Denscombe (2003: 22) stated that with larger sample, the researcher is more assured that "All aspects relevant to the research questions would have been covered and included in the findings". Also, the automation librarians of the six (6) federal universities were also used for this study.

The reason for using these respondents was based on the fact that each automation librarian would provide data that would be based on the interview conducted with regards to his/her library. They are also the most relevant stake holders in providing the needed data for the study, and also, concerning issues relating to e-resources, accessibility, provision and usage. Therefore, in determining the sample size for the questionnaire part of this study, the level of precision was used, using the Cochran (1963) equation. This is reviewed below.

**The Level of Precision**

According to Israel (1992), the level of precision, sometimes called sampling error, is the range in which the true value of the population is estimated to be. This range is often expressed in percentage points (eg, ± 5 percent). Thus, if a researcher finds that 60 percent of users in the sample have adopted a recommended practice with the precision rate of ±5percent, then he or she can conclude that between 55 percent and 65 percent of users in the population have adopted the practice. In level of precision, we are willing to accept the detection of a difference of 5 out of 100 times when actually no difference exists (i.e., get a "false positive" result). Conventionally, the P value of 5% (P= 0.05) or 1% (P= 0.01), which means 5% or 1% chance of erroneously reporting a significant effect is accepted. The level of precision (p ) is denoted by the symbol e= 0.05.

Although, tables can provide a useful guide for determining the sample size but not all tables give the exact figure of your sample size. Therefore, there is a need to calculate the necessary sample size using the level of precision. However, for populations that are large, Cochran (1963: 75) developed an equation to yield a representative sample for proportions.

$$no = \frac{Z^2 Pq}{e^2}$$

Where, no= Is the sample size

Z= Is the desired confidence level

e = Is the desired level of precision

p= Is the estimated proportion of the population.(Maximum variability)

q = Is 1-P

$$n_0 = \frac{(1.96)^2 \times 0.5 (1- 0.5)}{(0.05)^2}$$

$$n_0 = \frac{3.8416 \ X \ 0.5 (0.95)}{0.0025}$$

$$n_0 = \frac{3.8416 \ X \ 0.25}{}$$

$$n_0 = \frac{0.0025}{0.9604}$$

$$n_0 = \frac{0.0025}{0.9604}$$

$n_0 = 384.16$

**Finite Population Correction for Proportions**

If the population is large then the sample size can be reduced slightly. This is because a given sample size provides proportionately more information for a large population than for a small population .The sample size ($n_0$), can be adjusted using this equation.

Correction for a finite population;

$$n = \frac{n0}{1 + \frac{(n0 - 1)}{N}}$$

Where, n is the sample size

N is the population size

Therefore,

$$n = \frac{384}{1 + \frac{(384-1)}{31,247}}$$

$$n = \frac{384}{1 + \frac{384}{31,247}}$$

$$n = \frac{384}{1 + 0.01226}$$

$$n = \frac{384}{1.01226}$$

$n = 379.$

To take care of non-response bias, 5% will be added to the sample size which will produce a total of

$$379 \times \frac{5}{100}$$

$$= \frac{1895}{100}$$

$= 18.95$

n= 379+19
n= 398

This has produced a total of three hundred and ninety eight (398). Therefore, 398 registered undergraduate students were selected as sample size for this study. Also, six (6) Automation Librarians also constituted part of the sample size.

### 3.5.2 Respondents Group and Justification for their Selection

Respondent group of this study includes:

a. **The Undergraduate Students**: The choice of these subjects was basically on the reasons that they are the primary focus for the study and they are responsible for utilizing the electronic information resources subscribed to by the universities. Thus, their quest for information needs has to be determined as well as the utilization of the electronic information resources must be met by the services provided by the universities under study.
b. **The Automation Librarians**: The selection of these subjects was also informed by the fact that, they are responsible and accountable for managing the electronic information resources and services to meet the information needs of the students and they are directly involved with e-resources and are in a position to give information based on it. Thus, the utilization of the e-resources lies upon the adequacy of electronic resources housed by the university libraries under study and proper extensive awareness among the users.

### 3.6 Data Collection Instruments

The instruments used in this study for collecting data are the questionnaire and interview for the two group's ie Undergraduate students and the Automation librarians. The questionnaire was the main instrument for data collection and it was used for the undergraduate students while the interview was used for the automation librarians. Ngulube (2005) observed that although no single method is perfect, if different methods lead to the

same answer, then greater confidence can be placed in the validity of the conclusion. Akuezuilo and Agu (2003) opined that "In survey research, instruments like questionnaire and interview are often used to collect data from respondents.

**Questionnaire**

A questionnaire is a printed self-report form, designed to elicit information that can be obtained through the written responses of the subjects (Burns and Grove, 1993). The choice of a questionnaire by the researcher was informed by the fact that it can be used easily to collect data from the undergraduate students and it can also take care of the respondents under this study that are geographically scattered . As pointed out by sproull (2002), questionnaires can easily be answered by respondents. Akuezeilo and Agu (2003), noted that "In survey research, instruments like questionnaire, interview and observations are often used to collect data from respondents. Accordingly, the preference of questionnaires for this study was based on its advantage on survey research as Leedy and Ellis (2005), proved that:

> From the perspective of survey participants, this distance becomes an additional advantage: participants can respond to questions with assurance that their responses will be anonymous, and so they may be more truthful than they would be in a personal interview, particularly when they are talking about sensitive or controversial issues.

Nwogu (1999), observed that 'questionnaire is by far the most frequently used instrument in education research. The questionnaire was chosen because it is more economical, it covers a wide group and it is considered adequate to yield all the information required for the survey more objectively.Furthermore, Denscombe (2003), declared that different methods are better suited to different circumstances and questionnaires are no exceptions. Although they can be used perhaps ingeniously across a wide spectrum of research situations.

The choice of using questionnaire by the researcher was based on the fact that, it can be used to collect data from undergraduate students scattered in federal universities

in south-south zone. The questionnaire was self-developed by the researcher, informed by the gaps established from literatures on provision and utilization of electronic information resources. The research questionnaire is structured into eight sections, containing both "Open-ended and close-ended questions in form of random choice in order to collect the required data and information for the study. This by implication allows the respondents the liberty to give their opinion in some instances and restrict them to only prescribed responses in some other questions. The questionnaire was administered by the researcher for close supervision, control and quick response. The questionnaire is divided into sections A-G and it consists of demography, types of electronic information resources provided, Accessibility of electronic information resources, Utilization of electronic information resources, Extent of utilization of electronic information resources, challenges faced with the provision and utilization of electronic information resources and solutions to the identified challenges.

These were the7 main categories of questions that had been asked covering the aspects that would meet the set objectives.

Section A: Demography had 4 variables. They were (1) respondent's university (2) Gender (3) Age (4) Level of the respondents. This section acts as background information.

Section B: Types of electronic information resources provided had 3 variables. They were (1) Types of electronic information resources provided for undergraduate students in the universities studied. (2) The level of familiarization of electronic information resources by the undergraduate students in the universities studied. (3) Adequacy of electronic information resources provided for undergraduate students in the universities studied. This section aims to see the various types of electronic information resources provided by the universities studied and their level of adequacy.

Section C: Accessibility of electronic information resources had 5 variables. They were (1) Access to electronic information resources (2) The electronic information resources

undergraduate students have access to in their available databases (3) How the electronic information resources provided are accessed (4) Level of access to electronic information resources (5) Level of satisfaction derived from access to electronic information resources. This section aims to see how accessible are the electronic information resources provided for the undergraduate students.

Section D: Utilization of electronic information resources had 5 variables. They were (1) Undergraduates utilization of e-resources. (2) Frequency of use of electronic information resources. (3) Types of electronic information resources mostlyutilized. (4) Major reasons for utilizing electronic information resources. (4) Major reasons for not utilizing electronic information resources. This section is important to gauge the use and non-use of electronic information resources.

Section E: Extent of utilization had 1variable. This section was to determine the extent to which undergraduate students utilize the various e-resources provided for them.

Section F: Challenges faced with the provision and utilization of electronic information resources had 2 variables: they were (1) Factors militating against the effective use of electronic information resources in the library. (2) Challenges associated with the provision and utilization of electronic information resources in the university libraries studied. This section acts as a platform to see what kind of problems undergraduate students face in using electronic information resources.

Finally, section G: Solutions to the provision and utilization of electronic information resources had 1 variable. This section sought for respondent's opinion about possible solutions to the challenges identified.The questionnaire was 3pages long and it included likert scale measurement.

**Interview**

The researcher as previously explained used interview to elicit information from the automation librarians. Therefore, the qualitative aspect of the study was facilitated by the

use of an interview but the nature of the study is largely quantitative. Interview method has been described by Sproull (2002:162) ‘as a data collection method in which an interviewer questions people to elicit self-reports of their opinion, attitude, values, belief or behavior. Hence, semi-structured interview was considered appropriate for this study. Leady and Ellis (2005: 184) acknowledged that:

> In a survey research, interviews are fairly structured. In a structured interview, the researcher asks a standard set of questions and nothing more. In a semi-structured interview, the researcher may follow the standard questions with one or more individual tailored questions to get clarification or probe a person’s reasoning.

Semi-structured interviews are interviews that allow the interviewer probe respondents and guide the interview according to their answers (Kamba, 2009). However, the reasons for using this method to obtain information from the automation librarians for the purpose of this research was to permit the researcher seek clarification of issues that were cleared directly from the other group of respondents. It also supplemented data obtained from the questionnaire part which allowed for comparism. Hence, interview allows the researcher gather information in much greater depth for perfect conduct of the study. Another reason why this method was chosen is because it is capable of addressing the research questions in line with the research objectives .The researcher used note-taking as a means of recording responses, this comprised jotting down interpretative ideas. This corroborates Denscombe (2003), who observed that under certain circumstances, researchers will need to rely on field notes written soon after the interview or actually during the interview.

The Automation Librarians were contacted in the early hours of the day and were interviewed in their respective offices using a face to face interview method. The researcher spent about 30mins with each participant for the interview. This interview guide was self-developed by the researcher and it contains the following items:

1. The name of the University.

2. To mention the various electronic information resources provided by your library for undergraduate students.
3. How the electronic information resources mentioned are related to the academic programmes offered in the universities.
4. Explaining the level of utilization of the electronic information resources by undergraduate students in your library.
5. Itemization of major challenges that are being faced in the area of provision of electronic information resources in your library.
6. Sorting the opinion of the librarians on what they think the library can do to solve these challenges.

### 3.6.1 Validity and Reliability of the Instrument

An assessment of the data hinges upon determining the validity and reliability of the research instruments used. Cohen, Manion and Morrison (2000) caution researchers against threats to validity and reliability which can never be eliminated completely. The authors suggest what can be done during design, data gathering, data analysis, and data reporting, to try and minimize the threats.

#### 3.6.1.1 Validity of the Research Instrument

Validity is the extent to which an instrument measures what it is supposed to measure and perform as it is designed to perform, and as a process, validation involves collecting and analyzing data to access the accuracy of the instrument (patten,2004). Craig and Charles (2008), submitted that, validity is the judgment of the appropriateness of a measure for specific inferences, decisions, consequences, and uses that result from the scores that are generated. Wallen and fraenkel (2001), also opined that validity involves the appropriateness, meaningfulness, and usefulness of inferences made by the researcher on the basis of the data collected and the researcher needs some kind of assurance that the instruments being used will result in accurate conclusions.

Therefore, the designed questionnaire was validated using face and content validity by the research supervisor and some experts in the field. The questionnaire, was

presented to some senior academic staff of the Department of Library and Information Sciences, Bayero University Kano, for their assessment and comments on the content of the questionnaire, providing valuable criticism and corrections on the format, content, expression, importance of the items as they relate to the study. The criticisms and corrections of these experts led to further modifications of the instrument for improvement before pre-test.

### 3.6.1.2 Reliability of the Research Instruments

Reliability refers to the consistency of scores obtained by the same person when re-examined with the same test on different occasion or with different set of equivalent items or under other variable examining conditions. According to Clive (2004), reliability is the consistency with which research procedures delivers their results. Polit and Hungler (2003), also refers to reliability as the degree of consistency with which an instrument measures the attribute it is designed to measure. The more reliable a test is, the more confident the scores obtained from the test and the same scores would be obtained if the test where re-administered to the same test takers.

The reliability of the questionnaire was determined through a "pilot test' that involves a pre-test method using the cronbach alpha reliability co-efficient test which was ran to ensure full reliability of the questionnaire. The idea behind a pre-test is basically to find out if the survey, interview guide or observation form will work in the real world by trying it out first on a few people. This way, everyone in your sample not only understands the questions, but understands them in the same way. A pre-test method was suitable for this assessment. According to Babbie (2001), it would be good to pre-test the questionnaire on a small number of people before you use it on its earnest. This was done by administering a test once. Fifty (50) corrected questionnaire was administered once on some few selected undergraduate students of Bayero University Kano.

Statistically, the instrument was considered valid by experts in the field and a pre-test reliability method was used to establish the reliability, and cronbach alpha reliability coefficient test via statistical packages for social sciences (SPSS) version 20 was used to calculate the reliability and 0.957 (95%) was obtained as the value of "r", which was considered high enough for the use of the instrument. According to Bibbie (2005), when an Alpha value is greater than .70 it is considered acceptable. This connotes that; the study data collection instrument is 95% reliable.The cronbach alpha reliability test is as shown below:

**Reliability Statistics**

| Cronbachs Alpha | Cronbachs Alpha Based On Standardized Items | N of items |
|---|---|---|
| .957 | .960 | 84 |

As regards the interview guide, in order to ensure its trustworthiness, the instrument was given to the automation Librarian in the BUK main library for vetting. All these were done before the actual data collection exercise.

### 3.6.2 Administration of Research Instruments

The researchers personally visited each of the six (6) federal universities and administered the questionnaire to the respondents. The essence or reason for that is that the personal visit enabled the researcher to maximally collect the questionnaire and in the process clarify issues where necessary with the respondents. As observed by Hassan (1995), that the advantage of administering questionnaire personally will enable the respondents to be able to ask questions to clarify areas that needed further clarification and respondents can be motivated to answer questions carefully and truthfully. Graziano and Raulin (2007), opined that "in a self-administeredquestionnaire, respondents read the instructions and write or mark their answers on the questions. O'Leary (2004:154),

also added that self-administered surveys can offer anonymity and therefore confidentiality, it also allows coverage of a wide geographical area and gives the respondents the opportunity to complete questionnaire in their own time.

Similarly, the researcher also contacted the automation librarian with the adoption of a standardized open–ended interview, this means that open ended questions were asked of all the interviewees using face to face interview to obtain data. This approach facilitates faster interviews that can be more easily analyzed and compared (Dapzury& Pallavi, 2001). The face to face interviews have the advantage of enabling the researcher to establish rapport with the potential participants and therefore gain their cooperation. The researcher also used face-face interview to obtain data from the automation Librarian thus, such interviews yield highest response rate (Daphne, 2011). As observed by Leady and Ellis (2005:185), that face- face interview allows the researcher to clarify ambiguous answers and when appropriate, seek follow-up information.

### 3.6.3 Data Collection Procedures

A total number of 398 questionnaires were distributed among students in the six federal universities in south-south zone. Because of the varying population in these institutions the researcher distributed the questionnaires based on certain percentages. In determining the percentage of questionnaires to be distributed in each university, the following formula was used:

$$\frac{\text{Number of students}}{\text{Total number of students}} \times \text{Sample size}$$

Table 3.3 Distribution of Questionnaires According to Percentages

| S/N | Federal Universities in South-South Zone | Number of Registered Undergraduate Students | % | Distribution of Questionnaires |
|---|---|---|---|---|
| A | Federal University of Petroleum Resources, Effurun | 1550 | 4.96 | 20 |

| | | | | |
|---|---|---|---|---|
| B | Federal University of Otuoke, Bayelsa | 345 | 1.11 | 5 |
| C | University of Benin | 7852 | 25.1 | 100 |
| D | University of Portharcourt | 10,000 | 32.0 | 127 |
| E | University of Uyo | 4500 | 14.4 | 57 |
| F | University of Calabar | 7000 | 22.4 | 89 |
| | **TOTAL** | **31,247** | **100** | **398** |

### 3.7Data Analysis Techniques

As mentioned earlier, data that was collected for this study was largely quantitative with few qualitative elements. The data generated through the copies of the questionnaire were analyzed using quantitative data analysis. This involves the use of descriptive statistical analysis using tables to show the response rate. The descriptive statistics were used in this study with percentages and frequencies. Akuezeilo and Agu (2003) noted that researchers use descriptive statistical analysis technique to make summary and description of the subject studied.

The variables analyzed were considered both nominal and ordinal data in frequency form and the measure used to describe the dataset in descriptive statistics are measure of central tendency. The hypothesis was tested using the Pearson Product Moment Correlation Coefficient (PPMCC) because the study sought to establish causal relationship between two variables, in which the higher level of one variable is associated with the higher level of the other variable. PPMCC was used because there is a linear relationship between the two variables and the two variables are casually related which means that one is dependent. Furthermore, the data collected from the interview conducted on the automation librarians were analyzed using qualitative data analysis adopting thematic analysis using coding.

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# CHAPTER FOUR

## DATA PRESENTATION AND ANALYSIS

### 4.1 Introduction

This chapter is sub-divided into two (2) sections. Firstly, it presents the analysis of the data collected from the undergraduate students and secondly, the analysis of the data collected from the automation librarians. It discusses the findings on the Provision and Utilization of Electronic Information Resources by Undergraduate Students in Federal Universities in South-South Zone of Nigeria. The analysis was done in line with the objectives of the study. The data collected were analyzed using coding, tables, frequencies and percentages. Pearson Product Moment Correlation Coefficient (PPMCC) statistical tool was used to test the hypotheses for better understanding and interpretation of findings. The chapter is further organized according to the variables studied. It is presented in the following manner:

### 4.2 Response Rate

This part is designed to examine the respondents to the study; this rate will help in evaluating the adequacy of data collected and help in examining the efficiency and effectiveness of the questionnaire administration exercise conducted by the researcher. The response rate from the six Federal Universities is shown in table 4.1 below.

Table 4.1: Response Rate

| S/N | Federal Universities in South-South Zone | No of Questionnaires Administered | No of Questionnaires Returned | Percentage | Interview Conducted withthe Automation Librarian |
|---|---|---|---|---|---|
| 1 | Federal University of Petroleum Resources, Effurun. | 20 | 19 | 4.77 | 1 |
| 2 | Federal University Otuoke, Bayelsa | 5 | 5 | 1.26 | 1 |
| 3 | University of Benin | 100 | 97 | 24.4 | 1 |
| 4 | University of PortHarcourt | 127 | 119 | 29.9 | 1 |
| 5 | University of Uyo | 57 | 52 | 13.1 | 1 |
| 6 | University of Calabar | 89 | 80 | 20.1 | 1 |
| | **TOTAL** | **398** | **372** | **93.53** | **6** |

Table 4.1, shows that a total of 398 copies of questionnaire were administered among undergraduate students in the six Federal Universities in South-South Zone by the researcher, out of which 372% were duly completed, returned and found usable for the analysis which represents 93.53%. The remaining 26 copies of the questionnaires not returned accounted for 6.47%, which is insignificant when compared with the response rate of 93.53%.

This shows that the returned copies of questionnaire were good enough to generate the needed data for the study. Also, interview was conducted with the 6 automation librarians and they all responded. The high response rate was achieved because of the effort of the researcher in seeing that the instrument was administered personally. Therefore, this analysis is based on the 372 copies of the questionnaire that were filled by the undergraduate students and the responses from the six (6) automation librarians.

### 4.3 Descriptive Analysis

This segment deals with the presentation, analysis and interpretation of data collected from the undergraduate students by the use of questionnaire.

#### 4.3.1 Demographic Characteristics of the Respondents

The main reason for the demographic data in this study is to give the reader/researcher a description of the population under study. This section is designed to present bio data from the respondents. It presents the demographic information obtained from the undergraduate students. The demographic information of the undergraduate students was collected under the following; Gender, Age and level of the respondent. Below are the results obtained from the study.

Table 4.2 :Bio data of the Undergraduate Students

| **GENDER** | | | **AGE** | | | **LEVEL** | | |
|---|---|---|---|---|---|---|---|---|
| **Options** | **Freq** | **%** | **Range** | **Freq** | **%** | **Options** | **Freq** | **%** |
| Male | 214 | 57.33 | 15-20 | 111 | 29.84 | 100 | 22 | 5.91 |
| Female | 158 | 42.47 | 21-25 | 156 | 41.94 | 500 | 65 | 77.48 |
| **-** | **-** | **-** | 26-30 | 88 | 23.65 | 300 | 83 | 22.31 |
| - | - | - | 31-35 | 17 | 4.57 | 200 | 100 | 26.88 |
| - | - | - | 36-40 | - | - | 400 | 102 | 27.42 |
| **TOTAL** | **372** | **100** | **TOTAL** | **372** | **100** | **TOTAL** | **372** | **100** |

Table 4.2, shows the demographic information of the undergraduate students under study. Based on the gender of the respondents, the table reveals that more than half; 214(57.33%) of the respondents were males and 158(42.47%) were females. This shows that majority of the undergraduate students in the universities studied are dominated by males. This implies that there were more male undergraduate students in the universities studied.

Similarly, in terms of their age, the data show that majority 156(41.94%) of the students were between the ages of 21-25 years, followed by 111(29.65%) who were between the ages of 15-20 years, then 88 (23.65%) who were between the ages of 26-30 years while it was only 17(4.57%) who were between the ages of 31-35 yearsand no respondents fell under 36-40 years of age. This shows that majority 267(71.78%) of the respondent were between the ages of 15-25years of age. This implies that majority of the students were of the younger generation who are within the digital age students.

Furthermore, in terms of their level of study, the table reveals that majority 120 (27.42%) of the respondents were 400level students, followed by 200 level students 100(26.88%), then 300 level students 83(22.31%) and 65(17.48%) who were 500level students, with the least of 22(5.91%) as 100 level students. This implies that respondents at higher levels had high percentage of library patronage.

### 4.3.2 Types of Electronic Information Resources Provided by the Libraries

Respondents were asked to indicate the types of electronic information resources provided by their university libraries. Below is the summary of their responses.

Table 4.3: Electronic Information Resources Provided

| **Electronic Information Resources** | **FUPRE** | | **FUOB** | | **UNIBEN** | | **UNIPORT** | | **UNIUYO** | | **UNICAL** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** |
| **Online e-resources** | | | | | | | | | | | | |
| Academic search premier | 2 | 0.54 | - | - | - | - | - | - | 9 | 2.42 | - | - |
| ARDI | - | - | - | - | - | - | 7 | 1.88 | - | - | - | - |
| Agora | - | - | 2 | 0.54 | 21 | 5.64 | 32 | 8.60 | - | - | 19 | 5.11 |
| Aluka | - | - | - | - | - | - | 12 | 3.23 | - | - | 18 | 4.03 |
| Bio one | 1 | 0.27 | - | - | - | - | - | - | - | - | - | - |
| Cq researcher | - | - | - | - | - | - | - | - | - | - | - | - |
| Disestia | - | - | - | - | - | - | - | - | - | - | - | - |
| Dpac | - | - | - | - | 14 | 3.76 | - | - | - | - | - | - |
| Dper | - | - | - | - | - | - | - | - | - | - | - | - |
| Ebrary | - | - | - | - | - | - | - | - | 2 | 0.53 | - | - |
| Ebsco host | | | 1 | 0.26 | 8 | 2.15 | - | - | - | - | 7 | 1.88 |
| Emerald | - | - | - | - | - | - | - | - | 4 | 1.06 | - | - |
| Ethnic news watch | - | - | - | - | - | - | 2 | 0.54 | - | - | - | - |
| Hinari | 7 | 1.88 | 2 | 0.54 | 5 | 1.34 | 22 | 5.91 | 9 | 2.42 | 16 | 4.30 |
| Jstor | 3 | 0.81 | 3 | 0.81 | 11 | 2.95 | 17 | 4.56 | 15 | 4.03 | 11 | 2.96 |
| Lexis/nexis | - | - | - | - | - | - | 5 | 1.34 | - | - | - | - |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Literature resources centre | - | - | - | - | - | - | - | - | - | - | 8 | 2.15 |
| Lyell collections | - | - | - | - | 7 | 1.88 | - | - | - | - | - | - |
| NUC National virtual library | - | - | - | - | - | - | - | - | 2 | 0.54 | - | - |
| Oare | - | - | 4 | 1.00 | - | - | 6 | 1.61 | | | 17 | 4.56 |
| Ods | - | - | - | - | - | - | - | - | - | - | 1 | 0.2 |
| Psycinfo | - | - | - | - | - | - | - | - | - | - | - | - |
| Proquest | - | - | - | - | - | - | - | - | - | - | - | - |
| Science direct | - | - | - | - | - | - | - | - | - | - | - | - |
| The observatory | - | - | - | - | - | - | - | - | 9 | 2.41 | - | - |
| World library.net | - | - | - | - | - | - | - | - | 7 | 1.88 | - | - |
| **Offline e-resources** | | | | | | | | | | | | |
| Lanteeal | - | - | - | - | - | - | - | - | - | - | - | - |
| Egranary | - | - | - | - | - | - | 2 | 0.54 | - | - | - | - |
| Ocw | - | - | - | - | - | - | - | - | - | - | - | - |
| Cds | 2 | 0.54 | - | - | - | - | 7 | 1.88 | - | - | - | - |
| **Institutionalrepositories** | | | | | | | | | | | | |
| Local e-theses | - | - | - | - | 8 | 2.15 | - | - | | | 7 | 1.88 |
| Local e-journals | 4 | 10.7 | - | - | 7 | 1.88 | - | - | 14 | 3.77 | 20 | 5.38 |
| Local e-books | - | - | - | - | - | - | - | - | - | - | - | - |
| Local e-conferences | - | - | - | - | - | - | - | - | - | - | - | - |

Table 4.3 above, presents the responses of undergraduate students on the electronic information resources provided by their university libraries. At the Federal University of Petroleum Resources, Effurun, students indicated academic search premier, Bio one, Hinari, Jstor, Local e-journal, Cds as the electronic information resources provided by their university library while at Federal University Otuoke,Bayelsa, students indicated Agora, Ebsco host, Hinari, Jstor, OARE as the electronic information resources provided by their university library. Agora, Dpac, Ebsco host, Hinari, Jstor, lyell collection, Local e-thesis, Local e-journal were indicated by undergraduate students of the University of Benin as the electronic information resources provided by their library. ARDI, Agora, Aluka, Ethnic news watch, Hinari, Jstor, Lexis/nexis, Oare, e-grannary, Cds, were indicated by students of the University of Portharcourt as the electronic information resources provided by their University Library. Furthermore, at University of Uyo, students indicated Academic search journal, Ebrary, Emerald, Hinari, jstor, National virtual library, The Observatory, World library.net, local e-journal as the electronic information resources provided by their University Library. Lastly, at University of Calabar, students indicated Agora, Aluka, Ebsco

host, Hinari, Jstor, Literature resource center, Oare, Ods, local e-thesis, local e-journal as the electronic information resources provided by their University Library.

Findings from above, show that the Federal University Libraries studied provide electronic Information resources which cut across the online resources, offline resources and institutional repositories.The researcher observed that the percentage of undergraduate students that attempted this question were low. This implies that majority of the undergraduate students were not aware of which electronic information resources were provided by their university libraries.

#### 4.3.2.1 Adequacy of Electronic Information Resources

Respondent were asked to indicate how adequate the electronic information resources provided by their university libraries are. Table 4.4 below shows the summary of their responses.

Table 4.4: Adequacy of Electronic Information Resources

**Scale:**Highly Adequate(HA)=5, Adequate(A)=4, Fairly Adequate(FA)=3, Inadequate(IA)=2, Indifferent(ID)=1

| **S/N** | **Adequacy of Electronic Information Resources** | **Freq** | **%** |
|---|---|---|---|
| 1 | Highly Adequate (5) | 39 | 10.5 |
| 2 | Adequate (4) | 40 | 10.8 |
| 3 | Fairly Adequate (3) | 122 | 32.8 |
| 4 | Inadequate (2) | 40 | 10.8 |
| 5 | Indifferent (1) | 57 | 15.3 |
| | **TOTAL** | **372** | **100** |

Table 4.4 above, shows students' responses on the adequacy of electronic information resources provided by their university libraries using a scale. Majority 122(32.8%) of the respondents indicated that the resources provided were fairly adequate, followed by 114 (30.6%) who indicated that the electronic information resources provided were adequate.

Furthermore, 57(15.3%) of the respondent did not have anything to contribute concerning the adequacy of electronic information resources by indicating 'indifferent'. 40(10.8%) of the respondents indicated that the e-resources provided were inadequate and lastly, 39(10.5%) of the respondents indicated highly adequate.

The findings of this study show that the electronic information resources provided by the federal university libraries were fairly adequate. This implies that, the federal university libraries studied do not adequately provide electronic information resources.

### 4.3.3 Accessibility of Electronic Information Resources

This section provides information on the level of accessibility of electronic information resources by undergraduate students in the federal universities studied. The data were collected under the following sub-headings, thus: Access to electronic information resources in their university library, types of electronic information resources accessible by students in their available databases, how the electronic information resources provided are accessed, the level of access to e-resources and lastly, the level of satisfaction derived from the accessibility to e-resources. Below are response rate of students on the various sub-headings.

#### 4.3.3.1 Access to Electronic Information Resources in the University Libraries

Respondents were asked to indicate whether they had access to electronic information resources in their university libraries. Table 4.5 shows the response rate of students on whether they had access to e-resources in their university libraries.

Table 4.5: Access to e-resources in their University Library

| S/N | Responses | Access to e-resources | |
|---|---|---|---|
| | | Frequency | % |
| 1 | Yes | 328 | 88.17 |
| 2 | No | 44 | 11.83 |
| | **TOTAL** | **372** | **100** |

Table 4.5 above reveals that more than half 328 (88.17%) of the respondents had access to electronic information resources in their university libraries while few 44 (11.83%) do not have access. Based on this analysis, we can conclude that most of the

universities studied provided access to electronic information resources in their libraries. This implies that, most of the respondents had access to electronic information resources.

#### 4.3.3.2 Types of Electronic Information Resources Accessed by Students in their Available Databases

Respondents were asked to indicate the various types of electronic information resources they have access to in their available databases. Table 4.6 shows the summary of their responses.

Table 4.6: Electronic Information Resources Accessible to Students in their Available Databases

NOTE: The alternative used for this section is multiple choice, thus the value of N will of course be higher than 372 as response rate.

| **Electronic information resources** | **Frequency** | **%** |
|---|---|---|
| e-books | 201 | 54.0 |
| e-newspaper | 118 | 31.3 |
| e-journals | 362 | 97.3 |
| e-magazines | 90 | 24.2 |
| e-encyclopedias | 256 | 68.9 |
| e-thesis | 202 | 54.3 |
| CD-ROM databases | 120 | 32.3 |
| Internet resources | 361 | 97.0 |
| e-discussion | 54 | 14.5 |

Table 4.6 above reveals clearly, that the respondents had access to quite a number of electronic information resources in the available databases of their libraries. Majority of the respondents indicated that e-journals 362(97.3) and internet resources 361(97.0%) were the major resources they have access to in their libraries. These were followed by e-books (54.0%), e-encyclopedias (68.9%), e-thesis(54.3%), e-newspapers(31.3%) and CD-ROM databases(32.3%). Some respondents confirmed that e-magazines (24.2%) and e-

discussions (14.5%) were the least number of resources they had access to in their libraries.

The findings from this study show that majority of the respondents attested to the fact that e-journals and internet resources were the major resources they access in their libraries, followed by e-encyclopedias, e-books, and then CD-ROM databases.Others include e-newspaper, e-magazines,and lastly, e-discussion. This implies that e-jounals and internet resources were made more available and accessible in their libraries when compared to others.

#### 4.3.3.3 Ways of Accessing Electronic Information Resources.

Respondents were asked to indicate how they accessed the electronic information resources provided by their university libraries. Table 4.7 shows the summary of their responses

Table 4.7: Accessibility to Electronic Information Resources.

| S/N | Responses | Freq | % |
|---|---|---|---|
| 1 | My library has free internet café for accessing e-resources free of charge | 224 | 60.2 |
| 2 | My library has fliers and user guides for accessing e-resources | 42 | 11.3 |
| 3 | Through assistance from friends and colleagues | 106 | 28.5 |
| | **TOTAL** | **372** | **100** |

Table 4.7 above shows that more than half of the respondents 224 (60.2%) indicated that they access the electronic information resources provided by their libraries through the free internet cafes provided for accessing e-resources free of charge. This was followed by the assistance from friends and colleagues 106 (28.5%), while the least way of accessing these electronic information resources were through fliers and user guides, 42 (11.3%).

This finding shows that most of the federal university libraries under study provided free internet cafes to assist students in accessing electronic information

resources but majority did not make available fliers and user guides to help students in accessing e-resources. This implies that the federal universities studied,provides internet facilities for their undergraduate students to access electronic information resources freely.

#### 4.3.3.4 Level of Access to Electronic Information Resources

Respondents were asked to rate the level of access to electronic information resources in their university libraries. Table 4.8 reveals the response rate of students on the level of access to electronic information resources.

Table 4.8: Level of Access to Electronic Information Resources

**Scale:**Very highly accessible(VHA) = 5, Highly accessible(HA)=4,

, Fairly accessible(FA)=3, Not accessible(NA)= 2, Undecided(UD)= 1

| S/N | Level of access | Freq | % |
|---|---|---|---|
| 1 | Very highly accessible (5) | 11 | 2.95 |
| 2 | Highly accessible (4) | 60 | 16.1 |
| 3 | Fairly accessible (3) | 186 | 50.0 |
| 4 | Not accessible (2) | 39 | 10.5 |
| 5 | Undecided (1) | 76 | 20.4 |
| | **TOTAL** | **372** | **100** |

Table 4.8 shows clearly that half 186 (50%) of the respondents rated the level of access of electronic information resources as being fairly accessible, followed by 76 (20.4%) who had no response on the level of access to electronic information resources. Similarly, the table indicated that 60(16.1%) rated the level of access to electronic information resources as being highly accessible, 39(10.5%) of the respondents rated the level of access as being not accessible and only 11(2.95%) of the respondents that rated the level of access as very highly accessible.

Findings from this study show that, the level of accessibility to electronic information resources in the federal universities studied was fair. This implies that, the federal university libraries studied does not provide easy access to electronic information

resources and the level of accessibility is not high. Therefore, academic libraries in general and particularly the federal universities studied should make way to improve their level of accessibility to electronic information resources.

#### 4.3.3.5 Level of Satisfaction Derived from Accessibility to E-resources

Respondents were asked to indicate their level of satisfaction in respect of access to electronic information resources in their university libraries. Table 4.9 shows the summary of their responses on the level of satisfaction derived.

Table 4.9: Level of Satisfaction derived from Accessibility to E-resources.

**Key:**Highly Satisfied(HS)=5, Satisfied(S)=4, Not Satisfied(NS)=3, Highly not Satisfied(HNS)=2,Undecided(UD)=1

| S/N | Levelof satisfaction | Freq | % |
|---|---|---|---|
| 1 | Highly satisfied (5) | 24 | 6.45 |
| 2 | Satisfied (4) | 101 | 27.2 |
| 3 | Not satisfied (3) | 90 | 24.1 |
| 4 | Highly Not satisfied (2) | 59 | 15.7 |
| 5 | Undecided (1) | 98 | 26.3 |
| | **TOTAL** | **372** | **100** |

From the table above, it can be seen that less than half of the respondents 101 (27.1%) were satisfied with the level of access of electronic information resources in their university library,followed by 98(26.3%) who were 'undecided' on the level of access of electronic information resources. Similarly, 90 (24.1%) of the respondents indicated 'not satisfied' with the level of access to electronic information resources, while 59(15.7%) of the respondents indicated 'highly not satisfied' with the level of access. In all, it was only 24 (6.45%) of the respondents that were 'highly satisfied' with the level of access.

Looking at the scale, the findings show that more than half of the respondents 247 (66.4%) were not actually satisfied with the accessibility to electronic information resources in the university libraries studied. This implies that more work needs to be done

on the part of the federal universities involved on the accessibility to electronic information resources so that students can be fully satisfied with it.

### 4.3.4 Utilization of Electronic Information Resources

This section provides data on the utilization of electronic information resources by undergraduate students in the federal universities studied. The data were collected under the following sub headings: use of electronic information resources by undergraduate students, frequency of use, types of electronic information resources utilized mostly by students, reasons for utilizing electronic information resources provided by the university library and lastly, reasons for not utilizing the electronic information resources provided by the university library. Below are the responses of students on the following sub-headings.

#### 4.3.4.1 Utilization of Electronic Information Resources by Undergraduate Students

Respondents were asked to indicate whether they utilized the electronic information resources provided by their libraries. Table 4.10 shows the responses of the respondents.

Table 4.10: Utilization of e-resources

| **Responses** | **Frequency** | **%** |
|---|---|---|
| Yes | 153 | 41.1 |
| No | 219 | 58.9 |
| **TOTAL** | **372** | **100** |

The findings in table 4.10 above revealed that majority 219 (58.9%) of the respondents were not utilizing electronic information resources provided by their libraries while only 153 (41.1%) of the respondents utilizes it. This finding shows that more than 50% of the respondents did not patronize electronic information resources provided by their university libraries. This implies that only few students utilized electronic information resources.

#### 4.3.4.2 Frequency of Use of Electronic Information Resources

Respondents were asked to indicate how often they used the electronic information resources in their university libraries. Table 4.11 shows their responses regarding the frequency of use of electronic information resources in their university libraries.

Table 4.11 Frequency of Use of Electronic Information Resources

| S/N | Frequency of usage | Freq | % |
|---|---|---|---|
| 1 | Daily | 20 | 5.37 |
| 2 | Weekly | 27 | 7.26 |
| 3 | Twice a month | 34 | 9.14 |
| 4 | Monthly | 35 | 9.41 |
| 5 | Rarely | 37 | 9.94 |
| 6 | I don't use it | 219 | 58.9 |
| | **TOTAL** | **372** | **100** |

The table above shows clearly that 219 (58.9%) of the respondents don't use electronic information resources. 37 (9.94%) of the respondents use it rarely, 35 (9.41%) use it monthly, 34 (9.14%) use it twice a month, 27 (7.26%) of the respondents use it weekly and only 20 (5.37%) of the respondents use it daily.

Findings from this study revealed that, more than half 219 (58.9%) of the respondents in the federal universities did not use electronic Information resources. This implies that the frequency of use of electronic information resources is very low, this may be due to lack of high and effective publicity on the existence of electronic information resources, low level of computer literacy and poor search skills of some undergraduate students could lead to the underutilization of electronic information resources in the university libraries studied.

#### 4.3.4.3 Types of Electronic Information Resources Utilized

Respondents were asked to indicate the types of electronic information resources they utilize mostly for their information needs. A list of electronic information resources was provided for students to indicate the ones they used mostly in their respective libraries. The students were expected to tick as many as possible, the types of electronic information resources they used. Results of their responses are indicated in table 4.12 below:

Table 4.12 Electronic Information Resources Utilized

| Electronic information resources | Frequency | Percentage |
|---|---|---|
| **Online e-resources** | | |
| Academic search premier | 52 | 13.9 |
| Agora | 103 | 27.6 |
| Aluka | 120 | 32.3 |
| Bio one | 102 | 27.4 |
| Cq researcher | - | - |
| Disestia | 20 | 5.38 |
| Dpac | 32 | 8.60 |
| Dper | 21 | 5.65 |
| Ebrary | 52 | 13.9 |
| Ebsco host | 109 | 29.4 |
| Emerald | 75 | 19.4 |
| Ethnic news watch | 80 | 21.5 |
| Hinari | 132 | 35.4 |
| Jstor | 151 | 40.5 |
| Lexis/Nexis | 58 | 15.6 |
| Literature resource Centre | 11 | 2.96 |
| Lyell collections | 42 | 11.3 |
| NUC National virtual library | 117 | 31.5 |
| Oare | 122 | 32.8 |
| Ods | 12 | 3.23 |
| Psycinfo | 2 | 0.54 |
| Proquest | 15 | 4.03 |
| Science direct | - | - |
| The observatory | 27 | 7.26 |
| World library.net | 32 | 8.60 |
| **Offline e-resources** | | |
| Lan teal | - | - |
| Egranary | 51 | 13.7 |
| Ocw | - | - |
| Cds | 72 | 19.4 |
| **Institutional repository** | | |
| Local e-theses | 54 | 14.5 |
| Local e-journal | 101 | 27.2 |
| Local e-conferences | - | - |

Table 4.12, summarizes the entire students usage of electronic information resources in their university libraries. The table further shows the percentages of online e-resources as follows; jstor had the highest record of (40.5%), followed by Hinari (35.4%), Oare (32.8%), Aluka (32.3%), NUC National virtual library (31.5%), Ebsco host (27.4%), Agora (27.6%) etc while the least resources utilized by undergraduate students under the online resources was psycinfo with (0.54%). Offline e-resources as shown on the table indicated that CD's was the highest e-resource that undergraduate students utilized with a percentage of 72 (19.4%), followed by e-granary 51(13.7%). While institutional repositories records e-journals

101 (27.2%) as the highest. Followed by local e-theses 54 (14.5%) and 0% for e-conferencing meaning it was not utlized.

Findings from this study show that jstor were mostly utilized by undergraduate students in the university libraries studied and psycinfo were the least used by undergraduate students. The highest use of jstor by undergraduate students could be due to the fact that jstor is the only e-resource provided by all the Federal Universities studied and part of it is subscribed for free. Similarly, one can deduce generally that the degree of utilization of most of the electronic information resources by undergraduate student were not encouraging. This implies that, the utilization level of the various electronic information resources provided by the federal universities was poor.

#### 4.3.4.4 Reasons for Utilizing Electronic Information Resources Provided by the University Libraries

The researcher equally investigated the reasons given by respondents for using electronic information resources. Table 4.13 below gives reasons for using electronic information resources and respondents were expected to indicate mainly what influenced their use of electronic information resources provided by their university libraries.

Table 4.13: Reasons for Utilizing Electronic Information Resources

| S/No | Reasons | Freq. | % |
|---|---|---|---|
| a. | Review literature for research work | 112 | 30.1 |
| b. | To do my assignments | 97 | 26.1 |
| c. | To prepare for examinations | 42 | 11.3 |
| d. | For general reading and leisure | 21 | 5.65 |
| e. | Others (Please specify) | 209 | 58.9 |

Table 4.13 above gives the reasons for utilizing electronic information resources by undergraduate students. It is important to note that respondents may indicate as many reasons as possible as they apply to them. The findings revealed that apart from majority of the respondents 209 (56.1%) who indicated other reasons best known to them as their reasons for utilizing electronic information resources, the other major reason for utilizing electronic information resources was to review literature for research work with a percentage of

(30.1%), followed by class assignments 97 (26.1%), then to prepare for examinations 42 (11.3%) and, lastly, for general reading and leisure 21 (5.65%).

Findings from this study revealed that majority of the respondents had other reasons for utilizing electronic information resources. This claim may be due to the previous analysis in which more than half of the respondents indicated not utilizing electronic information resources and since majority of the respondents did not use electronic information resources they still may not have any reason for utilizing it. Another finding from this study is that, the most prominent reason for those undergraduate students who utilized electronic information resources was to review literature for research work. This implies that, the few respondents that utilized electronic information resources were students of higher level like the 400 level and 500 level students that undertake research.

#### 4.3.4.5 Reasons for not Utilizing the Electronic Information Resources Provided

The study also investigated the reasons given by respondents for not utilizing the electronic information resources provided by their university libraries. Table 4.14 below shows the summary of their responses on some reasons for not utilizing electronic information resources. Equally, respondents were expected to indicate as many reasons as possible as they apply to him/her.

Table 4.14 Reasons for not Utilizing Electronic Information Resources

| S/No | Reasons | Freq. | % |
|---|---|---|---|
| a. | Not aware of it | 219 | 58.9 |
| b. | No easy access | 21 | 5.65 |
| c. | Do not know how to search | 102 | 27.4 |
| d. | No help available | 42 | 11.3 |
| e. | Others (Please specify) | 10 | 2.69 |

Among the reasons for not utilizing electronic information resources, table 4.14 above shows that many of the respondents 219 (58.9%) indicated their reasons as not being aware of electronic information resources, followed by 102 (27.4%) who indicated their inability to search for electronic information resources. Furthermore, the table indicated that respondents

42(11.3%) indicated their reasons as no help available and 21 (5.65%) indicated no easy access as their reason. While, 10 (2.69%) respondents indicated other reasons best known to them as their reasons for not utilizing electronic information resources.

Findings from this study show that more than half of the respondents were not aware of electronic information resources and how they were being used. This implies that there was poor publicity concerning the useof electronic information resources in the federal universities studied.

### 4.3.5 Extent of Utilization of Electronic Information Resources

The study sought to find out the extent to which electronic information resources are put to use in all the Federal University libraries studied. Electronic information resources were listed for the respondents to tick according to the level of their usage. Summary of their responses is presented in table 4.15 below:

Table 4.15: Extent of Electronic Information Resource Utilization
**Key:**Very High Utilization(VHU)=5,High Utilization(HU)=4, Moderate Utilization(MU)=3, Not Utilized(NU)=2, I don't know(IDS)=1

| **Electronic information resources** | **Very High utilization (5)** | | **High utilization (4)** | | **Moderate utilization (3)** | | **Not utilized (2)** | | **I don't know (1)** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** |
| **Online e-resources** | | | | | | | | | | |
| Academic search premier | - | - | - | - | 2 | 0.54 | 123 | 33.1 | 128 | 34.4 |
| Agora | 5 | 1.34 | 31 | 8.33 | 102 | 27.4 | - | - | 114 | 30.6 |
| Aluka | - | - | 28 | 7.52 | 75 | 20.2 | - | - | 121 | 32.5 |
| Bio one | - | - | - | - | 47 | 12.6 | 52 | 13.9 | 189 | 50.8 |
| Cq researcher | - | - | - | - | 2 | 0.53 | 131 | 35.2 | 117 | 31.5 |
| Disestia | - | - | - | - | 18 | 4.83 | 22 | 5.91 | 113 | 30.3 |
| Dpac | - | - | - | - | - | - | 24 | 6.45 | 183 | 49.2 |
| Dper | - | - | - | - | 2 | 0.52 | 42 | 11.2 | 111 | 29.8 |
| Ebrary | - | - | 8 | 2.15 | 92 | 24.7 | - | - | 129 | 34.6 |
| Ebsco host | 14 | 3.76 | 48 | 12.9 | 117 | 31.6 | - | - | 12 | 3.22 |
| Emerald | - | - | - | - | 57 | 15.3 | 17 | 4.56 | 119 | 31.9 |
| Ethnic news watch | - | - | - | - | 15 | 4.03 | 28 | 7.53 | 113 | 30.3 |
| Hinari | 56 | 15.1 | 37 | 9.94 | 104 | 27.9 | - | - | 13 | 3.49 |
| Jstor | 62 | 16.7 | 42 | 11.2 | 109 | 29.3 | - | - | 11 | 2.96 |
| Lexis/nexis | - | - | - | - | 19 | 5.11 | 57 | 15.3 | 92 | 24.7 |
| Literature resources | - | - | - | - | - | - | 61 | 16.4 | 150 | 40.3 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| centre | | | | | | | | | | |
| Lyell collections | - | - | - | - | 12 | 3.23 | 17 | 4.57 | 128 | 34.4 |
| NUC National virtual library | - | - | - | - | 41 | 11.0 | 12 | 3.22 | 122 | 32.7 |
| Oare | - | - | 43 | 11.6 | 95 | 25.5 | - | - | 17 | 4.56 |
| Ods | - | - | - | - | - | - | 22 | 5.91 | 115 | 30.9 |
| Psycinfo | - | - | - | - | 3 | 0.81 | 142 | 38.2 | 121 | 32.5 |
| Proquest | - | - | - | - | 55 | 14.8 | 7 | 1.88 | 144 | 38.7 |
| Science direct | - | - | - | - | - | - | 31 | 8.33 | 122 | 32.8 |
| The observatory | - | - | - | - | 11 | 2.96 | 58 | 15.6 | 114 | 30.6 |
| World library.net | - | - | 18 | 4.84 | - | - | 51 | 13.7 | 129 | 34.6 |
| **Offline e-resources** | | | | | | | | | | |
| Lanteeal | - | - | - | - | 6 | 1.61 | 16 | 4.30 | 125 | 33.6 |
| Egranary | 6 | 1.62 | 4 | 1.06 | 13 | 3.49 | 36 | 9.68 | 158 | 42.5 |
| Ocw | - | - | - | - | - | - | 58 | 15.6 | 121 | 32.5 |
| Cds | 49 | 13.2 | 32 | 8.60 | 68 | 18.2 | - | - | 17 | 4.56 |
| **Institutionalrepositories** | | | | | | | | | | |
| Local e-theses | - | - | 40 | 10.7 | 57 | 15.3 | 27 | 7.25 | 48 | 12.9 |
| Local e-journals | 54 | 14.5 | 28 | 7.53 | 64 | 17.2 | - | - | 52 | 13.9 |
| Local e-conferences | - | - | - | - | - | - | 68 | 18.2 | 81 | 21.8 |

Table 4.15 above, reveals the extent to which electronic information resources were utilized, and the results show that under the online electronic information resources, Jstor 62(16.7%) was very highly utilized followed by Hinari with 56(15.1%). While Ebsco host 48 (12.9%) was appraised as been highly utilized followed by Oare with 43(11.6%). Findings also indicated that Agora had 102(27.4%), Ebrary 92(24.7%) and Aluka 75(20.2%) was indicated to be moderately utilized. Similarly, psycinfo 142(38.2%) was not utilized by undergraduate students followed by cq researcher with 131(35.2%). In appraising the extent to which offline electronic information resources were utilized CD's 49(13.2%) was very highly utilized and OCW 58(15.6%) was not utilized. While for institutional repositories, local e-journals had 54(14.5%) which indicated a very high utilization, the local e-conferences were not utilized by the respondents

The findings from this study show that the extent to which undergraduate students utilized Jstor and hinari was higher than every other electronic information resources; while the extent to which they utilized psycinfo and cq researcher was very low. Generally, it was observed by the researcher, that few e-resources were very highly utilized as well as highly utilized making the utilization of electronic information resources generally low when compared to the volume of electronic information resources provided.

### 4.3.6 Challenges Faced With the Utilization of Electronic Information Resources

The utilization of electronic information resources in the libraries studied are confronted with series of challenges as indicated by the respondents. Table 4.16 below shows the responses of the students on the challenges faced in respect of utilization of electronic information resources in their university libraries.

Table 4.16: Challenges Faced with the Utilization of Electronic Resources.

| S/No | Challenges | Freq. | % |
|---|---|---|---|
| a. | Lack of awareness of electronic information resources /services | 210 | 56.5 |
| b. | Inability to access materials from the internet | 12 | 3.23 |
| c. | Inadequate facilities | 21 | 15.65 |
| d. | Poor search skills in accessing electronic databases | 112 | 30.1 |
| e. | Lack of constant power supply | 68 | 18.3 |
| f. | Lack of assistance from libraries | 57 | 15.3 |
| g. | Lack of time to spend on e-resources | 09 | 2.42 |
| h. | Poor internet services | 61 | 16.4 |
| i. | Not user friendly | 6 | 1.61 |

Table 4.16 presents students' opinions on the challenges militating against the effective utilization of electronic information resources provided by their university libraries. It should be noted that one respondent may indicate as many challenges as possible as it applies to him or her. From the above table, one can see clearly that majority 210 (56.5%) of the respondents indicated lack of awareness of electronic information resources /services, followed by poor search skills in accessing electronic data bases with 112 (30.1%), lack of constant power supply 68 (18.3%), poor internet service 61 (16.4%), inadequate facilities 21 (5.65%), lack of assistance from libraries 17 (4.57%), inability to access materials from the internet 12 (3.23%), lack of time to spend on e-resources 9 (2.42%) and the least was not user friendly 6 (1.61%).

The findings from this study shows that lack of awareness of electronic information resource /services and poor search skills in accessing electronic databases were the major

problems associated with the utilization of electronic information resource in the Federal Universities studied.

### 4.3.7 Solutions to the Identified Challenges

Several solutions were suggested by the respondent for the identified challenges besieging the utilization of electronic information resource in the university libraries studied. The following are suggested solutions to the identified challenges.

To determine the possible solutions in the utilization of electronic information resources in the federal universities studied, the respondents gave the following response as thus:

Table 4.17: Solutions to the Challenges of Electronic Information Resources

| S/No | Challenges | Freq. | % |
|---|---|---|---|
| a. | There should be proper awareness in the use and importance of electronic information resources. | 194 | 52.2 |
| b. | Library staff should help in assisting the library users in utilizing electronic information resources. | 81 | 21.8 |
| c. | Library management should make up ways to increase ease of access to electronic database. | 72 | 19.4 |
| d. | Adequate training of library staff. | 5 | 1.34 |
| e. | More fund should be made available for the provision of adequate and relevant electronic information resources | 19 | 5.11 |
| f. | It should be introduced in the curriculum | 1 | 0.26 |

Respondents were asked to suggest possible solutions to the challenges identified. Table 4.17 shows that majority 194 (52.2%) of the respondents suggested that there should be proper awareness on the use and importance of electronic information resources, followed by 81 (21.8%) of the respondentswho suggested that library management should make up ways to increase ease of access to electronic information resources, 72 (194.7%) of the respondents suggested that library staff should help in assisting library users in utilizing electronic information resources , while 19 (5.11%) of the respondents suggested that more funds should be made available for the provison of more relevant electronic information resources. Findings further indicated that 5 (1.34%) respondents suggested that there should be adequate training of library staff and only one respondent (0.26%) suggested that it should be added to the curriculum.

From the above results, the researcher observed that more than half of the respondents emphasized on proper awareness of electronic information resources, followed by easy access to electronic databases. This suggests that more vigorous and proper awareness campaign or strategies should be done by the university libraries under study to sensitize the students on the needs; importance and use of electronic information resource. Furthermore, the library management should see to it that electronic databases are made easily accessible, considering their strategic values in this 21st century.

### 4.4 Testing of Hypothesis

This section is designed to test the hypotheses as developed in this study, as mentioned in chapter three. The Pearson Product Moment Correlation Coefficient (PPMCC) is used for testing the hypothesis. In statistics, the Pearson product moment correlation is a measure of the linear correlation between two variables X and Y, giving a value between +1 or -1 inclusive, where 1 is a total positive correlation, O is a no correlation and -1 is a total negative correlation. For the purpose of testing and interpreting the hypothesis, a 5% level of significance for the purpose of hypothesis testing would be used in the study.

In order to understand the strength of the relationship between variables of the study,

ERROR: syntaxerror
OFFENDING COMMAND: --nostringval--

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